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## **Business process model ready... what now?**

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### ***Abstract***

After detailed analysis and consultations with representatives from different organizational units, SORS<sup>1</sup> quality and metadata experts have prepared GSBPM compliant business process model using terminology adjusted to national metadata standards, statistical tradition and organisational culture. Because of practical implementation, some of the sub-processes of the model have been grouped and one more detailed level (“activities”) has been added.

This paper focuses on first steps in GSBPM implementation (i.e. SORS experience in defining a national model and preparing related description), ideas and plans for next steps (building a business process matrix, identifying reference documentation and documentation to be produced as an output of the process, developing appropriate IT support for model implementation, etc.) and potential use and benefits of the model (for planning process, as a base for quality guidelines, for quality reviews, for capturing metadata, etc.).

### ***Keywords***

GSBPM, business process, metadata, documentation, quality

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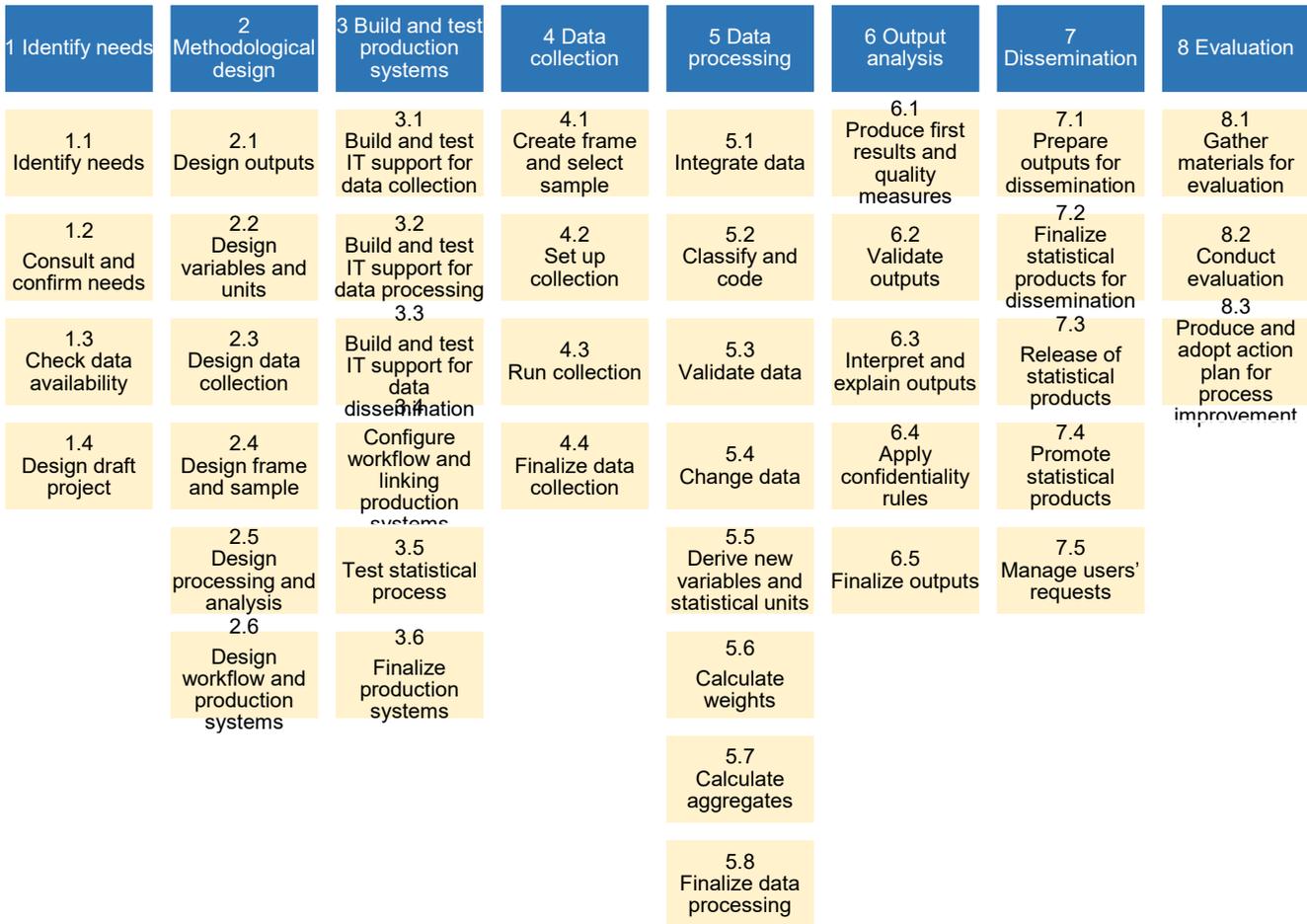
## **I Stovepipe versus process oriented organization**

