
ANNEX - SIMSgeo

Recommendations for geospatial quality reporting based on the SIMS concepts

In this annex, some concepts and sub-concepts of the Single Integrated Metadata Structure (SIMS) relevant for geospatial outputs and processing are presented according to the European Statistical System (ESS) handbook for quality and metadata reports — 2020 edition¹. For each concept and sub-concept, the relevance to geospatial content was evaluated and added where found appropriate. For each concept and sub-concept, the table shows:

- The SIMS nomenclature
- The definition of the concept or sub-concept
- The guidelines as they are provided in the handbook
- **Geospatial content: Recommendations of GEOSTAT considering which contents should or at least could be reported in the sub-concept when it comes to geospatial outputs or geospatial processing.**

Numerous concepts/sub-concepts relevant for geospatial outputs/processing were identified and recommendations given based on the premise that there is some use of geospatial data along the production process of a certain statistical product.

It should be noted that there is no distinction here between concepts and sub-concepts included in producer or user-oriented quality reports. Refer to SIMS v2.0 for information on this aspect.

Each table is followed by short notes about what is generally seen as relevant quality elements for each concept.

The recommendations for the geospatial contents can be used to highlight the growing importance of geospatial outputs by providing meta-information in a quality report. The modular structure of SIMS allows it not only to enhance the reports which are prescribed for numerous European statistical products but also to extract and produce special tailor-made geospatial reports for internal and external purposes.

¹ ["European Statistical System \(ESS\) handbook for quality and metadata reports — 2020 edition"](#)

S01 Contact

SIMS	Concept name	Definition	Guidelines	Geospatial content
S01	Contact	Individual or organisational contact points for the data or metadata, including information on how to reach the contact points.	See sub concepts	See sub concepts
S01.1	Contact organisation	The name of the organisation of the contact points for the data or metadata.	Provide the full name (not just code name) of the organisation responsible for the process and outputs (data and metadata) that are the subject of the report.	Normally this is the statistical authority (mainly the NSI). To name an additional contact for the geospatial part makes only sense if the work is done outside the NSI (NGIA – National Geospatial Information Agencies).
S01.2	Contact organisation unit	An addressable subdivision of an organisation.	Provide the full name of the organisational unit responsible. The name can include a unit number.	This is the organisational unit in charge for the product.
S01.3	Contact name	The names of the contact points for the data or metadata.	Provide the first and last names of the contact point(s). If more than one name is provided, the main contact should be indicated. If the author of the report is different from the person(s) responsible for process and its outputs, provide this name also.	This is the name of the contact point in charge for the product.
S01.4	Contact person function	The area of technical responsibility of the contact, such as "methodology", "database management" or "dissemination".	Provide the title(s) and area(s) of responsibility of the person(s) indicated as contact(s), for example Senior Research Assistant, Economics Division	Since the geospatial part is specific a point "Geospatial Information" should appear in this concept.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S01.5	Contact mail address	The postal address of the contact points for the data or metadata.	Provide the postal address(es) of the person(s) indicated as contacts.	This can also include one person responsible for the geospatial part (NSI or NGIA – National Geospatial Information Agency).
S01.6	Contact email address	E-mail address of the contact points for the data or metadata	Provide the email address(es) of the person(s) indicated as contacts. The address(es) can be (an) individual e-mail address(es) or a mailbox in the organisation to which the person(s) has (have) access.	This can also include one person responsible for the geospatial part (NSI or NGIA – National Geospatial Information Agency).
S01.7	Contact phone number	The telephone number of the contact points for the data or metadata.	Provide the telephone number(s) of the person(s) indicated as contacts.	This can also include one person responsible for the geospatial part (NSI or NGIA – National Geospatial Information Agency).
S01.8	Contact fax number	Fax number of the contact points for the data or metadata.	Provide the fax number(s) of the person(s) indicated as contacts.	This can also include one person responsible for the geospatial part (NSI or NGIA – National Geospatial Information Agency).

The general intention of S01 is to provide contact information for readers of the quality report in order to be able to have a possibility for any inquiries. Since the geospatial part of product can be bound to expertise outside the subject matter units it is recommended to include contact information in the corresponding concepts. As a minimum requirement GIS contact should be provided in the sub concepts S01.03 “Contact name” and S01.4 “Contact person function”. It could also be very useful to include a contact person of the National Geospatial Information Agency.

