



# EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS 2024 ESTORIL - PORTUGAL



# EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS 2024 ESTORIL - PORTUGAL







EUROPEAN CONFERENCE ON  
QUALITY IN OFFICIAL STATISTICS  
2024 ESTORIL - PORTUGAL

# Integrating International standards in the design of reference metadata component of the new Istat system METAstat



eurostat 

The conference is  
partly financed by the  
European Union

Francesca Budano, Giorgia Simeoni, Istat, Italy



## Why METAstat?

SIDI-SIQual system is the Official Istat system for documenting quality and reference metadata of the statistical production processes.

It aims at monitoring the quality and performance of statistical processes.

SIDI-SIQual system has **some critical aspects**:

- it is obsolete from an IT point of view
- it is not enough flexible to well describe innovative processes as multisource processes, statistical registers or statistical processes based on new sources data (big data)

So Istat started a project on design and development of a new metadata system called **METAstat**

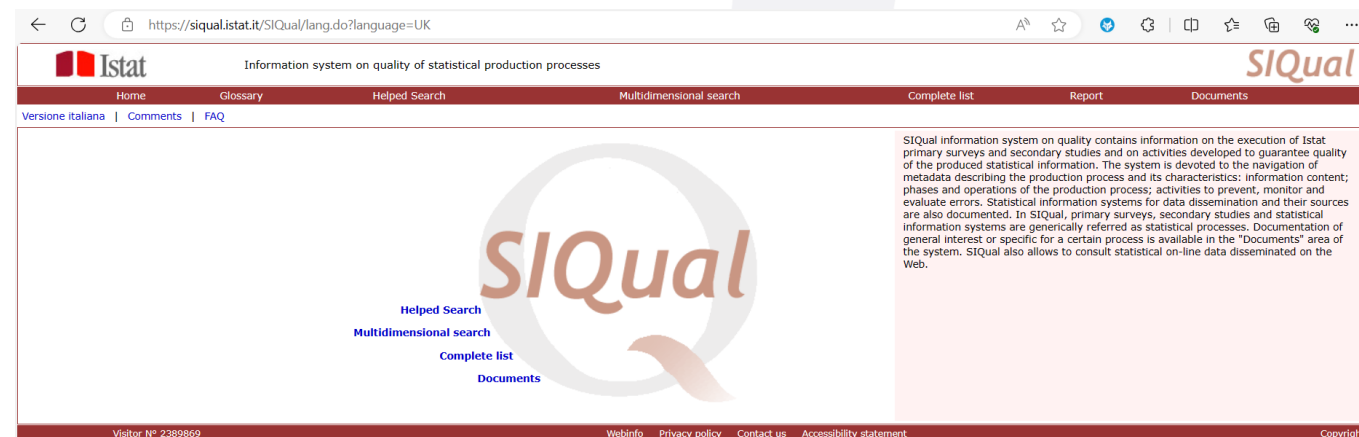


# SIDI-SIQual

The SIDI-SIQual system is accessible to external users through SIQual and describes the production process and its features, with particular reference to quality issues.

Phases and subprocesses are supplemented with:

- Actions to prevent and monitor and evaluate sampling and non-sampling errors
- Quality indicators



Information system on quality of statistical production processes

SIQual

Home Glossary Helped Search Multidimensional search Complete list Report Documents

Versione italiana | Comments | FAQ

SIQual information system on quality contains information on the execution of Istat primary surveys and secondary studies and on activities developed to guarantee quality of the produced statistical information. The system is devoted to the navigation of metadata describing the production process and its characteristics: information content; phases and operations of the production process; activities to prevent, monitor and evaluate errors. Statistical information systems for data dissemination and their sources are also documented. In SIQual, primary surveys, secondary studies and statistical information systems are generically referred as statistical processes. Documentation of general interest or specific for a certain process is available in the "Documents" area of the system. SIQual also allows to consult statistical on-line data disseminated on the Web.

