

Statistical Process description using GSBPM as a reference – Challenges in a process changing environment

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Abstract

Statistics Portugal (SP) has a long tradition of statistical process description, starting with a generic model in 1997. Several editions were revised since then and the latest one was recently updated using the last edition of the Generic Statistics Business Process Model (GSBPM V.5) as a reference. Decisions had to be made to have a handbook in a generic format for all staff in statistical production environment, as well as an adaptation between the GSBPM model and all horizontal processes and internal standards in use by SP.

The paper will describe i) the new version of the Statistical Process Procedures Handbook model produced by SP, ii) its challenges (strong and weak points) in conception while adapting the GSBPM with SP reality of statistical process implementation and iii) the subsequent levels of process description added to GSBPM (namely, geospatial statistical dimension), and much aligned with ISO 9001 Norms with respect to documented procedures.

Keywords: Statistical Process; Process description; Documented procedures; Quality Standards; Quality Documentation

1. The New version of the Statistical Process Procedures Handbook produced by Statistics Portugal

Statistics Portugal has a long tradition in describing the Statistical process making use of a process description model. The first edition is dated 1997, very much alike the experiences that other NSI had in that respect, namely Statistics Canada. Up to now other editions were implemented and evolved in various ways, namely in detail (adding new features and dimensions) and flexibility. However, its background approach always applied the logic of ISO documented procedures (namely, procedures/tasks; responsibilities; documentation/registers to produce along the process).

This type of documents have also been of extreme importance in moments of changes in organizational structures within the office, namely when a centralized data collection department was established.

As such, the motivation for describing and updating a Statistical Process Procedures Handbook has various dimensions in what concerns Statistics Portugal experience:

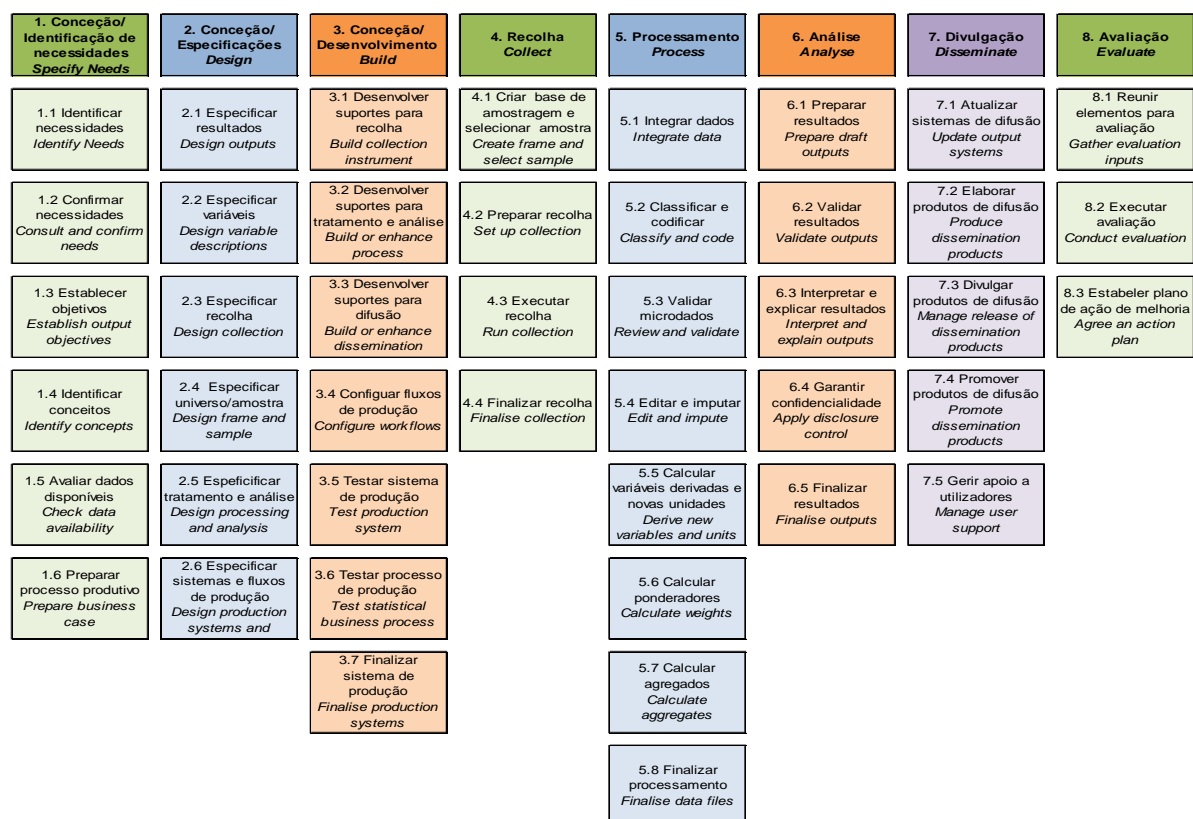
- First it facilitates internal and external communication (national and international) about statistical production amongst the staff, helping each unit and statistician seeing him/herself as a player in the whole process;
- It promotes the standardization of specific terminology and the sharing of knowledge, data and tools along the business process. As such, it fosters the process of standardization as a whole.
- It is also extremely important in supporting the planning process of a specific activity, making use of IT tools that might be available for that (which is the case of Statistics Portugal).
- It provides a map of the entire business process, enhancing communication in the organization.
- It allows for the identification, in a systematic way, of all necessary documentation to be produced along the business process (e.g. related procedures, reports and performance indicators).
- It allows for the identification of all possible synergies along the process and between activities.
- It facilitates and supports the modernization of production systems.
- And finally, it is a relevant tool for quality management in what concerns review activities, such as auditing processes.