S03 Statistical presentation

SIMS	Concept name	Definition	Guidelines	Geospatial content
S03	Statistical presentation	Description of the disseminated data which can be displayed to users as tables, graphs or maps	See sub-concepts	See sub-concepts
S03.2	Classification system	Arrangement or division of objects into groups based on characteristics which the objects have in common.	List all classifications and breakdowns that are used in the data (with their detailed names) and provide links (if publicly available). Explain deviations, if any, from ESS or international standards. <i>European level:</i> Provide an overview of national deviations from ESS and/or international standards.	Classifications which are in use for geospatial data presentations for instance in maps, charts etc. should be listed here. It concerns as well the quality of the thematic attributes and of the classifications of features and their relationships as well as the classification correctness.
S03.3	Sector coverage	Main economic or other sectors covered by the statistics.	List the main economic or other sectors covered by the data and the size classes used, for example, size classes based on number of employees. <i>European level:</i> Provide a summary of differences in the main economic or other sectors covered by national data and the size classes used.	If feasible, economic sectors, size classes and other important breakdown variables, which are in use for geospatial data presentations for instance in maps charts etc., should be listed here.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S03.4	Statistical concepts and definitions	Statistical characteristics of statistical observations, variables.	<p>Define and describe briefly the main statistical variables that have been observed or derived. Indicate their types. Indicate discrepancies, if any, from the ESS or international standards. Note that any difference between these variables and the variables desired by users is a relevance issue and is discussed in S.12.</p> <p><i>European level:</i> Summarise the national discrepancies from the ESS and/or international standards</p>	<p>There should be a list of variables, which are used for geospatial presentations. For instance</p> <ul style="list-style-type: none"> • income, • number of schools, • number of employed persons etc. <p>classified by regional entities.</p>
S03.5	Statistical unit	Entity for which information is sought and for which statistics are ultimately compiled.	<p>Define the type of statistical unit about which data are collected, e.g. enterprise, kind of activity unit, local unit, private household, dwelling, person, import transaction.</p> <p>If there is more than one type of unit, define each type.</p> <p><i>European level:</i> Summarise the differences in units used at national level.</p>	<p>The statistical units are those which are surveyed or enhanced by characteristics in any other data collection process. According to EFGS principle 2 processes of linking and storing high-precision geographic references to each statistical unit should be implemented.</p>

SIMS	Concept name	Definition	Guidelines	Geospatial content
S03.6	Statistical population	The total membership or population or "universe" of a defined class of people, objects or events.	<p>Define the target population of statistical units for which information is sought.</p> <p>Note that a difference between the target population and the ideal population desired by users is a relevance issue and is discussed in S12; and the difference between target population and the survey population is a coverage issue and is discussed in S13.3.</p> <p>If there is more than one type of statistical population, define each type.</p> <p><i>European level:</i> Summarise the differences in statistical populations used at national level</p>	Refers to the statistical product as a whole, so there is normally no additional need for reporting for the geospatial part. Only if certain parts of the population are excluded from geospatial presentations, it should be reported.
S03.7	Reference area	The country or geographic area to which the measured statistical phenomenon relates.	<p>Describe the country, the regions, the districts, or the other geographical aggregates, to which the data refer. Identify any specific exclusions in the data disseminated. If coverage includes overseas territories this should be stated, and they should be specified.</p> <p><i>European level:</i> Describe the geographical area covered by the data disseminated, e.g., EU Member states, EU regions, USA, Japan, or aggregates such as EU, EEA).</p>	Describe to which geographic or other regional entities the geospatial presentations are referring to.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S03.8	Time coverage	The length of time for which data are available.	State the time period(s) covered by the data, e.g. first quarter 2018, or quarters 2015-2018, or year 2018, or years 1985-2018. Note that any issues concerning comparability over time are discussed in S15	If the geospatial presentations contain a time component, it should be reported how it is implemented.
S03.9	Base period	The period of time used as the base of an index number, or to which a constant series refers.	Note that this concept applies only to certain types of outputs, such as indexes. State the base period, for example, year 2000. Indicate base period update time frame and date of next update.	If indices are the subject of geospatial presentations, it should be indicated that the base period is apparent in all geospatial presentations.

Statistical presentation refers to the disseminated data which can be displayed to users as tables, graphs or maps etc. It comprises three parts

- Data description, classification system and sector coverage,
- Statistical concepts, definitions, units and populations,
- Reference area, time coverage and base period.

How far geospatial aspects deserve to be included into the sub-concepts, depends on the distinction for the geospatial part of the product. Statistical units for instance might not differ for the geo-processing, but if there is only a certain share of variables being processed for geospatial outputs, it should be apparent under this concept.

S04 Unit of measure

SIMS	Concept name	Definition	Guidelines	Geospatial content
S04	Unit of measure	The unit in which the data values are measured.	The data usually involves several units of measure depending upon the variables. Examples are: Euro, national currency, number of persons, and rate per 100,000 inhabitants. The magnitude (e.g., thousand, million) of numerical units should be included.	There could be a statement that the units of measure have been used for geospatial outputs consistently.

