INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

ModernStats models GSBPM and its use in Statistics Portugal

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Modernizing management systems: modeling processes using ModernStats models

ModernStats Community of Practice (CoP)

UNECE HLG-MOS

ModernStats models GSBPM and its use in Statistics Portugal.

How the GSBPM approach has strengthen Statistics Portugal (INE) organisational structure, helped devise innovation and promote a better internal communication and training

INE has a long experience in using process description and systematisation of practices and procedures, and the GSBPM as a ModernStats model, duly appropriated at our national specificity, has strongly benefited, and enhanced our strategic reasoning
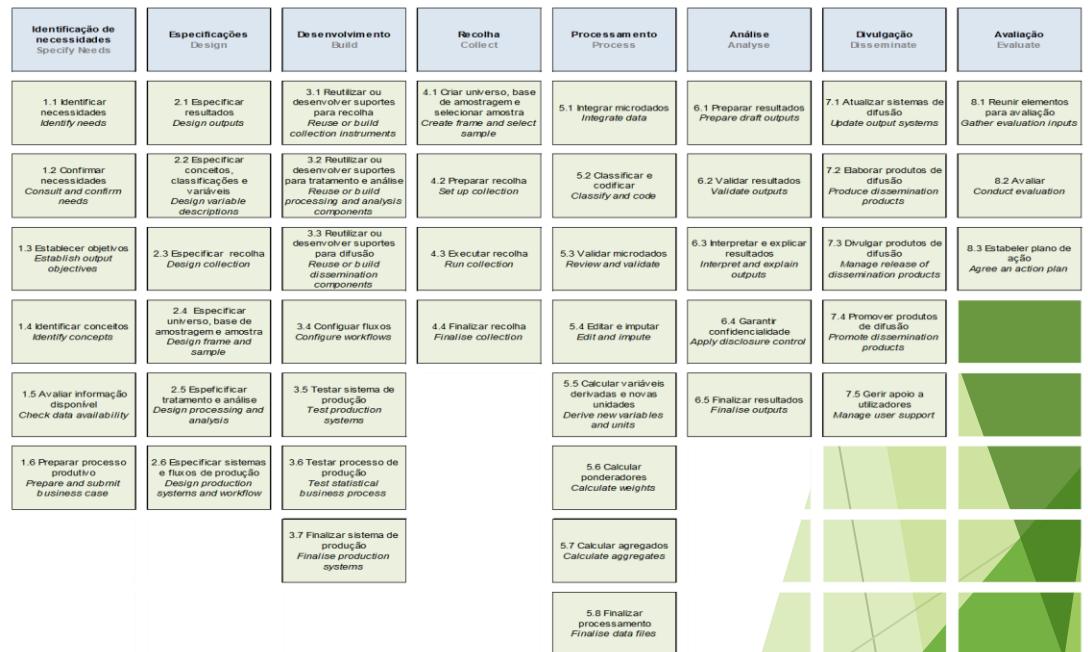
Documenting the Statistical Business Process

Advantages

The advantages of documenting the Statistical Business Process

- Facilitating internal and external communication (national and international) about statistical production

- Promoting the standardization of specific terminology and the sharing of knowledge, data and tools along the business process

- Fostering the process standardization

- Facilitates Trainning

- Supporting the planning process

- Providing a map of the entire business process

- Identifying all necessary documentation to be produced along the business process

- Identifying all possible synergies along the process and between activities

- Supporting the modernization/Innovation of production systems

- Providing a relevant tool for quality management – for example, in auditing processes, implementing ISO 9001.

Statistical Process Procedures Handbooks
An overview (1)

