

Improving the Quality Management System: Projects at Hungarian Central Statistical Office

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Improvement actions have been launched at HCSO in line with preparation for 2014/2015 ESS Code of Practice Peer Review. **This paper focuses on three development projects with the following key objectives:** (1) adopt GSBPM, (2) update HCSO quality management system, (3) improve efficiency and transparency. Projects in brief:

(1) **Process management improvement** in 3 steps: with the adaptation of GSBPM an HCSO **statistical business process model** (Hungarian Generic Statistical Business Process Model - ESTFM) is being created for core statistical processes. Then ESTFM-based, detailed **process documentations** are prepared. The next step of the project is the development of an IT tool supporting **wokflow, process management and follow-up**. The project results in a more transparent, statistical data production, which facilitates efficiency, process quality improvement and clearer allocation of responsibilities.

(2) **Process quality guidelines revision:** renewed quality guidelines are being provided on how to implement statistical processes. The newest HCSO and international methodological and IT developments are highlighted in the guidelines. As a result, the gap between best practices and quality guidelines will decrease.

(3) **Creating a methodology handbook**, which will contain a detailed methodological documentation about used methods in HCSO in compliance with international methods, practices and the ESTFM model.

Keywords

GSBPM adaptation • revision of process quality guidelines • process management • methodology handbook

1. Introduction

Improvement actions have been launched at HCSO in line with preparation for 2014/2015 ESS Code of Practice Peer Review. Three major projects – managed by Methodology Department – have been planned to improve the quality management system of HCSO, improve efficiency and transparency and realise a better harmonization with international and

national standards and with relevant Code of Practice principles. The planned timing of these projects is shown on *Table 1*. As seen on *Table 1*. Methodology Handbook will be launched later, in 2015, due to interrelation with the other developments and resource limitations. Process management improvement project (called ESTFM project) is realised in 3 stages: (1) creation of the ESTFM with the adaptation of GSBPM (*Annex 1.*), (2) preparing ESTFM-based detailed process documentations and (3) development of an IT tool supporting workflow and process monitoring.

Table 1. *Planned timing of the 3 quality projects at HCSO from the launch to completion.*

Projects	2013	2014												2015												2016
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	...
ESTFM (1)*																										
Guidelines (2)*																										
Handbook (3)*																										

* Numbers in brackets refer to the short descriptions of the projects in the abstract

The three projects are closely related to each other aiming the different detail of level of identification of quality requirements and documentation. Common basis is the ESTFM model: ESTFM project provides process documentations, process quality guidelines provides basic requirements and methodology handbook provides recommended and applied methods for each process stage of the data production. Regarding level of detail, process management project provides the most detailed output (i.e. process descriptions reflecting HCSO practices and checkpoints) compared to the other two. Methodology handbook is the most theoretical, ESTFM’s outputs are the most practical, while guidelines are between the two: give directions on how to use methodologies in practice, and set the basic aspects of process documentation and monitoring.

The goal of the paper is to introduce the three quality projects, with special focus on these aspects: (1) current state-of-the-art, (2) reason for change and differences between past and present/future plans, (3) implementation process and issues emerged, (4) critical success factors, (5) present status of the projects, (6) the way forward.

2. ESTFM project: process model, process documentation, process monitoring IT tool

Unified, generic statistical business process structure has not been implemented in HCSO to separate the statistical data production process phases up until now. In the past separate models were created according to the specific purposes, but those models were not harmonised to each other, which resulted in multiple solutions making the processes less

transparent. Thus evolving and implementing a generic standard was complicated. The operation model of IT had the most common approach unifying the process phases of the statistical data process from IT point of view.