Helped Search  
Multidimensional search  
Complete list  
Documents

Visitor N° 2389869 Webinfo Privacy policy Contact us Accessibility statement Copyright



# An example of documentation on SIDI-SIQual: process description


## Phases of the production process




### Operations, quality control actions and generalised software

#### Data collection mode

Expand











 Self-administered data collection via electronic transmission

 Self-administered data collection by e-questionnaire (Computer Assisted Web Interviewing-CAWI) or through upload of datasets on Istat web site INDATA

#### Control on unit nonresponse

##### Prerequisites for control on unit nonresponse

##### Activities for preventing unit nonresponse

-  Survey presentation letter signed by Istat President (since 31/12/2007)  
-  Guarantees on statistical confidentiality (since 31/12/2007)
-  Written description of survey objectives (since 31/12/2007)
-  Special care in writing clear instructions to fill-in questionnaires (since 31/12/2007)
-  Establishing a toll free line or telephone number for further explanations (since 31/12/2007)
-  Administrative fines for nonrespondents (since 31/12/2007)
-  Special care in drafting clear instructions for database setting up (since 31/12/2007)
-  Establishing an e-mail address for information on the web procedure (since 31/12/2007)

##### Follow-ups of nonrespondent units

##### Collecting information on nonrespondent units or bodies/institutions

##### Use of adjustment methods to reduce the unit nonresponse effects (weights, duplications of records, etc.)



# An example of documentation on SIDI-SIQual: quality indicators

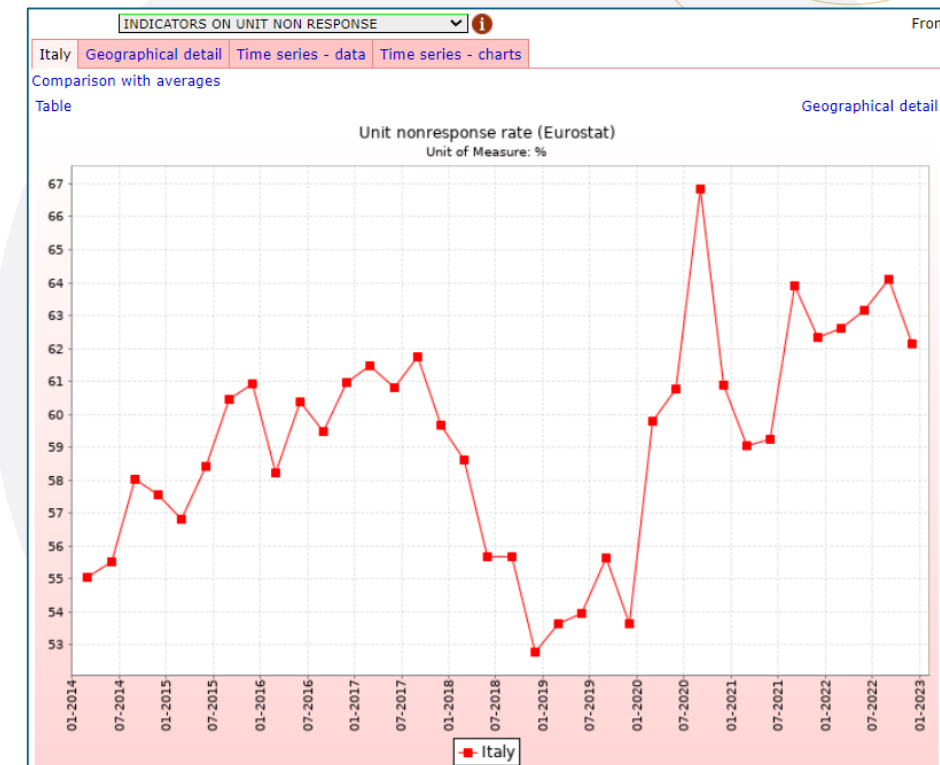
INDICATORS ON UNIT NON RESPONSE Edition: 31/12/2022

Italy Geographical detail Time series - data Time series - charts

**Relevant metadata**

Reference unit	Households
Archive	Municipality population registers
Data collection mode	Self-administered paper diary delivery and collection by interviewers
Periodicity of data collection	Monthly
Eligibility criteria	-
Note	In 2016, the data collection was not carried out for about 1,000 units of the theoretical [...]