1st version (1997)   **Description of the Business Model**
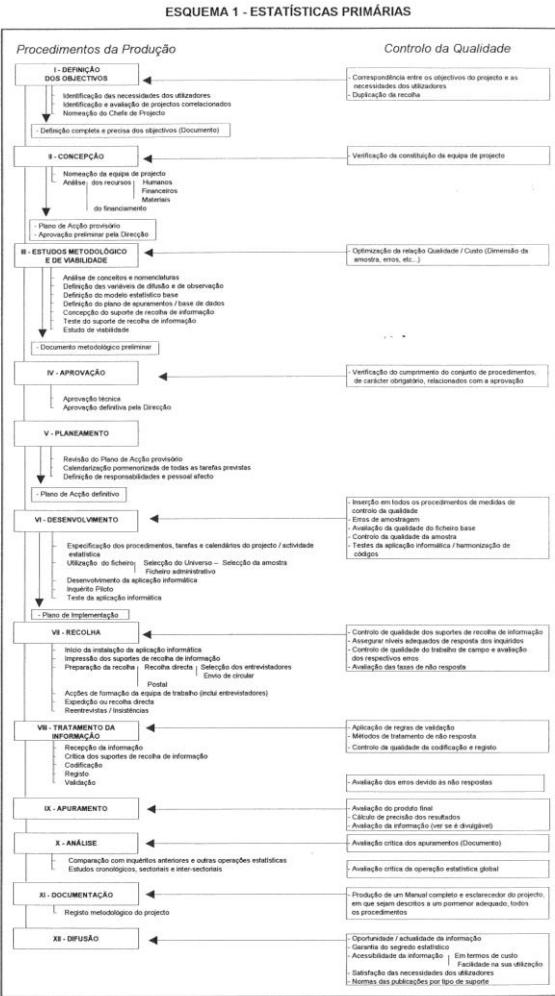
Primary statistics   Derived statistics
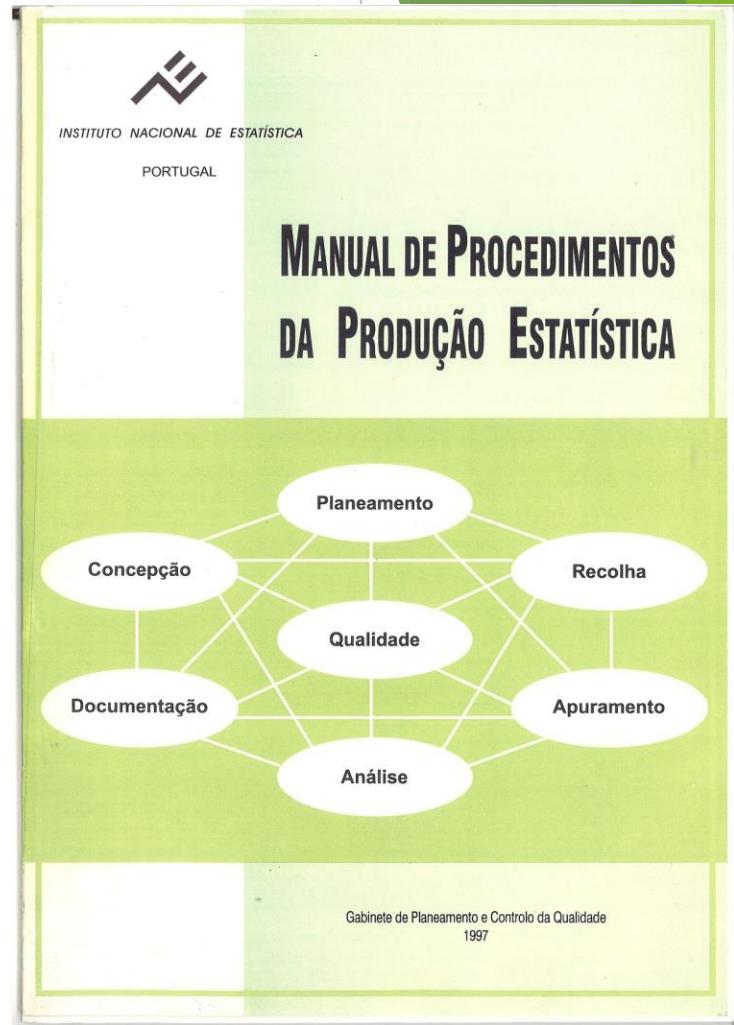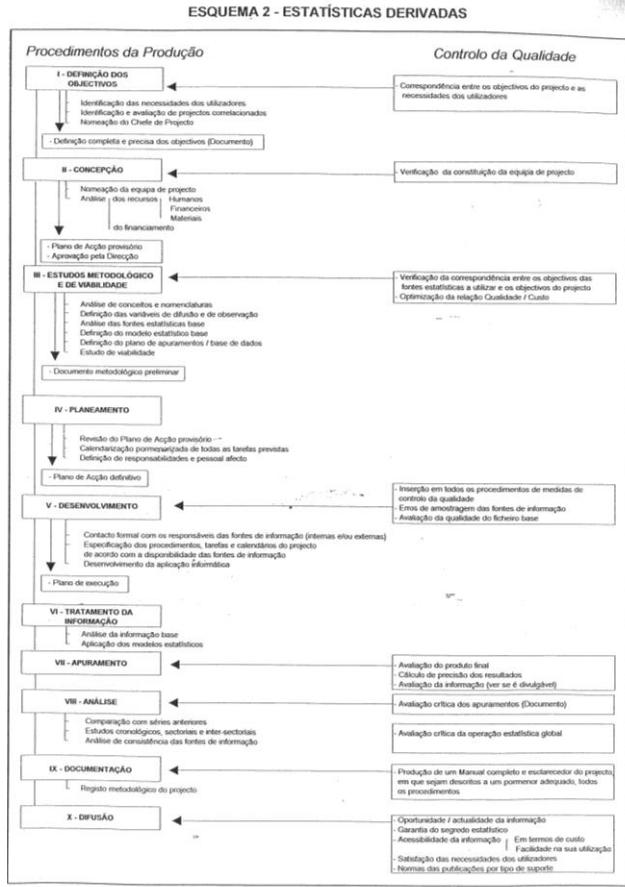
Statistical Process Procedures Handbooks
An overview (2)