Therefore it became reasonable to create an unified and generic process model at HCSO, which provides frame for operating the statistical production in the future. In order to elaborate this unified process model HCSO developed the Hungarian Generic Statistical Business Process Model (ESTFM, project duration: 2013-2015), which is the adaptation of the Generic Statistical Business Process Model (GSBPM v.4) [1]. The GSBPM v.4 had been taken into consideration for elaborating the ESTFM, as GSBPM v5.0 did not existed during the development. However the correspondence table between ESTFM and GSBPM was created for both versions. The ultimate purpose of the ESTFM is to establish a process-driven approach within HCSO. The current benefit is that processes are designed and described according to an unified and generic logic. This increases the transparency and comparability of processes in HCSO, also the responsibility of certain units will be identifiable, and the interactions of sub-processes will be clearly discovered.

The GSBPM v.4 served as a basis for the development of ESTFM, which was developed further in order to match the practice of HCSO. Going through the sub-processes the steps needed to be carried out during statistical data process were gathered. According to the practice of HCSO some sub-processes were separated (e.g. GSBPM 2.3. Design data collection methodology was separated to ESTFM II.4.¹ Design collection methods and II.7. Design collection instrument and questionnaire; GSBPM 6.1. Prepare draft outputs was separated to ESTFM VII.1. Prepare draft outputs and VII.2. Seasonal adjustment) and/or merged at several points (e.g. GSBPM 3.2 Build or enhance process components and 3.3. Configure workflows were merged to ESTFM III.2. Customizing IT tools), new process phases were created (e.g. V. Data editing), and some were relocated (e.g. GSBPM 9. Evaluate was ranked into overarching processes in the ESTFM; GSBPM 1.6 Prepare business case was relocated to ESTFM II.10.).

The inputs and outputs of the certain process phases were mapped against the GSIM model, where the GSIM was applicable. Definitions of ESTFM process phases were sent for discussion to the statisticians in order to provide recommendations, comments on the definitions so that the model can be easily used and interpreted by them.

¹ Such numbers refer the ESTFM model in Annex 1.

Methodological documentations on statistical domains [2] and registers are short documentations for external users. These documentations have similar aim that of ESMS (Euro-SDMX metadata Structure). One of the aims of the development project is to provide detailed methodological documentation for the external users according to the structure of the ESTFM. The elaboration of this template for statisticians is in progress according to the timetable of the project. There have been pilot studies carried out for creating flow-charts of certain statistical domains. These pilot studies will support the creation of the final version of detailed documentations.

Beside creating detailed documentations, HCSO also plans to use the ESTFM as a basis for stipulating the operation of IT applications in the near future.

Next steps will be (1) finalising the template for the detailed methodological description and application for all subject-matter domains; (2) developing an IT tool for automatising the maintenance and (3) integration of this sub-system to our Metainformation system.

3. Project for process quality guidelines revision

3.1. Project goals and reason for revision

A project was launched in December 2013 with the goal to revise the current process quality guidelines, which was approved and made available in 2007, renewed in 2009 in HCSO [3]. Further project goals covered the followings: alignment with the latest HCSO methodological and IT solutions; reflecting the newest international guidelines and solutions; harmonization with GSBPM and its Hungarian adaptation, the ESTFM.

The motivation behind revising the former guidelines is that 4 years passed since the last revision in 2009 and during this period the operating environment changed, i.e.: internal regulations; several actions were realized in HCSO improving quality, such as electronic data collection, IT developments, etc.; GSBPM was introduced and implemented. These changes influence processes, to which guidelines were needed to be adjusted, as an expectation of working in line with outdated guidelines was not a viable option.

3.2. Past (former guidelines) and their problems

Former quality guidelines followed a different structure than the one currently being developed. However, all main GSBPM processes are presented in the guidelines, these are not

in full harmony with the model (lack of a standard model, design is different, processes and sub-processes are not recognizable), and are rather in alignment with the value chain for statistical processes formed also in 2007.

Chapters followed the same internal structure, i.e. definitions (main definitions related to each process in brief); principles (brief basics, which have to be taken into account when realizing each process' quality guidelines); quality guidelines; references. The planned internal structure was rational in itself, but some problems emerged in practice: definitions and principles tended to be too long; principles and quality guidelines sometimes overlapped; quality guidelines were not tangible enough; the essence of quality guidelines was difficult to catch; quality guidelines didn't contain concrete measurement tools (indicators), which made tangibility difficult; links between sub-processes were difficult to follow; links between processes and IT systems were difficult to discover.