Indicator	North-west	North-east	Center	South	Islands	Italy	U.M.
Total Units	4893	3871	4762	4499	1576	19601	
Resolved Rate	99,98	99,72	99,6	100	99,81	99,83	%
Unit nonresponse rate (Eurostat)	-	-	-	-	-	62,14	%
Unit Nonresponse Rate	64,54	60,81	64,09	60,87	55,45	62,14	%
Response Rate	35,46	39,19	35,91	39,13	44,55	37,86	%
Unit Nonresponse Rate excluding No Contacts Due to Frame Errors that compromise the contact	63,16	59	62,15	59,07	53,15	60,37	%
Unit Nonresponse Rate referred to In Scope Units	64,54	60,7	63,94	60,87	55,36	62,07	%
Refusal Rate	13,49	17,91	15,56	24,93	15,79	17,63	%
No Contact Rate	3,77	4,44	5,15	4,4	4,93	4,47	%
No Contact Rate Due to Frame Errors (referred to In Scope Units)	3,77	4,44	5,15	4,4	4,93	4,47	%
No Contact Rate Due to Other Reasons	0	0	0	0	0	0	%
Other Reasons Nonresponse	47,28	38,35	43,23	31,54	34,64	39,96	%



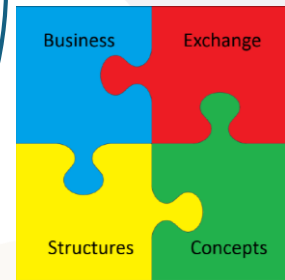


# Towards METastat

GSBPM 5.1

Quality Management - Metadata Management						
Specify Needs	Design	Build	Context	Process	Analyse	Evaluate
1.1 Identify needs	2.1 Design system	3.1 Build metadata infrastructure	4.1 Context frame & search scope	5.1 Program data	6.1 Product built systems	7.1 Gather evaluation inputs
1.2 Context & Content Matrix	2.2 Design Content Matrix	3.2 Build or enhance infrastructure	4.2 Set up collection	5.2 Connect & code	6.2 Monitor outputs	7.2 Produce performance profiles
1.3 Metadata capture requirements	2.3 Design Collection	3.3 Build or enhance infrastructure	4.3 Metadata collection	5.3 Review & update metadata	6.3 Monitor & update outputs	7.3 Manage release of products
1.4 Identify constraints	2.4 Design Content & Structure	3.4 Design workflow	4.4 Metadata collection	5.4 Data & Update	6.4 Monitor outputs	7.4 Manage dissemination activities
1.5 Check data availability	2.5 Design processes & Strategy	3.5 Non-proprietary system	4.5 Metadata collection	5.5 Product outputs	6.5 Monitor outputs	7.5 Manage user feedback
1.6 Prepare business plan	2.6 Design of metadata capture & collection	3.6 Non-proprietary system	4.6 Metadata collection	5.6 Product outputs	6.6 Monitor outputs	7.6 Manage user feedback
				5.7 Metadata collection	6.7 Monitor outputs	7.7 Manage user feedback
				5.8 Metadata collection	6.8 Monitor outputs	7.8 Manage user feedback