2nd version (2006)

Description of the Business Model

Phases

I. Conception	II. Operation	III. Dissemination	IV. Evaluation

Processes — *Processes* — *Process* — *Process*

I.1. Viability Study	II.1. Planing and preparation of data collection	III.1. Dissemination	IV.1. Evaluation
I.2. Methodological Study	II.2. Data collection		
I.3. Technical approval	II.3. Data treatment and analysis		
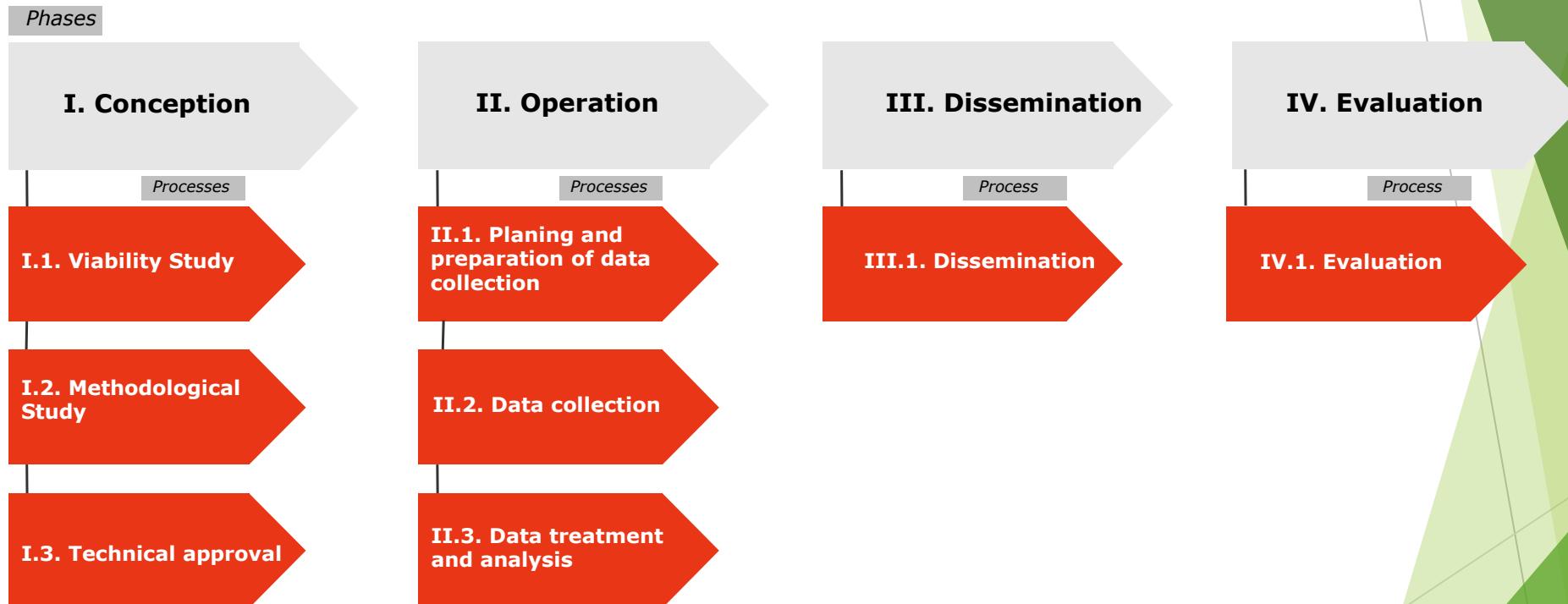
Note: each process is composed by sub-processes and tasks (126 tasks)