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S05 Reference period

SIMS	Concept name	Definition	Guidelines	Geospatial content
S05	Reference period	The period of time or point in time to which the measured observation is intended to refer.	<p>The value of a variable refers to a specific time period (for example, the last week of a month, a month, a fiscal year, a calendar year, or several calendar years), or to a point in time (for example, a specific day, or the last day of a month). The variables in a dataset may refer to more than one reference period. All reference periods should be stated. Note that the difference, if any, between the target reference period(s) and the actual reference period(s) is an accuracy issue and should be discussed in S.13.3.</p> <p>Note that if the survey population does not include all the units in the target population for the specified reference period, this is a coverage issue and should be discussed in S.13.3.</p> <p><i>European level:</i> Summarise differences in reference period across countries.</p>	<p>There could be a statement that the reference period has been respected for geospatial outputs consistently.</p>

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S06 Institutional mandate

SIMS	Concept name	Definition	Guidelines	Geospatial content
S06	Institutional mandate	Law, set of rules or other formal set of instructions assigning responsibility as well as the authority to an organisation for the collection, processing, and dissemination of statistics.	See sub-concepts	See sub-concepts
S06.1	Legal acts and other agreements	Legal acts or other formal or informal agreements that assign responsibility as well as the authority to an agency for the collection, processing, and dissemination of statistics.	State the national legal acts and/or other reporting agreements, including EU legal acts, the implementation of EU directives. <i>European level</i> State the legal base or other agreement, for example, the EU legal act, or ESS Five-Year-Program, that underpins the reporting obligations on countries.	Any legal acts demanding and supporting the production and dissemination of geospatial outputs, should be listed here
S06.2	Data sharing	Arrangements or procedures for data sharing and coordination between data producing agencies.	Describe the arrangements, procedures or agreements to facilitate data sharing and exchange between data producing agencies within the national statistical system.	Any agreements facilitating data sharing (for instance with mapping agencies) relevant for geospatial outputs, should be listed here.

SIMS	Concept name	Definition	Guidelines	Geospatial content
			<p><i>European level:</i> Describe the arrangements, procedures or agreements to facilitate data sharing and exchange between international data producing agencies, for example, a Eurostat data collection or production that is in common with the OECD or the UN.</p>	

Legal acts and relevant agreements for sharing data are important basic elements for producing official statistics in general and especially for data collection. Regarding geospatial activities, it is of interest if there are special legal acts which should be mentioned in a quality report.

S07 Confidentiality

SIMS	Concept name	Definition	Guidelines	Geospatial content
S07	Confidentiality	A property of data indicating the extent to which their unauthorised disclosure could be prejudicial or harmful to the interest of the source or other relevant parties.	See sub-concepts	See sub-concepts
S07.2	Confidentiality - data treatment	Rules applied for treating the datasets to ensure statistical confidentiality and prevent unauthorised disclosure.	<p>For aggregate outputs: Provide the rules that define a confidential cell; Describe the procedures for detecting confidential cells (primary confidentiality) and checking for residual disclosure (derivation or secondary confidentiality); Describe the procedures for reducing the risk of disclosure by treating confidential cells, for example by perturbation, controlled rounding, cell suppression, or cell aggregation.</p> <p>For micro-level outputs: Describe the procedures that are used in protecting confidentiality.</p> <p><i>European level:</i> Summarise the commonalities and differences in national approaches.</p>	Provide an explanation on how far confidentiality rules are obeyed in geospatial outputs.

Confidentiality is an important issue when disseminating official statistics. Conveying information about the handling of confidential cells serves the purpose to enhance trust in official statistics of users and respondents. Regarding geospatial outputs, the reporting should focus on the issue in how far confidentiality rules are obeyed in geospatial outputs.

S09 Frequency of dissemination

SIMS	Concept name	Definition	Guidelines	Geospatial content
S09	Frequency of dissemination	The time interval at which the statistics are disseminated over a given time period.	State the frequency with which the data are disseminated, e.g. monthly, quarterly, yearly. The frequency can also be expressed by using a code from the harmonised ESS code list so long as this is considered to be easily understandable by users	If there is a divergence for the geospatial part of the disseminated outputs, it should be stated here.

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S10 Accessibility and clarity

SIMS	Concept name	Definition	Guidelines	Geospatial content
S10	Accessibility and clarity	The conditions and modalities by which users can access, use and interpret data.	See sub-concepts	See sub-concepts
S10.4	Micro-data access	Information on whether micro-data are also disseminated	State whether the data are accessible in micro-data form, e.g. for researchers. If so, cross reference the micro-data confidentiality rules in S7.	Depending on confidentiality rules location information might be included and mentioned.
S10.5	Other	References to the most important other data dissemination done.	Describe any other important dissemination mechanisms, for example policy papers, within outputs produced by other statistical processes. Summarise the accessibility and clarity of the data associated with the various dissemination formats, including relevant results from user surveys, and the effects of pricing policies and confidentiality provisions. Describe dissemination of data to Eurostat and other international organisations, and internal dissemination.	<p>A full picture of the geospatial outputs should be provided here. This includes:</p> <ul style="list-style-type: none"> • Dissemination platforms • Dissemination channels • Dissemination formats • Quality indicators when available (see also ACCGeopr of quality indicator product) <p>Refer to aspects listed in ISO 19157 quality of geospatial dataset – External quality:</p> <ul style="list-style-type: none"> • Fitness for use: degree of agreement between data characteristics (i.e., internal quality) and the explicit and/or implicit needs of a user for a given application in a given context.

