WP 16

8 February 2010

ENGLISH ONLY

UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS

EUROPEAN COMMISSION
STATISTICAL OFFICE OF THE
EUROPEAN COMMUNITIES (EUROSTAT)

ORGANISATION FOR ECONOMIC COOPERATION
AND DEVELOPMENT (OECD)
STATISTICS DIRECTORATE

Work Session on Statistical Metadata (METIS)
Session IV: Metadata and Quality Reporting
(Geneva, Switzerland, 10-12 March 2010)

THE QUALITY METADATA SYSTEM IN THE CZECH STATISTICAL OFFICE

Czech Statistical Office[1]

ABSTRACT

(key words: statistical quality metadata system, quality monitoring, quality reporting)

The goal of this paper is to introduce the project on the Czech Statistical Office (CZSO) system for metadata on statistical quality. It includes description of the system and its potential use; as well as the process of its design, development, incorporation into the whole CZSO statistical meta-information system, and implementation. It includes definition, storage, use and permanent administration of metadata. The role of subject-matter statisticians and quality evaluation experts are specified in these processes.

The aim of the new quality metadata system is to increase quality of statistical process and products and efficiency in reporting on statistical quality and decision-making. The system considers requirements for the ESS quality reports, EFQM reports, self-assessment and auditing. Furthermore, it takes into account management requirements on different levels of statistical production process, such as an individual statistical survey, subject-matter statistical domains (e.g. short-term statistics), or top-management.

The system is preferably designed for internal use; in the first phase for ex-post reporting and assessments, however, the aim is also to provide tool for management during production process. Besides this, in the future a part of the metadata might serve as a source of information for dissemination.

The current state of the art in development and implementation of the CZSO metadata system, practical use and lessons learned up-to-now, as well as future plans and possibilities are discussed. Among others, the project for quality metadata is going to play considerable methodology and supportive role in the second run of the methodology audits starting by pilot audit in autumn 2010.

The paper is presented in the following chapters:

1. _____

[1] Prepared by Jitka Prokop, Jana Melíšková, Ebbo Petrikovits.

1. **Background** - The chapter introduces a CZSO statistical information system (SIS), its integral part a statistical metainformation system (SMS) and a CZSO quality metadata system (SMS-QUALITY) as an integral part of SMS.
2. **Quality Metadata System** – The chapter describes SMS-QUALITY, its role, architecture and its model called "Quality Form Map".
3. **Quality Monitoring** – The chapter introduces collection, editing, and other procedures, dealing with monitoring of metadata on quality.
4. **Quality Assessment –** The chapter describes quality assessment procedures, leading to the production of quality reports and/or other outputs from SMS-QUALITY.
5. **Technical Issues –** The chapter informs about applications used in SMS-QUALITY.
6. **Lessons learned** – The chapter introduces issues, learned so far as problems to be focused in further development of SMS-QUALITY.
7. **Conclusions** – The chapter highlights major directions of SMS-QUALITY development in the near future.

I. BACKGROUND

1. Last years, the Czech Statistical Office concentrated its effort on the redesign of its statistical information system (SIS), including the redesign of its statistical metainformation system (SMS).

2. The major aims of the SIS are as follows:
   a. To provide tools for statistical business process and its management;
   b. To supply information on progress in activities of the statistical business process;
   c. To provide tools for quality monitoring, quality assessments and user satisfaction (EFQM, standard quality reports);
   d. To provide tools for integration of the SIS with information systems of international organisations and public administration;
   e. To standardise and unify working procedures and tools.

3. The main goal of this paper is to introduce the quality metadata sub-system (**SMS-QUALITY)** as an integral part of the SMS.

4. At present, the SMS is composed of the following interlinked subsystems:
   a. Statistical Classification (SMS-CLASS);
   b. Statistical Variables (SMS-VAR);
   c. Statistical Tasks[2] (SMS-TASKS);
   d. Statistical Quality (SMS-QUALITY);
   e. Statistical Time Series (SMS-SERIES);
   f. Dissemination (SMS-DISSEM);
   g. Respondents (SMS-RESP);

1.

[2] **Statistical task** is understood as a set of statistical activities needed to fulfill a user's request for statistical information. The statistical task can be composed of one or more statistical surveys. **Statistical survey** is understood as a set of activities connected with the proposal of statistical questionnaire, preparing a sample, printing and distributing questionnaires, collecting completed questionnaires, data entry (including electronic collection of data) and data validation. Statistical survey is always a part of statistical task.

h. Users (SMS-USERS).

5. The SMS-QUALITY shall provide crosscutting information on quality of statistical process and its products. Its core activities, features and functions are as follows:

a. Architecture of metadata on quality;

b. Links of SMS-QUALITY to other SMS subsystems;

c. Monitoring of metadata on quality;

d. Evaluation of metadata on quality, self-assessment and auditing tools;

e. Support for quality reporting, including quality reports based on the ESS methodology, EFQM reports or auditing.