SP's Statistical Process Procedures Handbooks
An overview (3)
3rd version (2010)
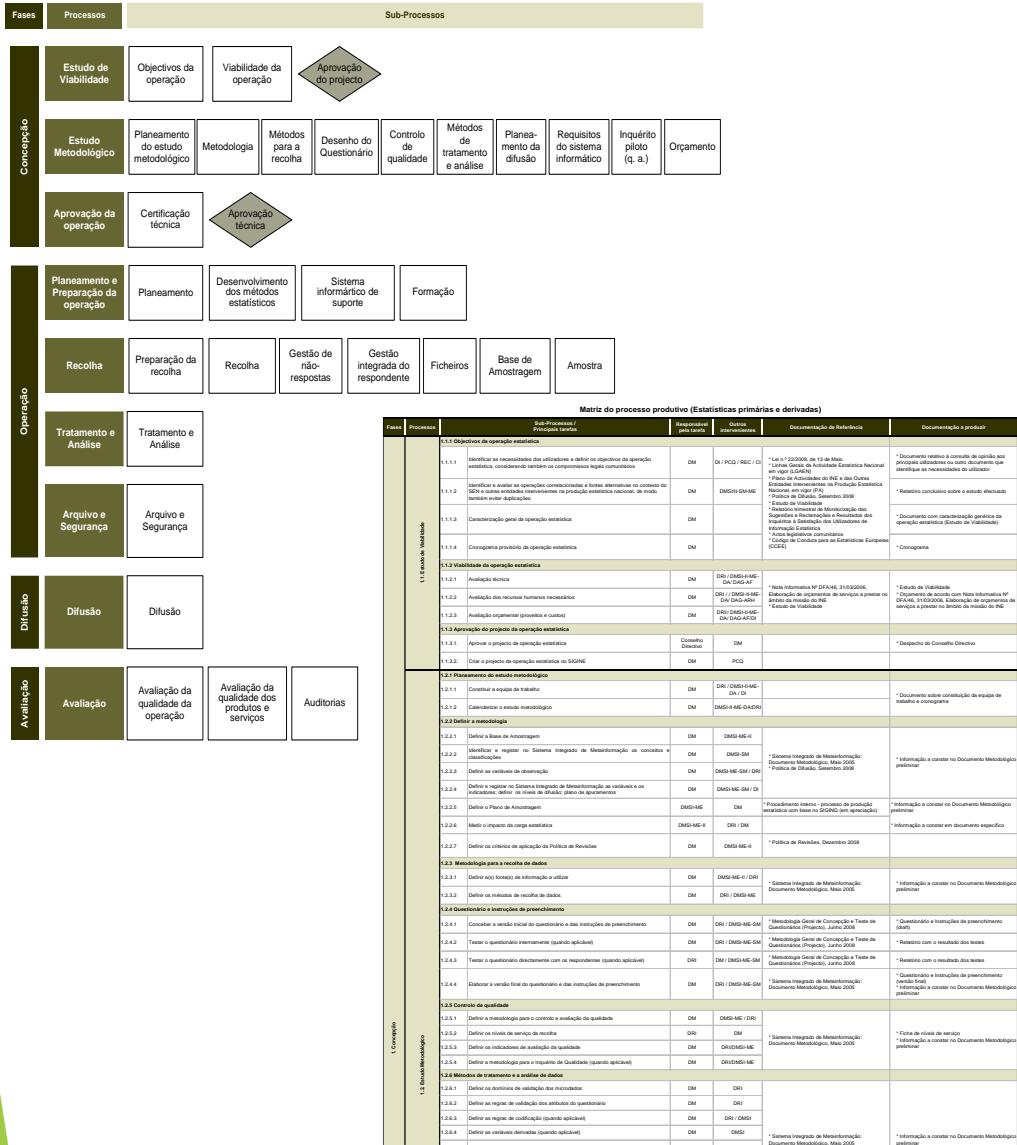
1. **General description of the Business Model**

