**Recent developments in the Generic Statistical Business Process Model: Revisions and Quality Indicators**

Alice Born, Statistics Canada, alice.born@canada.ca

Nilgün Dorsan, TurkStat, nilgun.dorsan@tuik.gov.tr

Therese Lalor, UNECE, Therese.Lalor@unece.org

Deniz Özkan, TurkStat, deniz.ozkan@tuik.gov.tr

Marina Signore, Istat, signore@istat.it

**Abstract**

*The Generic Statistical Business Process Model (GSBPM) is widely used by the statistical community for a range of different purposes. The current version (v5.0) was released in 2013. To keep it relevant and continue to serve as a common framework for the modernisation of official statistics the revision of the GSBPM started in 2017 by the UNECE Supporting Standards Group.*

*In 2017, Quality Indicators for all sub-processes of the GSBPM (v2.0) were released. In this version, the quality indicators are integrated in each GSBPM sub-process for both surveys and administrative data sources.*

*This paper describes the quality indicators for the GSBPM, proposed changes to the GSBPM resulting from input from statistical organisations, and basic revision principles of the GSBPM.*

***Key words:*** *GSBPM, quality indicators, administrative data, survey, GSBPM revision*

**1. Introduction**

The Generic Statistical Business Process Model (GSBPM) describes the core business processes undertaken by statistical organisations to produce statistical outputs. It helps describe processes consistently and identify common processes used across the organisation to reduce inefficiency and redundancy. The model is widely used by the statistical community for a range of different purposes from process documentation and monitoring to training staff.

GSBPM is revised every five years in order to keep it relevant and continue to serve as a common framework for the modernisation of official statistics. The current version (v5.0) was released in 2013 (UNECE, 2013). The next revision of the GSBPM started in 2017 where statistical organisations were asked to provide feedback on the model. This feedback has been posted to the public discussion forum on the UNECE GSBPM website (<https://statswiki.unece.org/display/GSBPM/GSBPM+Discussion+Forum>), and a group of experts are reviewing and proposing solutions to the issues. The most common issues include how to interpret the model, and practical use and application of GSBPM in real life. It is currently maintained and updated by the UNECE Supporting Standards Modernisation Group.

In 2016, Quality Indicators for all sub-processes of the Generic Statistical Business Process Model (GSBPM) (v1.0) (UNECE, 2016) were developed in order to monitor the quality of statistical production. The first version focused on quality indicators for surveys, and complemented the quality management process of the GSBPM. There was a need to incorporate indicators pertaining to administrative data. Therefore, this work was expanded to include quality indicators for administrative data. Version 2.0 of the Quality Indicators for the GSBPM was released in November 2017 (UNECE, 2017a). In this version, the quality indicators are integrated in each GSBPM sub-process for both surveys and administrative data sources. Another output of the quality indicator work was proposing changes to the GSBPM.

**2. GSBPM Revision**

*2.1. Purpose*

GSBPM is the most widely used model among the ModernStats models. The purpose of the GSBPM revision project is to ensure the model remains relevant and continue serving as a reference framework for statistical organisations.

The GSBPM model was first published in 2008 and has been revised a few times since then. The most recent version of GSBPM was endorsed by the Conference of European Statisticians in 2017 on the understanding that it should be updated every 5 years. However, any change in GSBPM would require a strong business case. Recent experiences from users in implementing GSBPM in their organisations and a number of developments in business landscape where statistical organisations operate are requiring changes in GSBPM. The recent development of Generic Activity Model for Statistical Organisations (GAMSO) (UNECE, 2017b) also requires some updating to GSBPM in order to ensure alignment between the two reference models.

*2.2. Revision Process*

The GSBPM revision working group meets every three weeks through webex and consists of 18 team members, who are from different national and international statistical organisations (such as Eurostat, ILO and UNECE).

The revision project focussed on three major tasks:

1. Compilation of user feedback (July 2017 - October 2017): Proposals for revision of the GSBPM were requested from users in statistical organisations in 2017. Seventy-four issues were reported by users where some issues were about the GSBPM model in general, and other issues were about the specific phases and subprocesses. This feedback was compiled on GSBPM wiki discussion forum. A summary of these issues is provided in the following pages.
2. Review of feedback and revision process (October 2017 - June 2018): The revision team is reviewing the feedback compiled from users and the issues are reviewed one by one. The group is evaluating possible solutions to address the issues and is drafting a revised version of GSBPM. Major changes are made only for those that have a strong business case and where there is widespread support from users. The basic principle is to keep the existing structure unchanged since many organisations have already implemented GSBPM and drastic changes might pose problems to these countries.
3. Public consultation and revision (July 2018 - November 2018): The revised version of GSBPM will be made open for consultation in June 2018. Users will be informed about major changes made and rationales behind, and asked for feedback on the draft. The Revision Team will make further changes if necessary.