II. QUALITY METADATA SYSTEM

6. In the past, the quality reporting in the CZSO was performed in relatively isolated and decentralized way. The methodology, technology as well as organization of this process were taylor-made for the needs of quality reporting, without links to the architecture, technology and organization of the whole SIS and SMS.

7. The goal of design, development and implementation of SMS-QUALITY was to upgrade an existing approach in quality reporting via full integration into the whole SIS and its statistical business process.

Links of SMS-QUALITY to other SMS subsystems

8. The SMS-QUALITY is interlinked with other SMS subsystems. The main purposes are as follows:

a. Systematic definition of metadata.

b. Mining relevant metadata into SMS-QUALITY.

c. Storage metadata from SMS-QUALITY into the SMS database.

9. The subsystem on statistical classifications SMS-CLAS is the only source for definition, maintenance and update of codes and classifications/ nomenclatures in SMS-QUALITY. SMS-QUALITY uses codes already defined during other SIS activities and stored in SMS-CLASS. If necessary, the SMS-QUALITY suggests new classifications/nomenclatures to be kept in SMS-CLASS. Such en example is a code list of quality indicators.

10. The subsystem on statistical variables SMS-VAR is based on metadata model for definition of statistical variables. Metadata about all statistical variables in SIS are stored and maintained in SMS-VAR. SMS-VAR is the source for metadata in the SMS-QUALITY. SMS-QUALITY uses metadata on variables stored in SMS-VAR when specifying key statistical variables and providing quality assessment.

11. In the subsystem on statistical tasks SMS-TASKS are incorporated metadata on quality, which are than used in SMS-QUALITY. The SMS-QUALITY and SMS-TASKS project teams cooperated on the proposal of metadata on quality. Examples of quality metadata in SMS-TASKS are provided in Annex 1.

12. The links are proposed also between subsystems on dissemination SMS-DISSEM and SMS-QUALITY. They shall cover metadata on timeliness, punctuality, accessibility and clarity.

13. The metadata shared between the subsystems on statistical users SMS-USERS and SMS-QUALITY shall be related to user categories and users feedback.

Architecture of SMS-QUALITY

14. The SMS-QUALITY architecture is based on the quality framework of the European Statistical System. It covers quality criteria defined in this concept as well as quality and performance indicators (QPI) proposed by Eurostat. The quality criteria relevance, accuracy, timelines and punctuality, accessibility and clarity, comparability and coherence are included. Cost and burden are also considered. Items from the DESAP[3] checklist for self-assessment had also been considered during design. The concept of statistical business process management, respectively phases of this process have been taken into account.

15. The basic unit of the SMS-QUALITY is meta-information referring to statistical quality (e.g. key users, response rate, secondary sources of information, training, feedback from users etc.). This meta-information is called **Q-attribute.**

16. **Model designed for Q-attributes** is a core basis for further assessment and comparisons on statistical quality. Format of Q-attribute can be numeric, date, or textual. Quality and performance indicators (QPI) belong to numeric Q-attributes. For each Q-attribute a relevant **level** is defined.

17. **Three potential levels for Q-attributes** are specified:

a. **Most stable Q-attributes.** Meaning the Q-attributes, which are stable from the first phase (specify needs) until the last phase (evaluation, users feed back) of the statistical business process of statistical task. Q-attributes on this level are those related to statistical task or its phases. Values of Q-attributes usually do not change too frequently. Records in a database remain unchanged for a long time. Up to now, the SMS-QUALITY has been focused mostly on surveys processes and their outputs. However, it can be partially applicable for national accounts, or statistics based on registers/ administrative data. Examples of Q-attributes on this level are as follows: key users, information on training of staff, methodology of sampling etc.

b. **Q-attributes related to processing in one concrete period.** Relates to data processing in one reference period. For example, in monthly periodicity, within the processing in February 2010 are processed and released data for December 2009, including revisions of some previous periods in time series. If some sub-processes of the processing repeat several times before the data are **approved,** only the approved results are left in DWH after the approval. However, it depends on decision of a survey manager if also previous runs should be stored in DWH. The examples of sub-processes are: data collection, use of secondary data (among the secondary data in case of surveys we consider registers, administrative data sources and output data from other statistics as well), weighting, seasonal adjustment, data protection, and data and product dissemination. Values of Q- attributes are changed or revised each new processing. They are valid for the whole processing and/or its sub-process respectively. Examples of Q-attributes on this level: unit response rate, extent of sample etc.

c. **Key statistical variable.** This level is specified as a key statistical variable in generally defined breakdown – e.g. turnover in breakdown of 2digit-NACE, NUTS 0. Values of Q-attributes relate to concrete reference period and statistical variable in specified breakdown, e.g. turnover for NUTS 47, Czech Republic. Examples of Q-attributes on this level: coefficient of variation, item response rate etc.