GSIM 2.0



TERMINOLOGY

METastat

STRUCTURAL METADATA

REFERENCE METADATA

SIMS 2.0

Item No.	Concept name	2 SIMS V2.0	Concept name	Item No.	Concept name
1.1	Concept	1.1	Concept	1.1	Concept
1.2	Concept	1.2	Concept	1.2	Concept
1.3	Concept	1.3	Concept	1.3	Concept
1.4	Concept	1.4	Concept	1.4	Concept
1.5	Concept	1.5	Concept	1.5	Concept
1.6	Concept	1.6	Concept	1.6	Concept
1.7	Concept	1.7	Concept	1.7	Concept
1.8	Concept	1.8	Concept	1.8	Concept
1.9	Concept	1.9	Concept	1.9	Concept
1.10	Concept	1.10	Concept	1.10	Concept
1.11	Concept	1.11	Concept	1.11	Concept
1.12	Concept	1.12	Concept	1.12	Concept
1.13	Concept	1.13	Concept	1.13	Concept
1.14	Concept	1.14	Concept	1.14	Concept
1.15	Concept	1.15	Concept	1.15	Concept
1.16	Concept	1.16	Concept	1.16	Concept
1.17	Concept	1.17	Concept	1.17	Concept
1.18	Concept	1.18	Concept	1.18	Concept
1.19	Concept	1.19	Concept	1.19	Concept
1.20	Concept	1.20	Concept	1.20	Concept
1.21	Concept	1.21	Concept	1.21	Concept
1.22	Concept	1.22	Concept	1.22	Concept
1.23	Concept	1.23	Concept	1.23	Concept
1.24	Concept	1.24	Concept	1.24	Concept
1.25	Concept	1.25	Concept	1.25	Concept
1.26	Concept	1.26	Concept	1.26	Concept
1.27	Concept	1.27	Concept	1.27	Concept
1.28	Concept	1.28	Concept	1.28	Concept
1.29	Concept	1.29	Concept	1.29	Concept
1.30	Concept	1.30	Concept	1.30	Concept
1.31	Concept	1.31	Concept	1.31	Concept
1.32	Concept	1.32	Concept	1.32	Concept
1.33	Concept	1.33	Concept	1.33	Concept
1.34	Concept	1.34	Concept	1.34	Concept
1.35	Concept	1.35	Concept	1.35	Concept
1.36	Concept	1.36	Concept	1.36	Concept
1.37	Concept	1.37	Concept	1.37	Concept
1.38	Concept	1.38	Concept	1.38	Concept
1.39	Concept	1.39	Concept	1.39	Concept
1.40	Concept	1.40	Concept	1.40	Concept
1.41	Concept	1.41	Concept	1.41	Concept
1.42	Concept	1.42	Concept	1.42	Concept
1.43	Concept	1.43	Concept	1.43	Concept
1.44	Concept	1.44	Concept	1.44	Concept
1.45	Concept	1.45	Concept	1.45	Concept
1.46	Concept	1.46	Concept	1.46	Concept
1.47	Concept	1.47	Concept	1.47	Concept
1.48	Concept	1.48	Concept	1.48	Concept
1.49	Concept	1.49	Concept	1.49	Concept
1.50	Concept	1.50	Concept	1.50	Concept
1.51	Concept	1.51	Concept	1.51	Concept
1.52	Concept	1.52	Concept	1.52	Concept
1.53	Concept	1.53	Concept	1.53	Concept
1.54	Concept	1.54	Concept	1.54	Concept
1.55	Concept	1.55	Concept	1.55	Concept
1.56	Concept	1.56	Concept	1.56	Concept
1.57	Concept	1.57	Concept	1.57	Concept
1.58	Concept	1.58	Concept	1.58	Concept
1.59	Concept	1.59	Concept	1.59	Concept
1.60	Concept	1.60	Concept	1.60	Concept
1.61	Concept	1.61	Concept	1.61	Concept
1.62	Concept	1.62	Concept	1.62	Concept
1.63	Concept	1.63	Concept	1.63	Concept
1.64	Concept	1.64	Concept	1.64	Concept
1.65	Concept	1.65	Concept	1.65	Concept
1.66	Concept	1.66	Concept	1.66	Concept
1.67	Concept	1.67	Concept	1.67	Concept
1.68	Concept	1.68	Concept	1.68	Concept
1.69	Concept	1.69	Concept	1.69	Concept
1.70	Concept	1.70	Concept	1.70	Concept
1.71	Concept	1.71	Concept	1.71	Concept
1.72	Concept	1.72	Concept	1.72	Concept
1.73	Concept	1.73	Concept	1.73	Concept
1.74	Concept	1.74	Concept	1.74	Concept
1.75	Concept	1.75	Concept	1.75	Concept
1.76	Concept	1.76	Concept	1.76	Concept
1.77	Concept	1.77	Concept	1.77	Concept
1.78	Concept	1.78	Concept	1.78	Concept
1.79	Concept	1.79	Concept	1.79	Concept
1.80	Concept	1.80	Concept	1.80	Concept
1.81	Concept	1.81	Concept	1.81	Concept
1.82	Concept	1.82	Concept	1.82	Concept
1.83	Concept	1.83	Concept	1.83	Concept
1.84	Concept	1.84	Concept	1.84	Concept
1.85	Concept	1.85	Concept	1.85	Concept
1.86	Concept	1.86	Concept	1.86	Concept
1.87	Concept	1.87	Concept	1.87	Concept
1.88	Concept	1.88	Concept	1.88	Concept
1.89	Concept	1.89	Concept	1.89	Concept
1.90	Concept	1.90	Concept	1.90	Concept
1.91	Concept	1.91	Concept	1.91	Concept
1.92	Concept	1.92	Concept	1.92	Concept
1.93	Concept	1.93	Concept	1.93	Concept
1.94	Concept	1.94	Concept	1.94	Concept
1.95	Concept	1.95	Concept	1.95	Concept
1.96	Concept	1.96	Concept	1.96	Concept
1.97	Concept	1.97	Concept	1.97	Concept
1.98	Concept	1.98	Concept	1.98	Concept
1.99	Concept	1.99	Concept	1.99	Concept
2.00	Concept	2.00	Concept	2.00	Concept





