

Quality Assurance Framework in the HCSO

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1. Introduction

The assessment of the quality and the improvements of the different statistical domains have a long history in the Hungarian Central Statistical Office. Statisticians working in the different subject matter departments have been always very keen to produce the best quality statistics. The increasing interest of the users and the international initiatives on the quality field necessitated to introduce a systematic approach on this field. HCSO has been aware of the achievements of quality-related developments in other NSIs and Eurostat, but the central methodological unit set up in 2002 was the organisational precondition to start systematic work. Based on the knowledge gathered from literature, training courses, study visits to Statistics Canada, Statistics Sweden, ONS UK, participation in Eurostat quality working parties a strategic plan was developed. This working plan contained the main elements of the quality improvement actions. The basic quality documents and the quality framework were established and published as part of the strategy of HCSO for the period 2005-2008 (HCSO 2005; Szép et al. 2006). These were the quality concept and the action plan on the development of a quality assurance. The practical experiences of the statisticians were a good basis of the improvement, therefore the task on quality assurance framework concentrated on the main objectives of the office as the data producing processes and statistics as products, however the strategy included other programs closely related to the implementation of TQM principles, like 'Improving relations with respondents', 'Development of the meta-information system' and project on the Development of the systematic user satisfaction surveys.

2. The quality assurance framework in the HCSO

The development period of the systematic period was 2005-2009 and by the end of 2009 the program on quality assurance was finished (HCSO 2009 c) however the continuous improvement of the system is very important. As the close of this period the new quality policy has been published on HCSO's website (HCSO 2009 b).

In this document HCSO committed itself for continuous quality improvement. "The mission of the Hungarian Central Statistical Office as part of the European Statistical System is to provide

credible and good-quality statistical services – adequate for users’ needs – about the state and changes of society, economy and environment. “

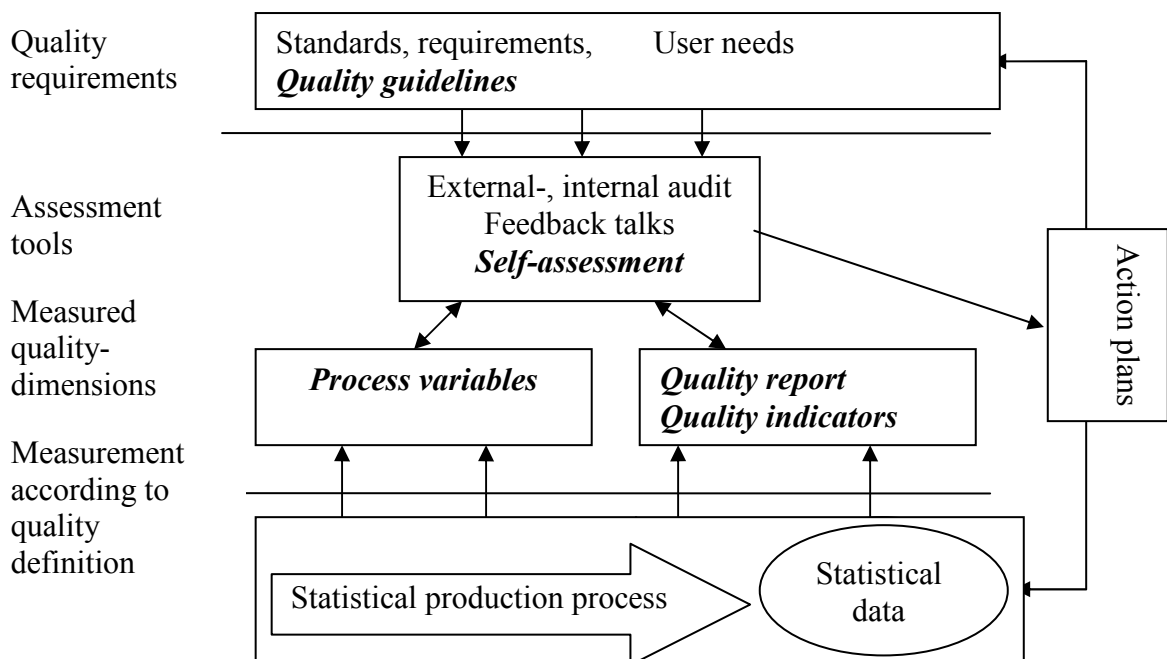
“The products of HCSO are published data provided to users, statistical analyses, classifications, registers, methods and other statistical services carried out as services. The statistical products of HCSO – in line with the ISO definition – must be “fit for use” and in accordance with the following interrelated components:

- relevance;
- accuracy;
- timeliness;
- punctuality;
- accessibility;
- clarity;
- comparability and coherence.”

The elements of quality framework help to reach these goals and give transparent and systematic help for the statisticians and users as well.

The quality framework structure and functions are presented on Figure 1. The figure is based on DatQAM Handbook (Eurostat 2007).

Figure 1: Elements and tools of quality measurement and assessment



The basic quality requirements related to the statistical production processes are documented in Quality guidelines. It contains for each phases of the process concept, principles, guidelines and references to internal and external regulations and basic literature. The updated version of the guidelines is available on HCSO website. For the measurement of the quality standard process variables were identified to characterize process quality (Mag 2006), and standard product quality

indicators were identified and implemented in line with the Eurostat standards. Standard quality report structure supplemented with assessment questions is ready to characterize product quality in a standardized manner. For the assessment of the statistical processes DESAP (self-assessment questionnaire to evaluate statistical processes) was adapted. All these standards of the basic framework elements – methods and tools – are internally available.

The training on quality has been on the agenda during the whole period, adapted to the actual needs and possibilities. Since 2006 in every year internal courses on quality have been organized for the different target groups as managers, survey statisticians and other employees of the HCSO.

All these elements of the quality framework cannot guarantee the improvement of the data quality but these can help to identify the strengths and weaknesses of the different statistical domains, identify key points and phases where development is needed and to follow-up the results of the quality development actions.

3. The systematic quality work in HCSO

The preparation for the quality framework development started in 2003. To get the general theoretical and practical knowledge on quality several HCSO experts have been participating in Eurostat, TES, Amrads, Istat quality training courses. Later on a wider participation was possible in the training courses held by foreign experts¹ in the HCSO organised with Eurostat support in 2005. In order to widen our knowledge and experiences, we participated in the pilot project 2004-2005 of Eurostat „Quality in Statistics”, and the DatQAM grant closed in 2007 (Colledge et al. 2006).

The first concrete preparatory phase of the framework development was the translation of the main Eurostat standard documents from English to Hungarian. In the frame of this work the HCSO quality terminology was established based on the existing statistical and TQM terminology.

We have started a systematic approach, with a view to develop the framework and elaborate a program for the development of tools and methods. The quality concept and components were accepted with the program at the beginning of 2005. The first intention was to start with product and process quality measurement and assessment. The projects on product quality and process quality started at the same time without causing any problem.

The first result of the process quality project was the Quality guidelines as an internal methodology standard on statistical process phases. Although quality guidelines were almost ready (90%) in 2005, there were adopted as an internal regulation only in 2007, after a very long, exhaustive consultation, discussion, agreement procedure within the office. The second revised version of the Guidelines was accepted and published on HCSO website in 2010.

The development of standard quality indicators characterising quality components was based mostly on the Eurostat standard and the experiences of the surveys in HCSO. The first set of standard quality indicators were accepted in 2008 with a strict rule on their compulsory calculation.

In 2009 the following standards were accepted as recommendations, without any strict obligation on regular implementation: Standard quality report and form with complementary self-assessment blocks, standard process variables for process phases, self-assessment questionnaire based on DESAP adapted to quality guidelines.