*2.3. Issues addressed during revision*

1. **General Issues**

* One of the most important points that was expressed by users is that GSBPM descriptions are too survey centric. Therefore, the revision needs to reflect the business processes for administrative data, commercial big data, geospatial data and other data sources, as well as statistical products using mixed data sources such as national accounts.
* Another issue is the clarity of the text. The problem is that the model is prone to subjectivity and users can map the same task to different subprocesses because of differences between perceptions. The text needs to provide more clarity around methods being applied with different purposes in different subprocesses.
* Making GSBPM to look less linear. Although GSBPM is not a linear model, users may perceive the GSBPM as linear because of its diagrammatic form. The revision needs to highlight that it is a matrix and there are many possible paths.
* GSBPM may need some fine tuning to be harmonised with other standards, such as GAMSO, GSIM and CSPA.

1. **Issues regarding phases of GSBPM**

* Phase 1 - Specify needs: Text change in some sub-processes, add text to indicate this phase is considered when a new product is created
* Phase 2 - Design: Add some missing business processes such as architecture to the design phase and some more detail when necessary
* Phase 3 - Build: Change text to distinguish sub-processes better
* Phase 4 - Collect: Reflect activities of external data suppliers that are not within the statistical organisation’s control, add more detail to sub-processes to reflect collection of non-survey data, add text to set-up collection and run collection.
* Phase 5 - Process: More information on cross-cutting processes between collect and process such as 5.1 Integrate data, processing completed by data provider, change text to add more detail and clarification
* Phase 6 - Analyse: The phase is too much output oriented, more detail needed
* Phase 7 – Disseminate: No feedback from users pointing any issues about this phase.
* Phase 8 - Evaluate: Evaluation needs to be conducted against a benchmark such as quality indicators, add text to phase description and add more detail to subprocesses

*2.4. Challenges*

* Semantics, difference between native English speakers and other members perceptions (e.g., whether or not to rename phase “Collect” as “Acquisition”)
* Achieving clarity about the model without reducing the simplicity of the model
* Determining the boundaries of the subprocesses more precisely
* Allowing for the business processes for all data sources (geospatial, administrative registers, big data, etc.) to be described without losing generality
* Ensuring consistency with other standards (GSIM, GAMSO, CSPA) in terms of terminology and business processes
* The need of reviewing and expanding the definition of the overarching processes for "Quality and Metadata Management“
* Difficulty to reflect some users’ specific needs in the generic model
* Make sure to keep in GSBPM what has been a success (i.e., a general framework of the data lifecycle for official statistics).
* At the same time, the model needs to be updated to reflect the trends and diversity of sources of data ecosystems

**3. Quality Indicators for GSBPM**

*3.1. Quality indicators for surveys and administrative data sources*

A fundamental role in quality management is played by a set of quality indicators that should be implemented within the sub-processes of the GSBPM to prevent and monitor errors. As mentioned, the first version of the quality indicators focussed on surveys, and complemented the quality management process of the GSBPM (Reedman et al., 2016). As more and more statistical organisations move to non-survey data sources, it was decided that the second version of the quality indicators include indicators for statistical processes based on both survey data and administrative data.

The quality indicators are integrated in each GSBPM sub-process since some indicators apply to both surveys and administrative data sources, while others apply to either surveys or administrative data sources.

In the case of subprocess 5.1 Integrate data, quality indicators for record linkage are provided such as the linkage rate and the reliability of the linkage results.

*3.2. Quality indicators for the overarching processes of the GSBPM*

In addition to the quality indicators for each phase and sub-process of the GSBPM, quality indicators are attached to both the quality management and metadata management overarching processes to address the aspect of overall quality management and overall quality of metadata.

Indicators for quality management are related to two quality dimensions: quality commitment and managing response burden. Examples of the quality indicators include: the availability of a quality policy, quality assurance plan, monitoring procedures and organizational structure for managing quality, and percentage of statistics produced from non-survey data sources.

Quality indicators for metadata management cover the availability of a policy on metadata documentation, quality of the metadata (i.e., in terms of completeness, accuracy, timeliness, accessibility, etc.), compliance to international metadata standards, availability of a metadata system, and life cycle management of the metadata.

*3.3. How to use the quality indicators*

The main features of the quality indicators are:

* To be generic in order to reflect the nature of the GSBPM model. For this reasons, no formulas are provided for the suggested indicators. Explanations and comments are added when deemed important;
* To develop quantitative indicators whenever possible. When qualitative indicators are suggested they are expressed in the “to which extent…..” or in the “yes/no” form;
* To indicate what aspect/dimension of the quality vector (Biemer and Lyberg, 2003) the indicators are measuring. Particularly, the quality indicators were mapped to the corresponding quality dimension defined by the UN Statistics Division for the National Quality Assurance Framework - NQAF (United Nations, 2015). As known, the NQAF quality dimensions correspond to a large extent to those of the EU Statistics Code of Practice – CoP (Eurostat, 2011). When they differ, the corresponding CoP quality dimension was indicated in the explanatory notes column.
* To align the proposed indicators to existing frameworks. The suggested indicators include the main indicators developed at international level for survey and administrative data (Daas and Ossen, 2011; ESSnet AdminData, 2013). In addition, the EU Quality and Performance Indicators (Eurostat, 2014) have also been mapped to the GSBPM phases and sub-processes.