# METAstat reference metadata component

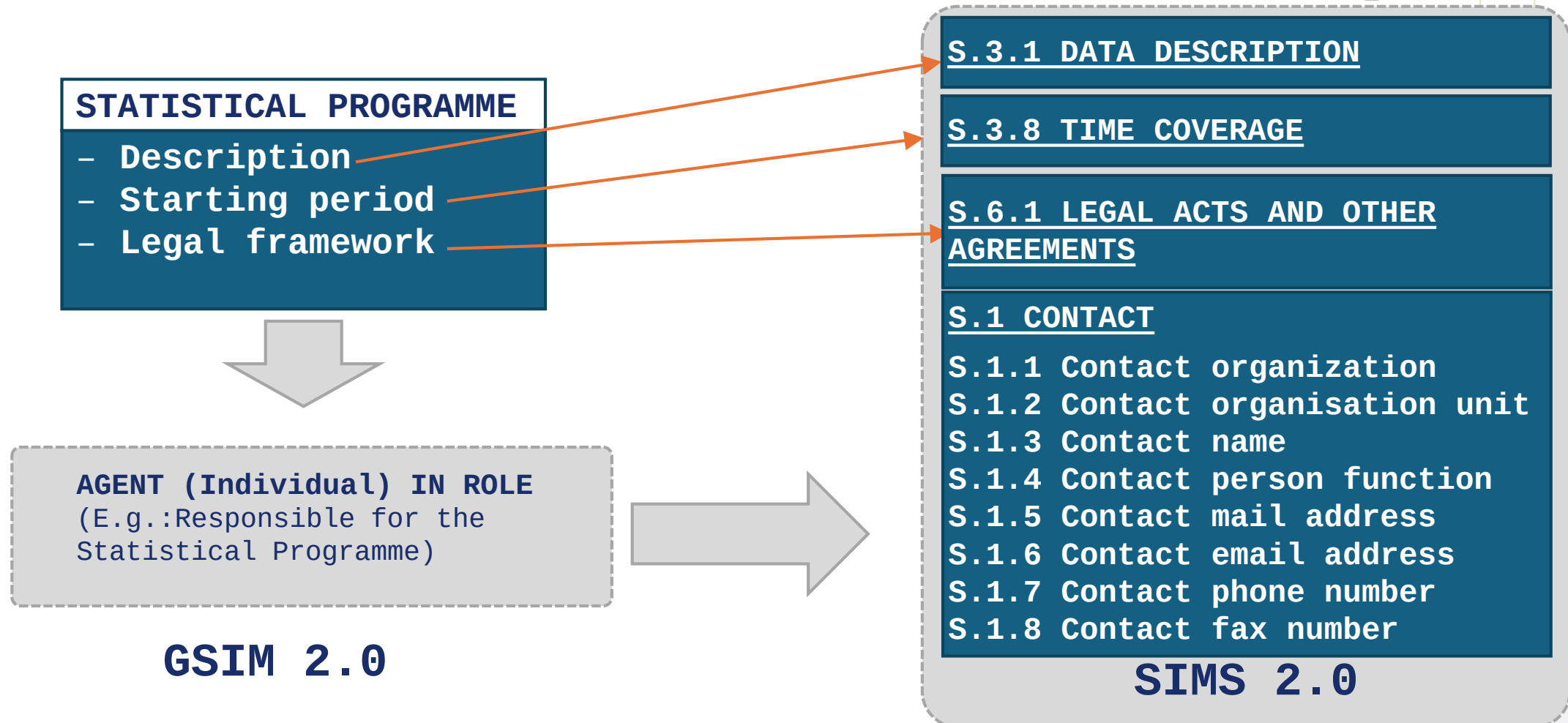
The **Metastat** reference metadata component is being designed with a modular structure.