Most of state governed offices in this part of Europe, especially statistical, have or intend to have a stovepipe organizational pattern. SORS has also a long history of stovepipe production where each survey had its own production system and with little coordination among them. A stovepipe organization has a structure, which largely or entirely restricts the flow of information within the organization to vertical lines of control, inhibiting or preventing cross-organizational communication. Prosperous and ambitious systems should overcome stovepipe performance that improvement or even information on improvement in one statistical area cannot easily spread to others. Well-known features of stovepipe organization are as follows:

- Cooperation among different organizational parts is minimal
- Significant efforts and resources needed to shape, develop, maintain and document all the survey specific methods/tools
- Any change or innovation should be approved by particular expert, that is, in most of the cases, custodian of particular statistical process, in old-fashioned manner
- Replacement of specific methods and tools that are tailor-made for each process by new and improved solutions is a complicated task
- Lack of common terminology and understanding
- Lack of standard criteria for assigning of competence or monitoring process quality
- Difficulties to reuse information, methods or technology solution
- Common problems got solved in different ways in different stove pipes
- Long time needed to launch new statistical products
- Unnecessary duplication, redundancy and internal competition

## **II SORS GSBPM compliant business process model: state of the art**

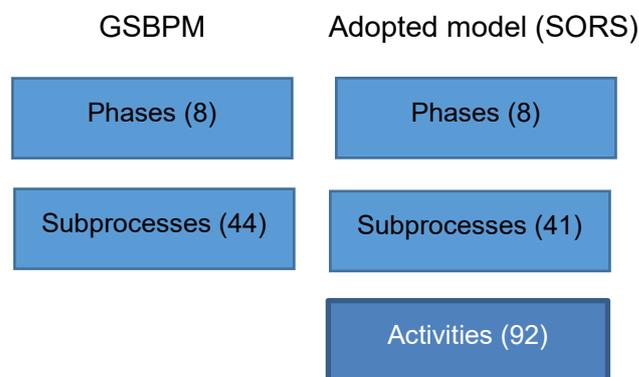
Traditional organizational patterns of statistical production can be described as user-oriented, result-oriented, goal-oriented, staff-oriented, survey-oriented etc. Serbian implementation of The Generic Statistical Business Process Model (GSBPM) certainly means move from product-centric to process-centric organization. Major SORS initiative was launched within SORS to drive the standardization effort, together with making statistical production more transparent and cost-efficient. Focus on business processes, interdepartmental interaction and cooperation and optimization of statistical processes are claimed as main goals.



Picture 1. SORS business process model

Features of proposed adapted model of statistical process that fits SORS organizational context can be summarized as follows:

- It is adjusted model compliant to GSBPM 5.1. version
- Some of the sub-processes of the model have been grouped and one more detailed level called “activities” added



Picture 2. GSBPM model adaptation

- A document with the description of each activity has been prepared
- Interrelation among activities has been described, especially where the output from one phase is certified as suitable input of another
- There are incorporated links to the existing metadata repository, at the level of activities.  
Having in mind fact that GSIM is an information model describing the statistical information objects necessary for statistical activities and that GSIM and GSBPM are duals of each other in the sense that GSBPM names activities and GSIM names the inputs and outputs of those activities, we can conclude that GSIM and GSBPM are complementary intertwined models. Both models should be simultaneously implemented through (incorporated) links of activities to generic descriptions and definitions, providing consistent use of data and metadata throughout the statistical production process. Links are in fact references to the particular standard metadata codes/descriptions of information objects (sources, methods, classifications, variables, units etc.)
- There is intention to establish relation to GAMS0 in order to extend GSBPM to include non-statistical activities common to all statistical offices
- Model is followed by document named “Quality guidelines” that is under construction and will contain recommendations and concrete instructions in order to raise up quality of statistical process. It also describes relation to information about the standards as well as how they should be applied in different situations.
- It is not really a business process model, because the flow is not strict, and intention is not to offer empty patterns for never-ending, free and imaginative descriptions of particular statistical processes. Experience taught us that results of such not standardized approaches are not useful for any kind of analysis, or conclusions. Model is, in fact, simplified and detailed repository of different statistical activities that constitute the statistical process. It is kind of taxonomy – classification of phases, sub processes and activities that constitute the statistical processes. What is offered to the particular statistical processes is to map their activities by using standard predefined and coded model descriptions.