The development procedure of the different elements was a very long and burdensome work for everybody. HCSO had to cope with limited resources from the beginning. Financial resources were used only for external training and conference participations. At the beginning all the experts

¹Michael Colledge from Australia, Peter Lohauß, Anja Nimmergut, Karen Blanke from Germany and Thomas Burg from Austria.

worked on the development of quality framework only as part of their work assignments. The only solution was team work to network the different approach, experience, knowledge of these statisticians and methodologists. Subject matter experts could only dedicate limited time to the task, because within this period HCSO staff was cut by 22%, without reduction in tasks and outputs. They participated in the two projects on data and process quality and the results were tested on different surveys. We have used a cautious, step by step approach in setting up a quality framework.

The whole HCSO was strongly committed concerning the work on the quality assurance framework. First we explained that having quality requirements and goals that were monitored during the production phase and assessed at the end was always an inherent part of the statistical work and that the new approach consisted only in the introduction of a systematic, regular practice. Secondly we always started from the analysis of the state of the art, existing knowledge and practices. The proposals developed in project teams were always circulated for office-wide consultation, and discussed with all the subject matter areas. Thirdly we have always taken into consideration the balance of costs and benefits from the point of view of the statisticians. For example after the provision of the shortlist of standard quality indicators and the introduction of their compulsory calculation, the survey managers were assisted by quality report and self-assessment tools.

There was always a test phase before the introduction of new elements; and the compulsory tasks have been introduced in a flexible way: the calculation of quality indicators is compulsory only if it is automated based on IT tools. Based on the decision of the survey managers the self-assessment questionnaires and process quality indicators can be used to evaluate the quality of their surveys.

To improve the efficiency of the quality measurement and assessment we pay attention on the automatization of the indicator calculation. Different IT systems have been developed to parallel with the quality work. Into these new IT systems (e.g. General data processing system, survey management system for household surveys) the process and product quality indicators were implemented. For example different non response rates can be calculated on the output of the meta driven data capturing system. This solution is very useful from the point of view of the statisticians. They can give more attention on the assessment of the results of the quality indicators.

The development and the management of the quality framework is the task of the Methodology department with the involvement of some experts from other departments. In special cases the Methodology Department is responsible to give recommendation to the statisticians in quality related tasks. The subject matter departments are responsible for the implementation of the different elements of the framework.

It is important to summarize the main principles of the quality work. These are the following:

Statistics in focus: The main objective is to improve the quality of the statistics. Statisticians are main users of the quality elements. First we should concentrate on understanding their way of work, way of thinking about quality requirements, measurement and assessment, then proceed with capacity building to improve common understanding in the development process. We intend to take into consideration cost-benefit from their point of view.

Involvement of people: Based on our main principle to build on existing knowledge and tradition, each department should be involved. The training courses are open for all applicants, interested people.

System approach: The links between the different elements should be clear for everybody. The flexibility of the elements is very important for the implementation.

4. New challenges

The system, if it works, theoretically is appropriate to get a general and detailed overview on the quality of HCSO's statistics. Actually the functioning is not controlled, and central overview and assessment not yet functioning or supported with IT tools. Another next step should be to focus on the special, individual cases to improve the quality as much as possible with the limited resources.

The new methodological solutions indicate the revision of the different elements of the quality framework. For example the quality measurement and assessment tools should be developed for the mixed mode data collection processes or for electronic data collection.

The increasing responsibilities of the statistical offices indicate the need for the overview of the quality of the official statistics from a wider perspective (COM(2011) 211). Quality assessment tools and methods should be developed or the existing ones implemented for the official statistics produced by other agencies as well.

5. Conclusions

The development of an internal quality framework has been a necessary step towards a systematic quality assurance system. Management commitment, external requirements and motivations from Eurostat have been proved necessary in addition to the broad involvement of the staff in the development process. The main challenges to overcome are still the quality related administrative burden.