SIMS	Concept name	Definition	Guidelines	Geospatial content
				<ul style="list-style-type: none"> Usability: based on user's requirements, all internal quality elements of ISO 19157 may be used to evaluate usability.
S10.6	Documentation on methodology	Descriptive text and references to methodological documents available.	List national reference metadata files, methodological papers, summary documents and handbooks relevant to the statistical process.	<p>Provide an overview about documentation of geospatial outputs.</p> <p>Special metadata files related for instance to INSPIRE should be referred to.</p>
S10.7	Quality documentation	Documentation on procedures applied for quality management and quality assessment.	<p>List relevant quality related documents, for example, other quality reports, studies. Cross reference to descriptions of quality procedures in other chapters, especially S.13.</p> <p><i>European level:</i> Summarise availability of national quality reports</p>	Describe to which geographic or other regional entities the geospatial presentations are referring to.

Accessibility and clarity is one of the most significant quality dimensions. In SIMS this is divided into the concepts related to the access environment via various channels (S10.1 to S10.5.) and two concepts (S10.6. and S10.7) which are dedicated to methodical documentation and quality information. Since there is no specific element here for geospatial outputs the sub-concept S10.5 "other" has to be used to provide a summary on the geospatial output channels relevant for the statistical product. For metadata, corresponding issues can be described in S10.6 and S10.7.

S11 Quality management

SIMS	Concept name	Definition	Guidelines	Geospatial content
S11	Quality management	Systems and frameworks in place within an organisation to manage the quality of statistical products and processes.	See sub-concepts	See sub-concepts
S11.1	Quality assurance	All systematic activities implemented that can be demonstrated to provide confidence that the processes will fulfil the requirements for the statistical output.	Describe the procedures (such as use of a general quality management system based on EFQM or ISO 9000 series) to promote general quality management principles in the organisation. Describe the quality assurance framework used to implement statistical quality principles. Describe the quality assurance procedures specifically applied to the statistical process for which the report is being prepared, for example training courses, process monitoring, benchmarking, assessments, and use of best practices. Include descriptions of all forms of quality assessment procedures (such as user satisfaction survey, self-assessment, peer review, compliance monitoring, audit, labelling, certification) and when they most recently took place. Describe any ongoing or planned improvements in quality assurance procedures	It should be described what is done for the geospatial part of the product. This could include a reference to: ISO 19157 quality of geospatial dataset (internal and external quality).

SIMS	Concept name	Definition	Guidelines	Geospatial content
S11.2	Quality assessment	Overall assessment of data quality, based on standard quality	Summarise the results of the most recent quality assessments and cross reference to the chapters in the report where the results are presented in more detail.	<p>If there exists any special assessment about the geospatial part, describe it here. This could include a reference to: ISO 19157 quality of geospatial dataset -Internal quality:</p> <ul style="list-style-type: none"> • Completeness: presence or absence of features, their attributes and relationships (Omission or commission, cf. overcoverage, undercoverage - frame errors in statistics). • Logical consistency: degree of adherence to logical rules of data structure, attribution and relationships (Conceptual consistency, domain consistency, format consistency, topological consistency). • Positional accuracy: accuracy of the position of features within a spatial reference system (Absolute accuracy, relative accuracy, gridded data position accuracy.) • Thematic accuracy: quality of the thematic attributes and of the classifications of features and their relationships, (Classification correctness, non-quantitative attribute correctness, quantitative attribute accuracy.)

SIMS	Concept name	Definition	Guidelines	Geospatial content
				<ul style="list-style-type: none"> • Temporal quality: quality of the temporal attributes and temporal relationships of features, (Accuracy of time measurement, temporal consistency, temporal validity.) <p>ISO 19157 quality of geospatial dataset - External quality:</p> <ul style="list-style-type: none"> • Fitness for use: degree of agreement between data characteristics (i.e., internal quality) and the explicit and/or implicit needs of a user for a given application in a given context. • Usability: based on user's requirements, all internal quality elements of ISO 19157 may be used to evaluate usability.