### III Future steps:

#### 1. Testing and finalization of the model

Three pilot surveys are chosen for testing national model for statistical processes: Survey on usage of information and communication technologies, Census of population, households and dwellings 2020 and Survey on registered employment. What follows is analysis of the results of testing and finalization of the model and of the document with descriptions.

#### 2. Building business process matrix

Quality/metadata team will start work on assigning attributes, meaning association of relevant parameters (code, responsible unit, participating units, applicability, interrelated activities etc.) to the all elements of the model. Assigning applicability means to determine to which types of processes certain activity is applicable (to those that use administrative sources, conduct surveys

based on census or sample, produce primary or derived statistics, to new or ongoing processes). Defining interrelated activities across the model is of crucial importance for creation of related documentation. Output of well-defined cross relations of elements could be described flow of activities as corner stone for preparation of precise procedures and sound methodological documentation. Result of this activity should be business process matrix, containing for each activity the following information: activity code, activity name, activity description, responsible unit (process owner), participating unit, applicability, operationalized interrelated activities.

### 3. Building model database and related application

Until this phase SORS business process model is just one paper document. It should be expressed in a standard and machine-readable form, in order to be easily referenced as a part of active metadata repository, used for creation of statistical plan (program), production of documentation and other purposes. In order to prepare IT solution for the model implementation, we should prepare a database of the model, that will contain all elements of the model (at all levels), based on filled-in business process matrix. Next step is to develop an application for dealing with the model (overview and maintenance of elements).

### 4. Here we go - mapping

All statistical processes will be encouraged to map their work by using activities represented in the model (by using developed user application) plus to put some additional data. Additional data mean data apart from the model activities, for example, data needed for planning (i.e. dates/periods linked to activities related to sampling, collecting, and publishing).

### 5. Production of methodological and technical documentation

Implementation of national model means also parallel building of methodological and technical documentation, as an output of the process. Methodological documentation is related to phase two while technical is related to several phases. Standard template documents have been foreseen for these two types of documents. Besides that, idea is to also prepare standard document to be used for the phase 8 (Evaluation). Part of this activity is also integration of this type of documentation with all other documentation used within statistical processes (reference documentation).

## IV Conclusion

### 1. Keep it simple

Process of model implementation should be without becoming either too restrictive or too abstract and theoretical. Statistical processes should be released of writing as much as possible. They should be applied with predefined content and schemes to the greatest possible extent.

## 2. Key benefits

Implementation of the model in SORS provides opportunity for integrating data and metadata standards, including integration with planning process. It provides also a base for preparation of Quality guidelines as a supplementary document to the main document of the model, important for introducing quality management. In the situation where there is a lack of any kind of documentation related to statistical processes we found an opportunity within implementation of the model to ensure production of minimum of documentation as obligatory for each statistical business process.

## 3. Other possible uses and benefits

What we foresee as other possible uses and benefits of the model within SORS are: establishing a common vocabulary that secure shared semantic for the national statistical system (harmonized/standard terminology); providing a framework for process quality assessment and improvement (including risk management and auditing of statistical processes); starting point for analyzing and harmonizing use of statistical software (IT tools); base for measuring operational costs; opportunity to mark missing procedures, etc.

## References

- [1] United Nations Economic Commission for Europe UNECE (2019). *Generic Statistical Business Process Model (GSBPM), Version 5.1*, Geneva.
- [2] United Nations Economic Commission for Europe UNECE (2013). *Generic Statistical Information Model (GSIM), Version 1.1*, Geneva.
- [3] Statistical Office of the Republic of Serbia, *Quality Policy*. Link: <http://www.stat.gov.rs/media/2485/quality-policy.pdf>
- [4] Eurostat (2017), *European Statistics Code of Practice*.
- [5] Maria João Zilhão, Statistics Portugal; Magda Ribeiro, Statistics Portugal, “*Statistical Process description using GSBPM as a reference – Challenges in a process changing environment*”. Paper presented at the European Conference on Quality in Official Statistics (Q2018), Krakow, Poland, June 2018
- [6] Franck Cotton and Daniel W. Gillman, “*Modeling the Statistical Process with Linked Metadata*”