Given the above-mentioned features, it is clear that the quality indicators for the GSBPM are not intended to be “mandatory” or “binding” indicators. On the contrary, they are to be considered as a suggested list of potential indicators that might be implemented in order to monitor the production cycle and its steps. Therefore, the degree of implementation of the indicators (how many, for which sub-processes, etc.) and other kinds of personalisation (e.g., setting targets or defining standard formulas) are left to each organisation according to its specific needs.

The main uses of the quality indicators for the GSBPM can be summarised as follows:

* To support a systematic analysis on how to monitor, assess and improve process quality by relating quality indicators to GSBPM phases and sub-processes. This task is facilitated by the fact that the quality indicators provide a common framework and terminology for implementing a process-oriented quality management.
* To rationalise the quality work within an organisation. They can be used as a check-list to see what is already in place, what is missing and what is to be implemented. Thus, they can help in filling in gaps in the quality indicators in use in the organisation. In addition, they can also be used to see *who does what*, particularly to avoid duplication of work in different sectors calculating the same indicators, or slightly modified versions.
* To define a mid-term quality policy. Each organisation, in addition to tailor the quality indicators to its current needs, can also set quality targets to be achieved in a 3-5 year period. The quality indicators defined for the overarching process “quality management” can also be used to develop such a policy.

**4. Future plans**

The goal of the UNECE Supporting Standards Modernisation Group is find ways how to develop, enhance, integrate, promote, support and facilitate implementation of the range of models and frameworks needed for statistical modernisation. The work outlined in this paper (the quality indicators and the revision of GSBPM) shows the most recent efforts to keep GSBPM relevant and ensure it is aligned with other modernisation models.

The proposed future work of the group includes:

* Communicating and promoting the revised version of GSBPM.
* Providing further clarity on how the modernisation models and frameworks fit together.
* Developing a mapping of inputs and outputs of each GSBPM subprocess (using GSIM objects).
* Consolidate existing materials on the modernisation models to better communicate about them.
* Continuing to monitor developments in official statistics and discuss how these should be reflected in the modernisation models.

**5. References**

Biemer P. and Lyberg L. (2003), Introduction to Survey Quality, J. Wiley, N.Y.

Eurostat (2011), The European Statistics Code of Practice. Available at: https: [//ec.europa.eu/eurostat/web/quality/european-statistics-code-of-practice](http://ec.europa.eu/eurostat/web/quality/european-statistics-code-of-practice) (Accessed: 8 May 2018).

Daas, P., Ossen, S. (2011). Report on methods preferred for the quality indicators of administrative data sources, Blue – ETS Project, Deliverable 4.2.

ESSnet AdminData (2013). Final list of quality indicators and associated guidance. Deliverable 2011/6.5 of ESSnet on Admin Data. Available at: <https://ec.europa.eu/eurostat/cros/content/use-administrative-and-accounts-data-business-statistics_en> (Accessed: 8 May 2018).

Eurostat, (2014). ESS Guidelines for the Implementation of the ESS Quality and Performance Indicators (QPI). Available at: <http://ec.europa.eu/eurostat/documents/64157/4373903/02-ESS-Quality-and-performance-Indicators-2014.pdf/5c996003-b770-4a7c-9c2f-bf733e6b1f31>

Reedman L., Dorsan N., Signore M., Özkan D. (2016) Challenges and Discoveries in Developing Quality Indicators for the GSBPM, European Conference on Quality in Official Statistics (Q2016), Madrid, 31 May-3 June 2016

UNECE, (2017a), Quality Indicators for the GSBPM v.2 for statistics derived from surveys and administrative data sources. Available at: <https://statswiki.unece.org/display/GSBPM/Quality+Indicators+Home> (Accessed: 11 May 2018)

UNECE (2017b) [Generic Activity Model for Statistical Organisations](https://statswiki.unece.org/download/attachments/129171865/GAMSO%20version%201.1.docx?version=1&modificationDate=1483550362792&api=v2)(GAMSO) V 1.1. Available at <https://statswiki.unece.org/display/GAMSO/Generic+Activity+Model+for+Statistical+Organizations> (Accessed: 11 May 2018)

UNECE, (2016), Quality Indicators for the GSBPM v.1. Available at:

<https://statswiki.unece.org/pages/viewpage.action?pageId=123142969> (Accessed: 11 May 2018)

UNECE, (2013), The Generic Statistical Business Process Model V.5. Available at <https://statswiki.unece.org/display/GSBPM/GSBPM+v5.0> (Accessed: 11 May 2018)

United Nations Statistics Division (2015), National Quality Assurance Frameworks Available at: <https://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx> (Accessed: 8 May 2018).