In the geospatial community the quality management procedures are laid down in various ISO norms (e.g. ISO 19157). That means that if the quality management system of the statistical authorities also considers such frameworks for geospatial processing, there should be a corresponding reference to that.

S12 Relevance

SIMS	Concept name	Definition	Guidelines	Geospatial content
S12	Relevance	Systems and frameworks in place within an organisation to manage the quality of statistical products and processes.	See sub-concepts	See sub-concepts
S12.1	User needs	Description of users and their respective needs with respect to the statistical data.	Provide: a classification of users, also indicating their relative importance; an indication of the uses for which users want the statistical outputs; an assessment of the key outputs desired by different categories of users and any shortcomings in outputs for important users; information on unmet user needs and any plans to satisfy them in the future; and details regarding those quality components which do not meet user requirements.	<p>List here:</p> <ul style="list-style-type: none"> • User groups which have specific interest in geospatial outputs. This could include e.g., Open data communities. • Which kind of geospatial outputs are requested (maps, graphs, charts etc.). • Any unmet specific geospatial user needs. <p>Refer to aspects listed in ISO 19157 quality of geospatial dataset – External quality:</p> <ul style="list-style-type: none"> • Fitness for use: degree of agreement between data characteristics (i.e., internal quality) and the explicit and/or implicit needs of a user for a given application in a given context. • Usability: based on user's requirements, all internal quality elements of ISO 19157 may be used to evaluate usability.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S12.2	User satisfaction	Measures to determine user satisfaction	Describe how, and how often, the views and opinions of the users are collected, for example by user satisfaction surveys or other user consultations. State how often such investigations are conducted and when the most recent took place. Present the key results from the recent investigations. Present view of user satisfaction over time, in the form of a user satisfaction index if available.	Are there specific measures in order to determine user satisfaction for the geospatial output? For instance: the possibility of assessing geospatial output should be included in a regular user satisfaction survey.
S12.3	Completeness	The extent to which all statistics that are needed are available.	Provide qualitative information on the extent to which content requirements in relevant legislation, regulations and guidelines are met. Where such requirements are not fully met, reasons for this should be provided. Provide information on the extent to which user needs related to content are satisfied.	Are there variables which are not used to produce geospatial outputs and are there reasons not to do so? Refer to the user needs formulated in S12.2

There are users who are mainly interested in geospatial outputs. Consequently, there might be user needs which are very specific to this part of the output portfolio for a certain statistical product. Given that, the reporting on concept S12 should consider the geospatial part sufficiently.

S13 Accuracy and reliability

SIMS	Concept name	Definition	Guidelines	Geospatial content
S13	Accuracy and reliability	Accuracy of data is the closeness of computations or estimates to the exact or true values that the statistics were intended to measure. Reliability of the data, defined as the closeness of the initial estimated value to the subsequent estimated value.	See sub-concepts	See sub-concepts

SIMS	Concept name	Definition	Guidelines	Geospatial content
S13.1	Overall accuracy	Assessment of accuracy, linked to a certain data set or domain, which is summarizing the various components	<p>Describe the main sources of random and systematic errors in the statistical outputs and provide a summary assessment of all errors with special focus on the impact on key estimates. The bias assessment can be in quantitative or qualitative terms, or both, and may be expressed as bias risk. It should reflect the producer's best current understanding (sign and order of magnitude) and include actions taken to reduce bias.</p> <p><i>European level:</i> Provide a summary picture of accuracy across countries. The emphasis placed on various types of errors should depend upon the error profile of the respective process. For repetitive processes, describe how accuracy is developing over time and what efforts are underway to improve accuracy from an ESS perspective</p>	Provide a summary here. Take into account the specific contents provided by the following sub-concepts.

