



This module is part of the

Memobust Handbook

on Methodology of Modern Business Statistics

26 March 2014

Theme: Evaluation of Business Statistics

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General section

1. Summary

In the GSBPM the evaluation of business statistics manages both the more general over-arching process of statistical quality management, and the evaluation of specific instances of a statistical business process. In the GSBPM the latter type of evaluation is divided into three separate sub-processes. We will first describe the first type of evaluation in more detail, and next the evaluation of specific iterations of a production process for business statistics. Where appropriate a further specification to Business Statistics will be made.

2. General description

2.1 *Evaluation in overall quality management vs. evaluation of specific instances of a process*

Two levels of evaluation can be distinguished. On the one hand is the evaluation as part of the over-arching quality management, on the other the evaluation of individual instances of statistical business processes. Compared to the latter the over-arching part has both a deeper and broader scope. Both types of evaluation are complementing activities. We focus first on evaluation as part of the overall quality management.

2.2 *Evaluation as part of the overall quality management*

The evaluation as part of the over-arching quality management is dealing with several kinds of quality management: quality training, measuring quality, audit system, and quality awareness. It can also be called institutional quality.

Quality management involves the evaluation of groups of statistical business processes, and can therefore identify potential duplicates or gaps. All evaluations should result in feedback, which should be used to improve the relevant process, phase or sub-process, creating a quality loop. On the process or sub-process level plan-do-check-act quality circles are expected.

Metadata generated by the different sub-processes are used as input for quality management. These evaluations can apply within a specific process, or across several processes that use common components.

The current multiplicity of quality frameworks enhances the importance of the benchmarking and peer review approaches to evaluation. Whilst these approaches are unlikely to be feasible for every iteration of every part of every statistical business process, they should be used in a systematic way according to a pre-determined schedule that allows for the review of all main parts of the process within a specified time period.

2.3 *The evaluation of iterations of a statistical business process*

The evaluation of specific instances of a statistical business process logically takes place at the end of the instance of the process, but relies on inputs gathered throughout the different phases. As such it is the ninth and last phase in the GSBPM, after phase 8 'Archive', and part of the Quality management, over-arching all phases 1 to 9 (UNECE, 2009; UNECE, 2013). For statistical outputs produced regularly, evaluation should, at least in theory, occur for each iteration, determining whether future

iterations should take place, and if so, whether any improvements should be implemented. However, in some cases, particularly for regular and well established statistical business processes, evaluation may not be formally carried out for each iteration. In such cases, the evaluation only provides the decision as to whether the next iteration should start from a re-specification of the user needs (phase 1) (see also the module “User Needs – Specification of User Needs for Business Statistics”) or from some later phase, often the data collection phase (phase 4), or phase 2 with regard to adjustment or re-allocation of resources..

According to the GSBPM the evaluation process is made up of three sub-processes, which are generally sequential, but which can in practice overlap to some extent. The sub-processes as defined in the GSBPM are described in the following sub-sections.

2.3.1 Gathering of the evaluation inputs

The sub-process 9.1, the gathering of the evaluation inputs for the evaluation of separate iterations of a statistical business process, can use material produced in any other phase or sub-process. It may take many forms, including feedback from users (changing user needs), process metadata (for logging indicators and logging related to the efficiency of the process see the module “General Observations – Logging”), system metrics and staff suggestions. Reports of progress against an action plan agreed during a previous iteration may also form an input to evaluations of subsequent iterations. This sub-process gathers all of these inputs, and makes them available for the person or team producing the evaluation.

2.3.2 Conduct evaluation

The sub-process 9.2 analyses the evaluation inputs and synthesises them into an evaluation report. The resulting report should note any quality issues specific to this iteration of the statistical business process, and should make recommendations for changes if appropriate. These recommendations can cover changes to any phase or sub-process for future iterations of the process, or can suggest that the process should not to be repeated. Major goals of this evaluation are

1. To compare the outcomes with the targets, regarding
 - a. accuracy and other output quality components
 - b. production targets, such as resources and also Quality and Performance Indicators.
2. To improve efficiency in future production. This partly related goal is an issue in both sub-processes 9.2 and 9.3.

Some recommendations found during evaluation may be easy to implement, whereas others may need investments and studies with regard to possible side-effects. Examples of types of evaluations in business processes are given in the module “Repeated Surveys – Repeated Surveys”.

2.3.3 Agree an action plan

The sub-process 9.3 brings together the necessary decision-making power to form and agree on an action plan based on the evaluation report. It should also include consideration of a mechanism for monitoring the impact of those actions, which may, in turn, provide an input to evaluations of future iterations of the process.

2.4 *Quality frameworks*

For evaluation activities, quality assurance frameworks and institutional frameworks have the objective to establish in a specific statistical organisation a system of coordinated methods and tools guaranteeing the adherence to existing requirements concerning the statistical processes, products, and the quality of statistical systems as a whole. Recent quality frameworks from Eurostat are:

- The Eurostat European Statistics Code of Practice (CoP) for the national and community statistical authorities (Eurostat, 2011).
- The Eurostat Quality Assurance Framework of the European Statistical System (QAF) (Eurostat, 2012). The QAF identifies activities, methods and tools that provide guidance for the operationalisation of the indicators that are required to adhere to the principles of the Code of Practice. In this way it facilitates the implementation of the European Code of Practice, to which national and community statistical authorities will be judged through peer reviews and other forms of assessment at both the process level and at the institutional level, as an important instrument of the ESS.
- The ESS Handbook for Quality Reports (Eurostat, 2009) provides detailed guidelines and examples of quality reporting practices, and assists National Statistical Institutes and Eurostat in meeting the Code of Practice standard by providing recommendations for preparing comprehensive quality reports for the full range of statistical processes and their outputs.
- The Handbook on Data Quality Assessment Methods and Tools (Eurostat, 2007) aims at facilitating a systematic implementation of data quality assessment in the ESS. It presents the most important assessment methods: quality reports, quality indicators, measurement of process variables, user surveys, self-assessment and auditing, as well as labeling and certification. The handbook provides a concise description of the data quality assessment methods in use.