   - Process design

   - Definition of different phases of the process

2. **Business process matrix**

   - Definition of responsibilities

   - Definition of minimum documentation

   - Handbooks are produced by pluridisciplinary teams

Describing the Statistical Business Process Model

Using the GSBPM - Generic Statistical Business Process Model

The conceptual model adopted by Statistics Portugal is aligned with the GSBPM (V. 5.1, 2019), with the addition of one more layer in the **business process matrix**

GSBPM	Adopted model
Phases	Phases
Sub-processes	Sub-processes
	Businesss process matrix Main tasks of each subprocess
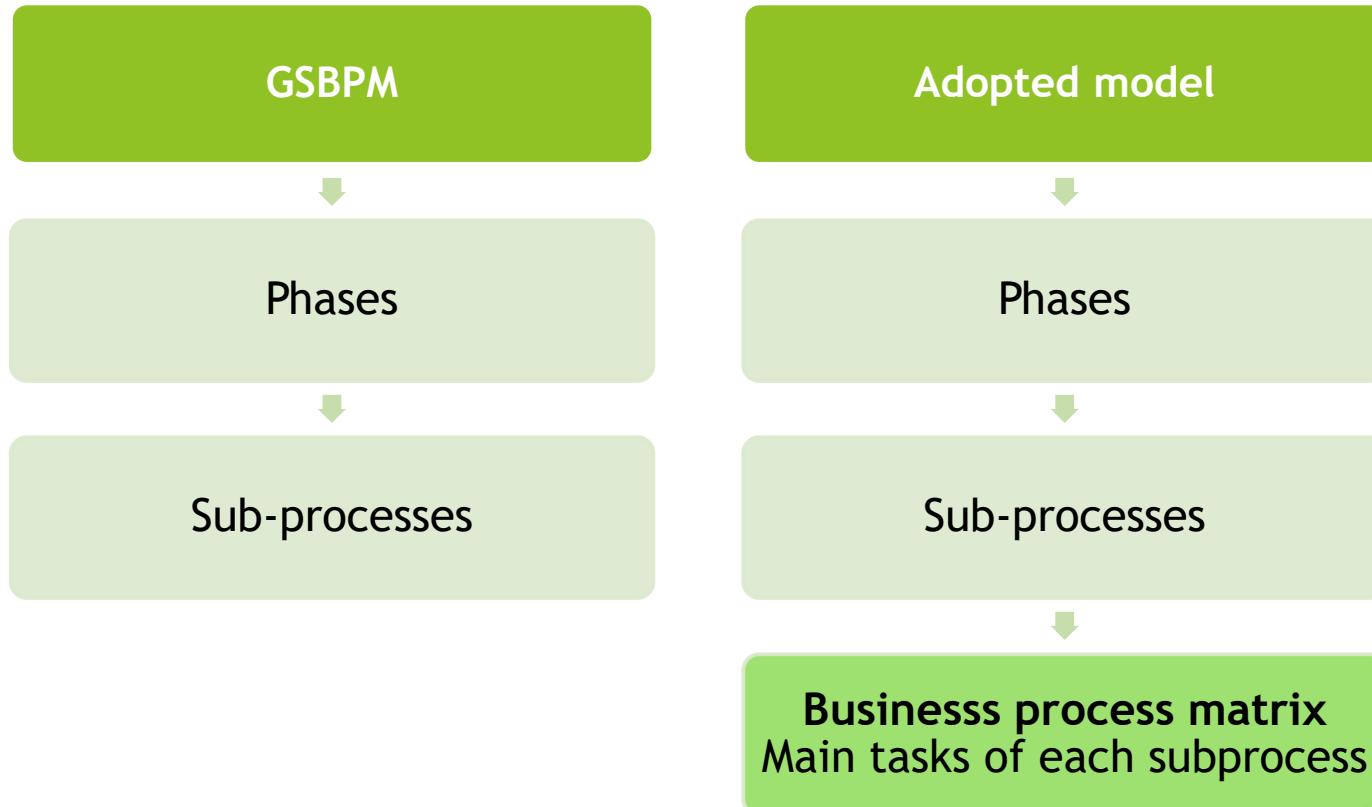
Describing the Statistical Business Process Model