Process quality guidelines 2009 were completed with quality measurement tools, such as DESAP-based self-assessment questionnaire [4] and a process quality indicator catalogue. These tools are used to assess the compliance with the quality guidelines. The adapted DESAP works like a checklist, and the quality indicator catalogue contains quality indicators for the same processes applied in the guidelines. As these tools usually don't work separately, they are needed to be more clearly linked to each other in order to be effective. During the practice and the implementation of these quality tools some problems occurred, which prevented the full connection amongst them: DESAP was needed to be adapted to guidelines, but guidelines weren't concrete and detailed enough to properly check the realization of them; quality indicators weren't practical enough (rather theoretical), usage of them was too complicated in everyday work.

Quality guidelines were only available in Hungarian, which made international knowledge sharing difficult.

3.3. Revision of former process quality guidelines: concept and principles

As seen above, former guidelines had some deficiencies, which were needed to be reconsidered and reflected in the new guidelines' principles and structure.

The new guidelines need to be in line with the ESTFM set up in a parallel project. The new document contains concrete and detailed quality guidelines for each process and sub-process

of the model. So the revised guidelines have a new structure, which harmonize more with international recommendations.

The new guidelines have a standard internal structure for each chapter, which is similar to the former one, but the new version follows a new internal structure in order to get over the former guidelines' deficiencies. (1) Every chapter begins with a short process description from the ESTFM. It is not about definitions, but more about putting the sub-process in place. Former guidelines' definitions and principles are left out. Principles are substituted with the more concrete and visually separated guidelines. (2) Instead of definitions, we just list the related concepts at the end of every chapter. Definitions of the concepts will be available in the Metainformation system. (3) Quality guidelines are like checklists, i.e. they are concrete, tangible, visually separated from their explanations – practical examples, best practices, dilemmas between solutions (there is no one best way), can be easily read and followed, essence of them is easily recognizable. Guidelines are written in a logical order within each chapter. (4) Each chapter contains possible process quality indicators, which makes measurement and monitoring more possible, guidelines of each sub-process are more tangible. Above mentioned DESAP self-assessment questionnaire and process quality indicator catalogue was also an input for this part. (5) Related sub-processes are indicated in every chapter, which on one hand makes the ESTFM more practical, as every linkage is made visible, on the other hand, it's indicated that processes are linked to other processes. (6) IT system linkages are also indicated in a separate sub-chapter, which makes them more easily recognizable. System functions and names are also indicated. Former makes possible to use Hungarian guidelines internationally for benchmarking as well, as its independent from HCSO systems. (7) The most important references are also listed by each sub-process. It's the same as in the former guidelines.

3.4. Implementation process, main inputs, difficulties and critical success factors (CSFs)

Both the former and the currently revised guidelines implementation process covered the same stages and almost the same actions: (I) preparatory stage, (II) actual project work, (III) circulating for opinion and (IV) lecturing and final actions. Both were/are being carried out in a project, involving experts from different departments in different forms. The short description of the process of the current project is below, including CSFs. The project is currently in stage (IV), so it's still under progress.

The (I) preparatory stage consisted of 2 main parts. At first, benchmarking, collection of best practices from international guidelines, and collection of all other relevant inputs. In the new project we could use the former guidelines as an input, besides using DESAP checklist and process quality indicator catalogue. The preparatory stage ended with defining the new structure of the guidelines. After the preparatory part (II) actual project work stage took place, where project team started to work. Project members had responsibility for processes based on their expertise. The acceptance of the project's output increased if we involved experts from different departments in the project team. Then small corrections were made within the project before our proposal of revised guidelines were circulated amongst subject-matter departments. In stage (III) first a written opinion was asked for, then a proposal was put on the agenda of the Methodological and IT Issues Board, where the representatives of all departments discussed the new guidelines and the opinions written. In stage (IV) after stage (III)'s corrections, a lecturing is being realized, which takes one of the most time. Final steps are going to be corrections after lecturing, translating the document into English and making it public.