The following modules will be progressively implemented:

1. General information and main informative contents of a statistical process
2. Statistical process inputs and outputs
3. Statistical process phases and subprocesses (including quality indicators)



# General information of the statistical process





# Inputs and output of the statistical process

External  
INPUT

Final  
OUTPUT

**S.18.1**  
Source data

**S.3.2**  
Classification  
system

**SIMS 2.0**

**Register**  
(Administrative  
data,  
Statistical  
Register)

**Classification**

**GSIM 2.0**

**Statistical  
Programme Cycle**

**GSBPM**

Quality Management / Metadata Management							
Specify Needs	Design	Build	Collect	Process	Analyse	Disseminate	Evaluate
1.1 Identify needs	1.1 Design inputs	2.1 Build or enhance instrument	4.1 Create frame & select sample	5.1 Impose data	6.1 Prepare input	7.1 Update output systems	8.1 Collect evaluation reports
1.2 Consult & confirm needs	1.2 Design resources	2.2 Build or enhance primary components	4.2 Set up collection	5.2 Classify & code	6.2 Update output	7.2 Produce dissemination products	8.2 Conduct evaluation
1.3 Assess input availability	1.3 Design collection	2.3 Build or enhance dissemination components	4.3 Non collection	5.3 Review & update	6.3 Prepare & release output	7.3 Manage release of dissemination products	8.3 Agree on action plan
1.4 Identify strengths	1.4 Design output & sample	2.4 Change specifications	4.4 Produce collection	5.4 Data & release	6.4 Apply metadata control	7.4 Produce dissemination products	8.4
1.5 Check data availability	1.5 Design processing & storage	2.5 Test production system	4.5	5.5 Review user feedback & update	6.5 Finalise reports	7.5 Manage user request	
1.6 Prepare business case	1.6 Change production methods & workflow	2.6 Test statistical business process	4.6	5.6 Calculate weights	6.6	7.6	
		2.7 Finalise production system		5.7	6.7		
				5.8	6.8		
				5.9	6.9		