<p>S13.2</p>	<p>Sampling error</p>	<p>That part of the difference between a population value and an estimate thereof, derived from a random sample, which is due to the fact that only a subset of the population is enumerated.</p>	<p>State whether sampling error is relevant. If probability sampling is used: for user reports, provide the range of variation of the A1 indicator among key variables at user report level of detail; for producer reports, provide the range of variation of the A1 indicator among key variables at producer report level of detail; indicate the impact of sampling error on the overall accuracy of the results; state how the calculation of sampling error is affected by adjustments for nonresponse, misclassifications and other sources of uncertainty, such as outlier treatment. If non-probability sampling is used, provide an assessment of representativeness, a motivation for the invoked model for estimation and risk of sampling bias. <i>European level:</i> If probability sampling is used: present sampling errors for key estimates across countries; indicate which country to country differences are significant and which are not; for a repetitive survey, describe at least broadly the trends in sampling error over time provide sampling errors for ESS level estimates.</p>	<p>Sampling errors are in principle not relevant for geospatial outputs. However, if there are very specific issues (for instance sampling errors are also visualized in geospatial output), then it should be stated here.</p>
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SIMS	Concept name	Definition	Guidelines	Geospatial content
S13.3	Non-sampling errors	Error in survey estimates which cannot be attributed to sampling fluctuations.	Summarise the most important aspects of coverage, measurement, non-response, processing and model assumption errors. Discuss the corresponding bias risks and actions undertaken to reduce them. <i>European level:</i> Provide a summary of the above across countries.	Provide a summary of S13.3.1 to S13.3.5 and highlight the most important aspects.
S13.3.1	coverage error	Divergence between the survey population and the target population	Provide information on the frame and its sources. Provide an assessment, whenever possible quantitative, of overcoverage and undercoverage, including an evaluation of the bias risks associated with the latter. Describe actions taken for reduction of undercoverage and associated bias risks. <i>European level:</i> Provide an overall picture of coverage across countries. This is often best done in the form of tables with the important coverage aspects, country by country.	Frame errors (related to over coverage and under coverage) can have an impact on the output quality. Therefore, it should be described what frames are in use for the extraction of information related to the geospatial processing.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S13.3.2	Measurement error	Measurement errors are errors that occur during data collection and cause recorded values of variables to be different from the true ones	<p>The main sources of measurement error should be reported and assessed. Their description should be accompanied by any available analysis, otherwise by the producer's best knowledge. Where available and relevant describe:</p> <ul style="list-style-type: none"> identification and general assessment of the main sources of measurement error; efforts made in questionnaire design and testing, information on interviewer training and other work on error prevention; results of assessments based on comparisons with external data, re-interviews or experiments; results of indirect analysis, for example, of the editing phase; and actions taken to correct measurement errors . <p><i>European level:</i> Where measurement errors are important as a single source of error provide a comparative summary across countries. Otherwise include them within overall accuracy in S.13.1.</p>	<p>Coordinates and geographic characteristics are the most important elements for the geospatial processes. How reliable are the processes and data sources for collecting this information?</p>

SIMS	Concept name	Definition	Guidelines	Geospatial content
S13.3.4	Processing error	The error in final data collection process results arising from the faulty implementation of correctly planned implementation methods.	<p>If processing errors are significant, identify the main issues regarding them. Present an analysis of processing errors, where available, otherwise a qualitative assessment. Report their extent, and impact on the outputs, of the most significant types of error. Include descriptions of linking and coding errors, if applicable. Where mistakes relating to programming or publishing have occurred, corrective measures taken as well as actions for avoiding them in the future should be reported.</p> <p><i>European level:</i> Provide a summary across countries of processing errors.</p>	<p>GSBPM (and the geospatial view of GSBPM) The GSBPM can be used as a template for the description of all aspects of a statistical process. Describe what measures are taken to prevent processing errors and the most relevant process steps. The most important sources for errors are linking of statistical data and various geocoding processes. If other relevant processes are identified as potential sources for errors, this should be described here.</p>

SIMS	Concept name	Definition	Guidelines	Geospatial content
S13.3.5	Model assumption error	Error due to domain specific models needed to define the target of estimation.	Describe process specific models, for example, as needed to define the target of estimation itself. Provide an assessment of the validity of each model. (Descriptions of models used in treatment of specific sources of error should be presented in the section dealing with those errors.) <i>European level:</i> Where different models are used across countries, provide a comparative overview and discuss their validity and the likely effects of the differences.	Describe models specifically for the production of geospatial outputs. For instance, urban/rural classification.

Accuracy can be defined as the degree or closeness to which the information on a map matches the values in the real world. In GIS data, accuracy can refer to a geographic position, but also to an attribute, or conceptual accuracy. Precision refers to how exact the description of data is. Attribute accuracy indicates the attribute attached to the point, line and polygon features of the spatial database, which shows how reliable and reasonably correct or free from bias these are. The reporting should concentrate on the issues of non-sampling errors here mostly related to measurement errors, coverage errors and processing errors.

S14 Timeliness and Punctuality

SIMS	Concept name	Definition	Guidelines	Geospatial content
S14	Timeliness and Punctuality	See sub-concepts	See sub-concepts	See sub-concepts
S14.1	Timeliness	Length of time between data availability and the event or phenomenon the data describing.	Outline the reasons for the time lag. Outline efforts to reduce time lag in future. <i>European level:</i> For reports only published at European level do the above. Otherwise summarise the above across countries.	State here, if there are specific issues causing a further delay in the geospatial outputs (example: non-availability of geo input data like geometries).
S14.2	Punctuality	Time lag between the actual delivery of the data and the target date when it should have been delivered.	Report only for annual or more frequent releases. If a release schedule was made available to users and/or specified in a regulation; <ul style="list-style-type: none"> provide the percentage of releases delivered on time, based on scheduled release dates, over a specified period and/or set of outputs. in the event of any non-punctual releases, explain the reasons and outline efforts to improve punctuality. In the absence of a release schedule, explain why there is no schedule and indicate what efforts will be made to make one available in the future.	List here the project plan for the geospatial part of the product. Normally geospatial output is not required for delivery to Eurostat. If there is a delay for geospatial output, it should be mentioned explicitly here. Provide as well the reasons that caused the delay.