During the project we had some difficulties in writing guidelines for each sub-processes of the ESTFM – which was a principle, we wanted to keep. Two difficulties resulted in it. First, sub-processes naturally have a various level of detail, thus some chapters consist of a paragraph, while others can cover pages. Second, some sub-processes are closely related to each other, but in the model they are under different processes (e.g. I.4. Identify concepts and variables; II.2. Design output; VII.1. Prepare draft outputs; VII.5. Finalise outputs²). It was difficult to write guidelines for them separately, as in practice they are managed together, which suggests that merged guidelines should be written for them.

Two actions meant a very long procedure in the project. On one hand, circulating for opinion, also corrections after each case and on the other hand lecturing. It is critical to keep them under control, so they are said to be CSFs of the project. It is important to mark, that despite the long procedure for asking for other department's opinion, lecturing can still bring surprises and result in significant changes to the guidelines, even in the structure (which means the change of ESTFM as well). E.g. HCSO practices justified the creation of a new process phase in the ESTFM for data editing, which only turned out during lecturing.

² Numbers refer the ESTFM model in Annex 1.

Further CSFs are the followings: clear goals, which have to be clear and understood by project team, management and project sponsor as well; feasible goals regarding cost, time and quality; detailed project plan, which contains the whole process, milestones, timetable, possible risks, expected result and its effects, structure of the project team, tasks and responsibilities, resource, budget and communication plan as well; commitment of the organization and management; continuous and clear communication within the project team and towards HCSO (e.g. e-mails, sharepoint, fora, meetings); involvement of different departments into the project (e.g. project membership, Methodological and IT Issues Board).

3.5. Future of revised process quality guidelines

Revised process quality guidelines are the part of the quality management system and are used in practise according to the PDCA-cycle concept. Subject-matter departments will work in alignment with the guidelines, and their work will be monitored with the process monitoring IT tools being established in relating ESTFM project. Besides quality guidelines will be further educated in HCSO School Quality course in the future.

4. Methodology handbook

A methodology handbook will also be developed in a project as an important element of the quality-related internal development programme of HCSO following the finalisation of the ESTFM and the revised quality guidelines. The final handbook is foreseen for 2015-2016. The handbook will follow the structure of the ESTFM and will be directly connected to the revised quality guidelines. The three initiatives will therefore provide the methodological framework of HCSO.

The aim of the development of the handbook is twofold. First, it will serve as an internal methodological document for the staff by providing clear professional information on the methodologies for each process phase and thus will define the necessary methodological background information and standardise methodological practices for the relevant methodological areas. Second, in order to improve the transparency of methodology, it will provide necessary information to the public about the methodologies used by HCSO, available both in Hungarian and English. Therefore two versions of the methodology handbook are foreseen: one detailed internal version and one public version, a less detailed but more user-oriented description of the methodologies.

The handbook will cover all relevant methodological areas, such as sample design, questionnaire design, testing, sampling, editing, imputation, estimation, seasonal adjustment and statistical disclosure control. The handbook will also reflect on the latest methodological developments and international practices, guidelines of the ESS, the UN and OECD.

The handbook will be developed as a cooperative work of experts of the Methodology Department and subject-matter domain experts and will involve experts from the National Statistical Service and the academic sphere. Regarding the development plan, the internal version of the methodology handbook is foreseen as top priority; the public version will be developed later on.

5. Conclusions and future plans for further developments

The adaptation of an international standard for the business processes in HCSO makes it more efficient to compare and integrate the international best practices and standards in the methodology, quality and IT fields. Due to the coherent system the needs for harmonisation and further methodological developments can be identified. The elaboration of the detailed assessment procedure of the compliance with the quality guidelines and the methodology handbook is the next.

6. References

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7. Annexes

Annex 1. Hungarian Generic Statistical Business Process Model (ESTFM).