2. The challenges in adapting the GSBPM¹ with Statistics Portugal reality of statistical process implementation

After several years in improving the business process description a decision was made along the last peer review process to completely align Statistics Portugal handbook with the GSBPM.

¹ Generic Statistics Business Process Model (GSBPM V.5), UNECE , 2013

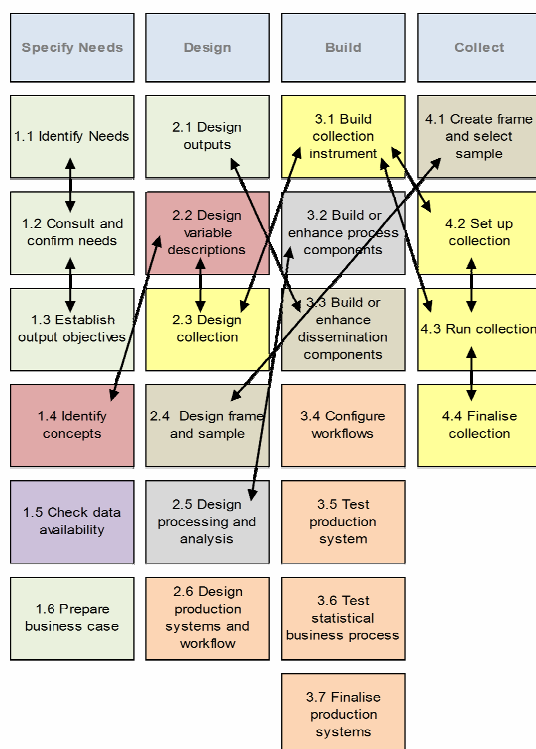
Figure 1 – Adopted Business Process Model (adapted from the GSBPM V.5)



Similarly to the GSBPM, the overall model must not be followed in a strict order:

- It is flexible and interactive in what concerns phases and sub-process sequence;
- There is interdependence among sub-processes;
- The applicability of certain phases and sub-processes depend on the type of statistical activity, making the scope of the Handbook quite large.

Figure 2 – Flexible framework of the adopted model (adapted from the GSBPM V.5)



One of the strong points about having the GSBPM as a model is a consequence of the multiple European projects that use the model as a reference for development and research. Making use of the same language and process terminology it simplifies the conception of the handbook itself.

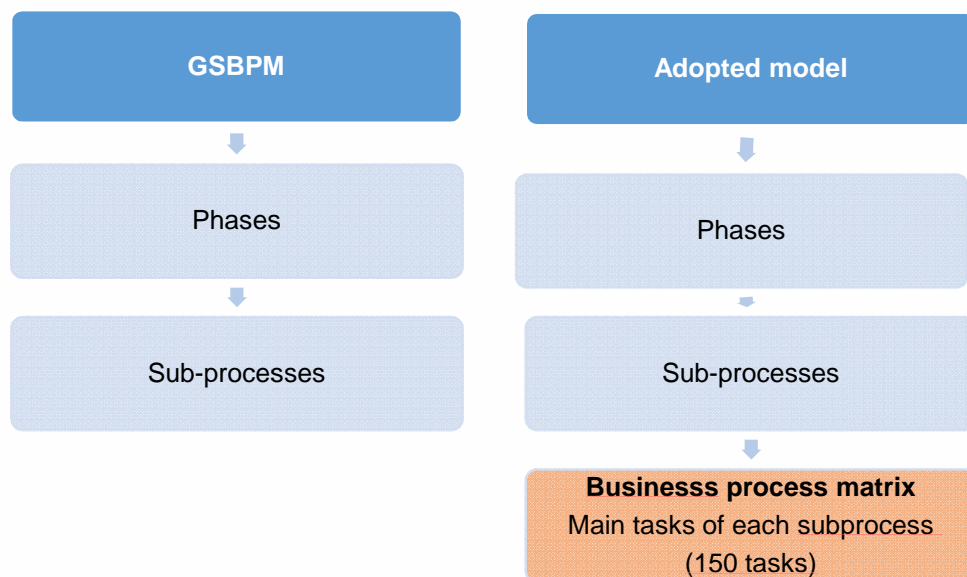
The weak point was the matching process between the sub-processes of the GSBPM and the organisational characteristics of the process organization, that proofed to be very unbalanced between sub-processes.