REFERENCES

Colledge, M., March M. 1993. Quality Management: Development of a Framework for a Statistical Agency. *Journal of Business and Economic Statistics* 11, no.2 (April): 157-165.

<http://www.jstor.org/pss/1391367>

Colledge, M., Dalén, J., Georges, J. and Lindén, H. 2006. Improving Statistical Quality Assessment in Ten Countries, European Conference on Quality in Survey Statistics (Q2006) Cardiff, UK

http://www.statistics.gov.uk/events/q2006/downloads/W08_Colledge.doc

Csereháti, Z. 2006. Multiple Donor Imputation Techniques in the Survey of Internet Service Providers in Hungary. European Conference on Quality in Survey Statistics (Q2006) Cardiff, UK

[www.statistics.gov.uk/events/q2006/downloads/W06_Cserehati\(A\).doc](http://www.statistics.gov.uk/events/q2006/downloads/W06_Cserehati(A).doc)

Dan Lisai 2007. Choosing and Implementing a Quality Management System at Statistics Sweden, Masters thesis in Mathematical Statistics, Stockholm, December 2007

<http://liu.diva-portal.org/smash/record.jsf?pid=diva2:17405>

Eurostat 2007. Handbook on Data Quality Assessment – Methods and Tools (DatQAM). Written by Körner, T., Bergdahl, M., Elvers, E., Lohaus, P., Mag, K., Nimmergut, A., Sæbø, H.V., Szép, K., Zilhão M.J.

http://epp.eurostat.ec.europa.eu/portal/page/portal/quality/quality_reporting

Földesi, E. 2006. Introduction of Eurostat Standard Quality Indicators in the Hungarian Central Statistical Office – Dilemma. European Conference on Quality in Survey Statistics (Q2006) Cardiff, UK

http://www.statistics.gov.uk/events/q2006/downloads/T16_Foldesi.ppt

Györki, I. 1996: Survey control as subsystem of the statistical information system (GÉSA) Seminar on integrated statistical systems and related matters (ISIS'96')

HCSO 2005. Strategy of the HCSO, 2005-2008, HCSO, Budapest

http://epp.eurostat.ec.europa.eu/portal/page/portal/pgp_insite/insite_docs/hu/HCSO_STRATEGY2005_2008.doc

HCSO 2006. Annual report on the strategy of the HCSO (2006)

<http://portal.ksh.hu/pls/ksh/docs/bemutakozas/eng/strategy2006.pdf>

HCSO 2009 a. Strategy of the HCSO, 2009-2012, HCSO, Budapest

<http://portal.ksh.hu/pls/ksh/docs/bemutakozas/eng/strategy2009-2012.pdf>

HCSO 2009 b. Quality Policy of HCSO, HCSO, Budapest, 2009

http://portal.ksh.hu/portal/page?_pageid=38,605809&_dad=portal&_schema=PORTAL

HCSO 2009 c. Quality assurance framework, Case of Hungarian Central Statistical Office, December 2009, United Nations Statistics Division, National Quality Assurance Frameworks

http://unstats.un.org/unsd/dnss/QAF_comments/HCSO.pdf

Mag K. 2006. Process Approach of the Eurostat Standard Quality Indicators. European Conference on Quality in Survey Statistics. Cardiff

Pap I. 2004. Data Warehouse (DWH) approach at the Hungarian Central Statistical Office (HCSO) Joint UNECE/Eurostat/OECD work session on statistical metadata (METIS) (Geneva, 9-11 February 2004)

<http://www.unece.org/stats/documents/2004/02/metis/wp.17.e.pdf>

Szép, K., Mag, K., Vigh, J., 2006. Quality of Statistics in the Strategy of HCSO, Radenci, Slovenia, Statistical Days

http://www.stat.si/radenci/program_2006/C_Szep.doc

European Commission 2011: COM(2011) 211, Brussels, 15.4.2011

Communication from the Commission to the European Parliament and the Council

Towards robust quality management for European Statistics

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0211:FIN:EN:PDF>