Phases and sub-processes

Phases

Identificação de necessidades Specify Needs	Especificações Design	Desenvolvimento Build	Recolha Collect	Processamento Process	Análise Analyse	Divulgação Disseminate	Avaliação Evaluate
1.1 Identificar necessidades *Identify needs*	2.1 Especificar resultados *Design outputs*	3.1 Reutilizar ou desenvolver suportes para recolha *Reuse or build collection instruments*	4.1 Criar universo, base de amostragem e selecionar amostra *Create frame and select sample*	5.1 Integrar microdados *Integrate data*	6.1 Preparar resultados *Prepare draft outputs*	7.1 Atualizar sistemas de difusão *Update output systems*	8.1 Reunir elementos para avaliação *Gather evaluation inputs*
1.2 Confirmar necessidades *Consult and confirm needs*	2.2 Especificar conceitos, classificações e variáveis *Design variable descriptions*	3.2 Reutilizar ou desenvolver suportes para tratamento e análise *Reuse or build processing and analysis components*	4.2 Preparar recolha *Set up collection*	5.2 Classificar e codificar *Classify and code*	6.2 Validar resultados *Validate outputs*	7.2 Elaborar produtos de difusão *Produce dissemination products*	8.2 Avaliar *Conduct evaluation*
1.3 Estabelecer objetivos *Establish output objectives*	2.3 Especificar recolha *Design collection*	3.3 Reutilizar ou desenvolver suportes para difusão *Reuse or build dissemination components*	4.3 Executar recolha *Run collection*	5.3 Validar microdados *Review and validate*	6.3 Interpretar e explicar resultados *Interpret and explain outputs*	7.3 Divulgar produtos de difusão *Manage release of dissemination products*	8.3 Estabeler plano de ação *Agree an action plan*
1.4 Identificar conceitos *Identify concepts*	2.4 Especificar universo, base de amostragem e amostra *Design frame and sample*	3.4 Configurar fluxos *Configure workflows*	4.4 Finalizar recolha *Finalise collection*	5.4 Editar e imputar *Edit and impute*	6.4 Garantir confidencialidade *Apply disclosure control*	7.4 Promover produtos de difusão *Promote dissemination products*	
1.5 Avaliar informação disponível *Check data availability*	2.5 Espeficificar tratamento e análise *Design processing and analysis*	3.5 Testar sistema de produção *Test production systems*		5.5 Calcular variáveis derivadas e novas unidades *Derive new variables and units*	6.5 Finalizar resultados *Finalise outputs*	7.5 Gerir apoio a utilizadores *Manage user support*	
1.6 Preparar processo produtivo *Prepare and submit business case*	2.6 Especificar sistemas e fluxos de produção *Design production systems and workflow*	3.6 Testar processo de produção *Test statistical business process*		5.6 Calcular ponderadores *Calculate weights*			
		3.7 Finalizar sistema de produção *Finalise production systems*		5.7 Calcular agregados *Calculate aggregates*			
				5.8 Finalizar processamento *Finalise data files*			

Sub-processes

Describing the Statistical Business Process Model

Flexible framework

Specify Needs	Design	Build	Collect
1.1 Identify Needs	2.1 Design outputs	3.1 Build collection instrument	4.1 Create frame and select sample
1.2 Consult and confirm needs	2.2 Design variable descriptions	3.2 Build or enhance process components	4.2 Set up collection
1.3 Establish output objectives	2.3 Design collection	3.3 Build or enhance dissemination components	4.3 Run collection
1.4 Identify concepts	2.4 Design frame and sample	3.4 Configure workflows	4.4 Finalise collection
1.5 Check data availability	2.5 Design processing and analysis	3.5 Test production system	
1.6 Prepare business case	2.6 Design production systems and workflow	3.6 Test statistical business process	
		3.7 Finalise production systems	

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

- Flexible and iterative phase and sub-process sequence

- Interdependence among sub-processes

- Applicability of certain phases and sub-processes, depending on the type of statistical activity

E.g.: the tasks of concept and variable identification and the designing and building of the collection instrument are usually developed simultaneously, not following the specified phase and sub-process sequence

Statistical Business Process Model

SP experience

Statistical business process organization:

- phases – 1st level
- sub-processes – 2nd level

= GSBPM

- Business process matrix – 3rd level / **aditional layer:**

  - Composed by **120 tasks**
  - Tasks involved, including chronological order, **responsible units** and other stakeholders, as well as practical applicability according to the type of statistical activity, type of data source and type of statistical results
  - Mapping important activities throughout the business process, resulting from the process modernization
  - Identifying relevant **reference documentation** and expected outputs
  - Demonstrate the applicability of the business process model regardless of the type of statistical activity
  - The main tasks are linked to the **IT Activities Planning Tool (SIGINE tool)**

Business Process Matrix

- Business process matrix – 3rd level:
  - Main tasks composing each subprocess.