The fact that SP had already a previous version of the handbook with different layers and hierarchy made the task a lot easier, but still the GSBPM structure proofed to be somehow unbalanced in what concerns the detail of each sub-processes.

For that reason, Statistics Portugal applied a third layer in a systematic way, aligned with the tasks of a called “production process matrix” that goes into detail in what concerns tasks, responsibilities, related documentation and other to produce, as well as the respective linkage with the SIGINE IT system, an in-house It tool system with standardized tasks for the statistical activities planning process.

This was a major development since the update of the handbook was done in parallel with the update of the IT system itself. Meaning that the tasks are similar, enhancing standardization in the process at all levels.

Figure 3 – General organization of the adopted model and its alignment with the GSBPM V.5



3. The subsequent levels of process description added to the GSBPM

It was important to keep a more detailed level of process description (3rd level), featured on previous versions of the handbook, for different reasons:

- Mapping important activities throughout the business process, resulting from the process modernization;
- Defining responsibilities;
- Identifying relevant reference documentation and expected outputs;
- Demonstrate the applicability of the business process model regardless of the type of statistical activity.

As the example shows for a single task (Fig. 4), we can see its relation with the GSBPM phase and sub-process, the task description, the units that are responsible for it, and the applicability of the task taking into account the type of a statistical activity.

This third level also describes its relation with the IT planning system, making this feature a major development, also relevant in a changing environment.

Figure 4 – The business process matrix (example for task 30)

Task number	Task description	Responsible department	Participant department	Applicability				Comments	GSBPM phase	GSBPM sub-process	
				Span of activity	Survey		Type of activity				
					Census	Sampling					Administrative source
				New / Ongoing				Primary / Derivate			
Collection instrument											
30	Designing or reviewing the collection instruments, specifying the attributes' validation rules and the type of testing to be applied	DM	DRI DMSI	New Ongoing	Yes	Yes	Yes	Primary statistics	The output of this task is included in items V.5.1, VI of the methodological document Collection instrument: survey form; electronic file register; administrative form SIGINE tasks: 301 - Support for the designing, building and testing of the questionnaire 401 - Designing, building and testing of the questionnaire Interrelated tasks from other sub-processes: 32 - "Formulating the instructions for the correct filling of the collection instrument" (3.1) 33 - "Finalizing the collection instrument" (3.1)	Design	2.3 Design collection

The Geospatial information infrastructure dimension along the business process can only be mapped on the business process matrix, that is within the third layer of the model. Within this dimension, there are 13 tasks altogether, belonging to different phases, stages and sub-processes, which are explicitly connected to the spatial data infrastructure:

- Specify and characterise the dissemination formats and products, including geographic information;
- Evaluate the ability of the spatial data infrastructure responding to methodological needs;
- Specify the functional requirements for data collection;
- Specify the functional requirements for the disclosure of geo-referenced statistical information;
- Test the IT system supporting data collection and reception;
- Test the data disclosure components, including the GIS components;
- Refresh or geo-reference the interviewer's residence;
- Calculate distances between the statistical units and the interviewer's residence;
- Propose the creation or correction of statistical units in the statistical registers and propose updates to the samples defined in the sample management systems;
- Analyze the proposals for updating samples and creating or correcting statistical units on the sample management systems and statistical registers and make the respective adjustments;

- Prepare the indicators to be made available in the dissemination database and associated metadata;
- Upload and update data on the dissemination database;
- Compose the publication or develop other dissemination products.

4. Next steps

- Regular updates to the description of the business process are expected, following the streamlining of procedures;
- Contributions to model simplification are deemed useful, specifically in what concerns the more detailed levels of the production matrix;
- Expanding the mapping of documentation to be produced in the context of each task;
- Producing and standardizing reference documentation that is central to the business process (work instructions, guidelines, templates);
- Describing and standardizing over-arching processes with a statistical component (e.g.: quality management, metadata management).

5. References

UNECE (2013), Generic Statistical Business Process Model - Version 5.0. Available at: <https://statswiki.unece.org/display/GSBPM/GSBPM+v5.0>

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SP (2010), Manual de Processos da Produção estatística (internal document).

SP (1997), Manual de Procedimentos da Produção Estatística (internal document).