**Product**  
(News release,  
Publication,  
Corporate dissemination  
database,  
Microdata)

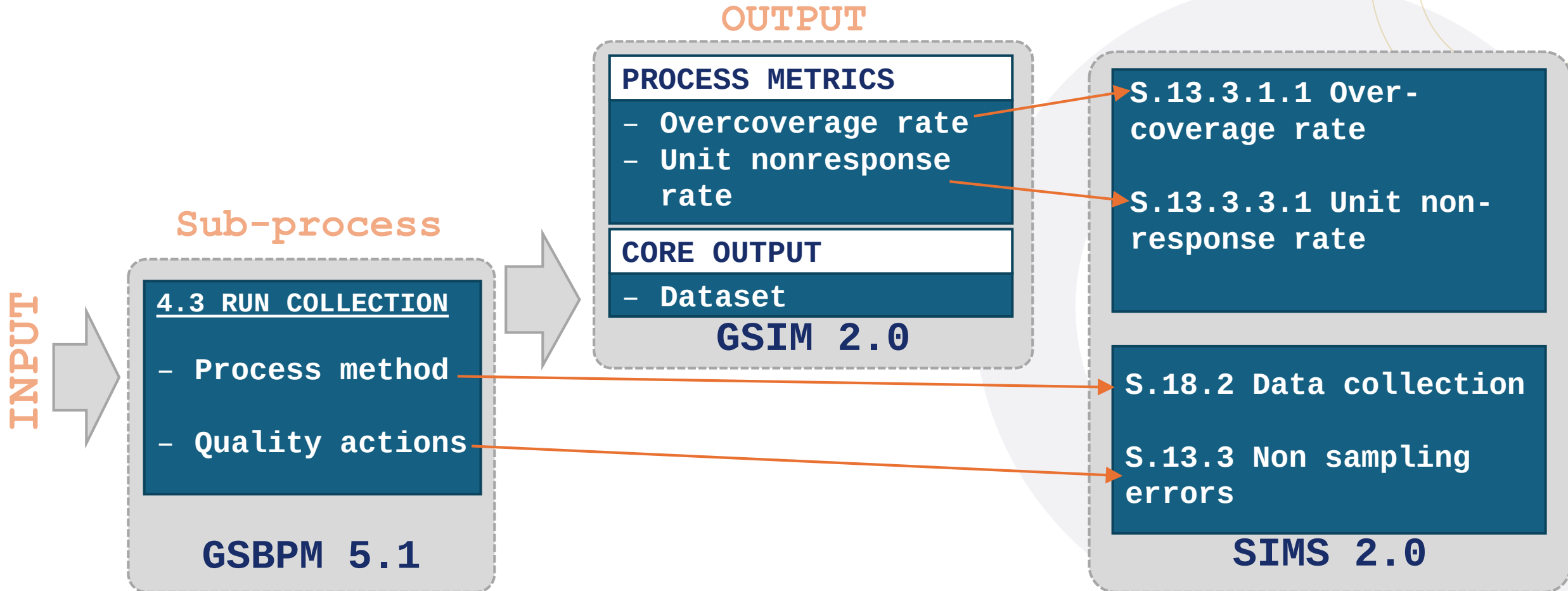
**GSIM 2.0**

**S.10.1** News  
release  
**S.10.2**  
Publications  
**S.10.3** On-line  
database  
**S.10.4** Microdata  
access

**SIMS 2.0**



# Sub-processes of the statistical process with intermediate inputs and outputs







# Conclusion

- Unique metadata system for different purposes
- Importance of relying upon GSIM for the conceptual model
- Take advantage of SIDI-SIQual experience
- Integrate management of reference structural and terminology metadata



Useful documentation for quality assessment  
Traceability  
Metadata harmonization



EUROPEAN CONFERENCE ON  
QUALITY IN OFFICIAL STATISTICS  
2024 ESTORIL - PORTUGAL



INSTITUTO NACIONAL DE ESTATÍSTICA  
STATISTICS PORTUGAL

eurostat 

The conference is  
partly financed by the  
European Union

**Thank you  
for your  
attention!**



# EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS 2024 ESTORIL - PORTUGAL