Task number	Task description	Responsible department	Participant department	Applicability				Comments	GSBPM phase	GSBPM sub-process
				Span of activity New / Ongoing	Survey		Administrative source	Type of activity Primary / Derivate			
					Census	Sampling					
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

Tasks follow the usual sequence of statistical production

2. Design

2.1 Design outputs

2.2 Design variable descriptions

2.3 Design collection

2.4 Design frame and sample

2.5 Design processing and analysis

2.6 Design production systems and workflow

Business Process Matrix

- Business process matrix – 3rd level:
  - Responsible department for each activity and other participants

Task number	Task description	Responsible department	Participant department	Span of activity New / Ongoing	Applicability Survey Census	Applicability Survey Sampling	Administrative source	Type of activity Primary / Derivate	Comments	GSBPM phase	GSBPM sub-process
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

Business Process Matrix

- Business process matrix – 3rd level:
  - Applicability of tasks according to the span of statistical activity (new or ongoing), its type (primary or derived) and data source (survey or administrative records).

| Task number	Task description	Responsible department	Participant department	Span of activity New / Ongoing	Survey Census	Survey Sampling	Administrative source	Type of activity Primary / Derivate	Comments	GSBPM phase	GSBPM sub-process
						Applicability					
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

Business Process Matrix

- Business process matrix – 3rd level:
  - Documentation to be produced in the context of each phase/sub-process/task;
  - Reference documentation in the context of each phase/sub-process/ task;
  - Link to the internal planning and management IT system (SIGINE) – main tasks relevant to the planning process.

Task number	Task description	Responsible department	Participant department	Applicability					Comments	GSBPM phase	GSBPM sub-process
				Span of activity New / Ongoing	Survey		Administrative source	Type of activity Primary / Derivate			
					Census	Sampling					
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

Business Process Matrix

Internal planning and management IT system (SIGINE)

Creating a new task

Tasks to choose from (short description of tasks as described in the Business Process Model)

Calendar

Business process matrix – 3rd level

Describing the Statistical Business Process Model
Mapping the role of the spatial data infrastructure

- 13 tasks in total;

- In this case, the tasks provide further detail to the role of the spatial information infrastructure in the business process, which is not explicitly contemplated in the GSBPM phase and sub-process description.

Task number	Task description	Responsible department	Participant department	Applicability					Comments	GSBPM phase	GSBPM subprocess
				Span of activity	Survey		Administrative source	Type of activity			
				New / Ongoing	Census	Sampling		Primary / Derivate			
Data processing and analysis methodology											
49	Specify the functional requirements for data collection, including the specific features of survey integration onto SIGINQ (SIGINQ-IAP, SIGINQ-IE, SIGINQ-AGR)	DRI	DM DMSI	New Ongoing	Yes	Yes	No	Primary statistics	**Functional requirements** represent the inputs for the development of infomation, geographic and methodological components **SIGINE task:** 411 – Specifications for collection	Design	2.3 Design collection
52	Specify the functional requirements for the disclosure of geo-referenced statistical information	DM	DMSI	New	Yes	Yes	Yes	Primary statistics Derivate statistics	**Functional requirements** represent the inputs for the development of infomation, geographic and methodological components **SIGINE tasks:** 421 – Specifications for IT dissemination application 416 – Specifications for IT GIS application	Design	2.1 Design outputs

Internal Trainning

Specific Training Course for the integration of statisticians in the special career of Statistical Specialist Technician at Statistics Portugal (in accordance with the Annex to Ordinance no. 355/2015, of 14 October)

- The contents of the training course programme are completely aligned with the Statistical Production Process Handbook.

- The Statistical Production Process Handbook accompanies each course session so that participants can better understand the process throughout the training.

- During the course participants are required to elaborate a work task and make presentations on specific topics, addressing them in the context of the handbook.

- One-morning session is organised, where practical work is presented by each participant in connection with the Statistical Production Process Handbook.

- On-job training

What more?

- Process Indicators along our sub-processes, very important at ISO 90001 level

- It is one of the central documents of the ISO 9001 Quality Management Systems

- Continue to foster training courses having in the centre the mapping of the

  processes

- Help devise reorganization and tasks description and units functions

- Supports innovation thinking and strategic reasoning

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Thank you for your attention!

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