SIMS	Concept name	Definition	Guidelines	Geospatial content
			<p><i>European level</i> For outputs first published at European level, report as above. For outputs first published at country level,</p> <ul style="list-style-type: none"> • state the agreed time frame for delivery of national data and the actual delivery dates; • summarise punctuality across countries 	

Timeliness of geospatial output normally depends a lot on the availability of input data. For reporting on quality, geospatial issues should only be mentioned when shortcomings in timeliness for geospatial outputs are caused by reasons located in the geospatial processing. Regarding punctuality, the planning for geospatial outputs is normally embedded in the project plan compiled for the statistical product as a whole.

S15 Coherence and comparability

SIMS	Concept name	Definition	Guidelines	Geospatial content
S15	Coherence and comparability	Adequacy of statistics to be reliably combined in different ways and for various uses and the extent to which differences between statistics can be attributed to differences between the true values of the statistical characteristics.	See sub-concepts	See sub-concepts
S15.1	Comparability – geographical	The extent to which statistics are comparable between geographical areas.	Describe any problems of comparability between regions of the country. The reasons for the problems should be described and as well an assessment (preferably quantitative) of the possible effect on the output values. Give information on discrepancies from the ESS/ international concepts, definitions, with reference to other chapters for more details. <i>European level:</i> Focus on factors that affect the comparability between countries. Analyse asymmetries in statistical mirror flows where possible.	Describe how you take into account potential comparability problems between regions and areas. It should be clear to the user, when using geospatial outputs, if there are problems for comparing the results.

SIMS	Concept name	Definition	Guidelines	Geospatial content
S15.2	Comparability – over time	The extent to which statistics are comparable or reconcilable over time.	<p>Provide information on possible limitations in the use of data for comparisons over time. Distinguish three broad possibilities.</p> <p>There have been no changes, in which case this should be reported.</p> <ol style="list-style-type: none"> 1. There have been some changes but not enough to warrant the designation of a break in series. 2. There have been sufficient changes to warrant the designation of a break in series 	If there is a time component in the geospatial outputs, it should be described how far this is relevant.

To be able to compare results is one of the basic elements for users, in order to take full advantage of statistical outputs. Geospatial output presents most of the time regions (mainly related to a national territory) augmented by statistical characteristics. Therefore, for geospatial outputs, information should be available, if there are concerns regarding comparability over regions. Another possible issue, is comparability over time, which is relevant when the geospatial presentations also have a time component.

Coherence goes mainly to divergences between domains. It seems that this is not very relevant for geospatial outputs.

S16 Cost and burden

SIMS	Concept name	Definition	Guidelines	Geospatial content
S16	Cost and burden	Cost associated with the collection and production of a statistical product and burden on respondents.	<p><u>Cost:</u> Provide annual operational costs of the process, with breakdown by major cost component. Describe recent efforts to improve efficiency and comment on the extent to which information and communication technology is used. <i>European level:</i> Describe recent initiatives and efforts to improve efficiency at the European level.</p> <p><u>Burden:</u> Provide an estimate of the respondent burden imposed by the process. Describe all the means taken to minimise burden. <i>European level:</i> Describe recent initiatives and efforts to minimise burden at the European level.</p>	Response burden is usually not an issue related to geospatial processing or outputs. However regarding costs, there could be a statement reflecting the share of costs in order to produce geospatial outputs.

Response burden is an issue for surveys and usually not related to the geospatial part of a statistical product. However, accounting systems of statistical authorities should allow the derivation of the costs relevant for the production of geospatial outputs.

S17 Data revision

SIMS	Concept name	Definition	Guidelines	Geospatial content
S17	Data revision	Any change in a value of a statistic released to the public.	See sub-concepts	See sub-concepts
S17.1	Data revision – policy	Policy aimed at ensuring the transparency of disseminated data, whereby preliminary data are compiled that are later revised	Describe the data revision policy applicable to data output from the statistical process being reported. In so far as they are relevant to the process being reported, summarise the general procedures for treatment of planned revisions, benchmark revisions, unplanned revisions, and revisions due to conceptual and/or methodological changes. <i>European level:</i> Describe the data revision policy and procedures at European level.	The revision policy is provided by the statistical product described. There are no specialities regarding geospatial outputs. However, if an occasional revision takes place, geospatial outputs should take in revised data. However, if a revision of geodata has to be conducted (for instance error in coordinates), it has to be reported.