Some recent national quality frameworks are:

- Statistics Canada's Quality Guidelines (Statistics Canada, 2009) provides guidance with experiences and conclusions about best practices in survey design and survey methodology. With care and judgment it can also be used for other data acquisition processes.
- The Statistics Finland Quality Guidelines for Official Statistics (Statistics Finland, 2007) aims to support the development of statistics production and interaction with stakeholders for statistical surveys in the broad sense: census surveys, sample surveys, administrative registers, and derived statistical data from existing data pools.
- The ISTAT Quality Guidelines for Statistical Processes, December (ISTAT, 2012).
- Statistics Netherlands' Quality Assurance Framework at Process Level (Statistics Netherlands, 2014) integrates the CoP and the QAF at the process level (not the institutional level), relevant Dutch laws and regulations and guidelines established by Statistics Netherlands. A feature of this document is the detailed breakdown in objects, characteristics of these objects and requirements, according to the Object-oriented Quality and Risk Management model (see the module "General Observations – Quality and Risk Management Models"). This enables a

structured assessment of statistical business processes and self-assessments. Examples of these reports can be found in audit reports (for internal use only).

3. Design issues

In order to be a fixed part of a statistical business process, the evaluation itself must be designed: whether the separate phases and sub-processes are evaluated each time they are applied or according to an agreed schedule. Then the evaluation can result in timely reconsideration of the design of the process. In that case the evaluation of a business process yields indispensable input for improvement or redesign. See also the module “Overall Design – Overall Design” on the use of earlier evaluations of a business process as inputs for the redesign of a statistical process. See the module “User Needs – Specification of User Needs for Business Statistics” for possible changes in user needs over time.

4. Available software tools

5. Decision tree of methods

6. Glossary

For definitions of terms used in this module, please refer to the separate “Glossary” provided as part of the handbook.

7. References

Eurostat (2007), *Handbook on Data Quality Assessment Methods and Tools*.

Eurostat (2009), *ESS Handbook for Quality Reports (EHQR)*. This handbook (planned to be revised soon) is accessible on the webpage of Eurostat, currently:

http://epp.eurostat.ec.europa.eu/portal/page/portal/ver-1/quality/documents/EHQR_FINAL.pdf

Eurostat (2011), *European Statistics Code of Practice for the National and Community Statistical Authorities*. Luxembourg.

Eurostat (2012), *Quality Assurance Framework of the European Statistical System (ESS QAF)*, version 1.1. Deliverable of the Eurostat working group on Quality in Statistics.

ISTAT (2012), *Quality Guidelines for Statistical Processes*, December.

Statistics Canada (2009), *Statistics Canada Quality Guidelines*, Fifth edition.

Statistics Finland (2007), *Quality Guidelines for Official Statistics*, 2nd Revised Edition.

Statistics Netherlands (2014), *Quality Assurance Framework at Process Level*.

UNECE (2009), *Generic Statistical Business Process Model*. Version 4.0 – April 2009 (prepared by the UNECE Secretariat). Joint UNECE/Eurostat/OECD Work Session on Statistical Metadata.

UNECE (2013), *Generic Statistical Business Process Model*. Version 5.0 – December 2013. The United Nations Economic Commission for Europe (UNECE). See:

<http://www1.unece.org/stat/platform/display/GSBPM/GSBPM+v5.0>

Interconnections with other modules

8. Related themes described in other modules

1. General Observations – Quality and Risk Management Models
2. General Observations – Logging
3. General Observations – GSBPM: Generic Statistical Business Process Model
4. User Needs – Specification of User Needs for Business Statistics
5. Overall Design – Overall Design
6. Repeated Surveys – Repeated Surveys

9. Methods explicitly referred to in this module

- 1.

10. Mathematical techniques explicitly referred to in this module

- 1.

11. GSBPM phases explicitly referred to in this module

1. Phase 9: Evaluate

12. Tools explicitly referred to in this module

- 1.

13. Process steps explicitly referred to in this module

1. Evaluation

Administrative section

14. Module code

Evaluation-T-Evaluation of Business Statistics

15. Version history

Version	Date	Description of changes	Author	Institute
0.1	14-02-2013	first version	Rob van de Laar	CBS (Netherlands)
0.2	27-03-2013	updated version after review NL	Rob van de Laar	CBS (Netherlands)
0.3	28-01-2014	updated version after review SE	Rob van de Laar	CBS (Netherlands)
0.4	10-03-2014	updated version after review EB	Rob van de Laar	CBS (Netherlands)
0.4.1	14-03-2014	preliminary release		
1.0	26-03-2014	final version within the Memobust project		

16. Template version and print date

Template version used	1.0 p 4 d.d. 22-11-2012
Print date	26-3-2014 13:24