Data revisions are either planned ones, following a fixed revision schedule, or conducted on an occasional basis (for instance when substantial errors have to be corrected). Changes in the input data coming from the statistical product (survey for instance) are not related to the geospatial outputs. However, when the revision results in a substantial change of incoming geodata, because the former have been erroneous, a quality report should take note about such an incident.

S18 Statistical processing

SIMS	Concept name	Definition	Guidelines	Geospatial content
S18	Statistical processing	See sub-concepts	See sub-concepts	See sub-concepts
S18.1	Source data	Characteristics and components of the raw statistical data used for compiling statistical aggregates.	<p>Indicate if the data are based on a survey, administrative data, multiple data sources, or macro-aggregates. In the event of multisource or macro-aggregate processes describe each source. For each survey source, report the survey population, cross referencing the description of the target population presented in S.03.6, and summarise the sample design. For each dataset from an administrative source, summarise the source, its primary purpose, and the most important data items acquired.</p> <p><i>European level:</i> Provide an overview of the sources used across countries</p>	<p>Describe the data sources needed for geospatial processing.</p> <p>This includes:</p> <ul style="list-style-type: none"> • Geometries • Input data for geocoding • Input data for geographic features

SIMS	Concept name	Definition	Guidelines	Geospatial content
S18.3	Data collection	Systematic process of gathering data for official statistics	<p>For each source of survey data:</p> <ul style="list-style-type: none"> describe the method(s) used to gather data from respondents; annex or hyperlink the questionnaire(s). <p>For each source of administrative data:</p> <ul style="list-style-type: none"> describe the acquisition process and how it was tested. <p>For all sources:</p> <ul style="list-style-type: none"> describe the types of checks applied at the time of data entry. <p><i>European level:</i> Provide a summary of the commonalities and differences in the collection methods, questionnaires and checks used in different countries.</p>	<p>Describe the environment from which the source data can be accessed (register, database, other form).</p> <p>Describe if there are special data collection processes related to the geospatial part.</p> <p>Are there special collection procedures like remote sensing, GPS, photogrammetry etc.?</p> <p>Describe the methods of collecting and using administrative data needed for geospatial processing.</p> <p>Describe how an effective data management of source data is implemented. (GSGF Requirement 2.1).</p> <p>Describe the functioning of the geocoding process.</p>

SIMS	Concept name	Definition	Guidelines	Geospatial content
S18.4	Data validation	Process of monitoring the results of data compilation and ensuring the quality of statistical results.	<p>Describe the procedures for checking and validating the source data and how the results are monitored and used.</p> <p>Describe the procedures for validating the aggregate output data (statistics) after compilation, including checking coverage and response rates, and comparing with data for previous cycles and with expectations.</p> <p>List other output datasets to which the data relate and outline the procedures for identifying inconsistencies between the output data and these other datasets.</p> <p><i>European level:</i> Provide a summary of the commonalities and differences in the validation methods used by countries.</p>	<p>Matching of geocoded data and unit record data is one of the most decisive process steps. Describe how the point-of-entry validation in collection of administrative or statistical data is implemented (Requirement 2.5 of GSGF).</p> <p>Describe any other validation processes in various process steps related to geospatial processing.</p>

SIMS	Concept name	Definition	Guidelines	Geospatial content
S18.5	Data compilation	Operations performed on data to derive new information according to a given set of rules.	Describe the procedures for imputation, the most common reasons for imputation and imputation rates within each of the main strata. Describe the likely impact of imputation. Describe the procedures to derive new variables and to calculate aggregates and complex statistics. Describe the procedures for adjustment for nonresponse and the corrections to the design weights to account for differences in response rates. Describe the calculation of design weights, including calibration (if used). Describe the procedures for combining input data from different sources.	Describe the process of how to link geocode data to unit record data. Describe how to assess the quality and list the quality indicators you use. List possible indicators If you use imputation for some geodata, describe the methods used here. Describe also the aggregation processes relevant for producing maps.

The processing for geospatial outputs focuses on linking unit data to geocoded data and assigning geographic characteristics. Finally, there are aggregation processes in order to construct maps and other geospatial output. Considering that the most important reporting concept is S18.5.

Another focus should be laid on the collection of data as well as the validation of certain input sources specific for geographic processes.

S19 Comment

SIMS	Concept name	Definition	Guidelines	Geospatial content
S19	Statistical processing	Supplementary descriptive text which can be attached to data or metadata.	Provide any information <ul style="list-style-type: none"> • that is pertinent to the report but does not fit under any of the other concepts; or • to repeat key issues; or • to refer to annexes that might be attached to the report. 	Anything for geospatial processing and/or geospatial outputs that did not fit anywhere else.

Supplementary descriptive text which can be attached to data or metadata. Anything that did not fit anywhere else.