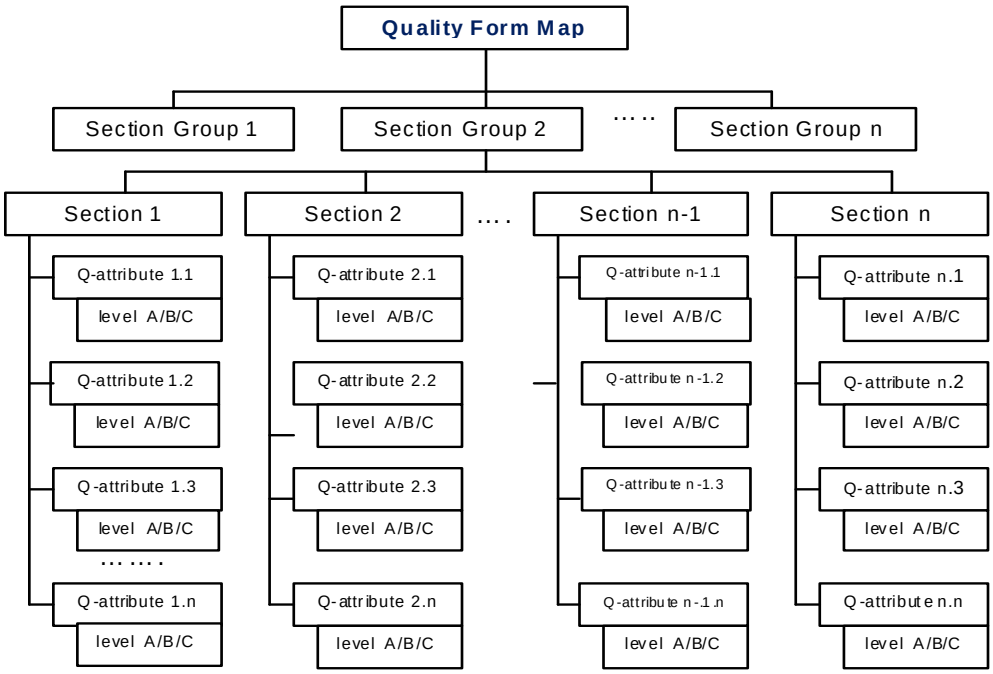
Quality Form Map

18. The Q-attributes are grouped into **sections.** The list of the sections is presented in the Annex 2. The structure of the sections is designed as a combination of the ESS quality criteria and particular phases of the whole statistical process (task). The model of Q-attributes is called the **quality form (QF) map**. The general hierarchical structure of the QF map is showed on the **Fig. 1**.

1.

[3] DESAP – Development of a Self Assessment Program

Fig.1 Hierarchical structure of QF map



19. The **QF map**[4] covers all proposed Q-attributes. Modified QF map with distinction of the only relevant Q-attributes for particular statistical task shall be available. A QF map filled in with concrete data and metadata, is called the Data QF (the DQF). Each run ending by releasing data out of the process shall have its own version of the DQF view into database.

20. The QF map is stored in the SMS-QUALITY database. Q-attributes are loaded from SMS-TASKS, from other SMS subsystems, or manually. Oracle Forms designed for the SMS-QUALITY enable pre-defined structured views on these data and also inserting or correction of the Q-attributes and their values, stored in the database. For as many Q-attributes as possible, there shall be proposed automatic links into SMS-QUALITY. The links might include calculation formula. Historical records remain in database.

21. The QF map was a subject of important discussions within the SMS-QUALITY project team during its design. A special approval action chaired by top-management took place to consider a document on SMS-QUALITY prepared by the SMS quality project team. It was suggested that the SMS-QUALITY should serve not only as a support for quality reporting, but also as a tool for the management of a statistical business process. Monitoring and evaluation of this processing were stressed.

III. QUALITY MONITORING

22. Q-attributes, especially those related to the level 2 (data processing) or the level 3 (statistical variable), might be monitored as follows:

a. During running of a sub-process,

b. After its end or

1.

[4] **QF map** is a list of quality metadata items in approved structure; see the paragraphs describing the structure and content.

c. After the end of the whole statistical business process.

23. Systematic monitoring of Q-attributes during the process depends on location of the data and availability of application software. Furthermore, efficiency of monitoring grows with the level of completeness and stability of the whole SIS. It includes for example links in database, Oracle scripts or procedures, coding procedures etc. Necessary pre-condition for quality monitoring is archiving of historical records.

24. Q-attributes might be calculated from micro-data on:

a. Input statistical variables, or

b. Variables especially designed for quality monitoring of process or of sub-processes. For those specific variables relevant code lists usually need to be defined.

25. The data for the variables ad 28.b) are collected together with statistical data. They relate either to the level of input statistical variables or the whole statistical questionnaire.

26. Results for Q-attributes are available either during the sub-process or after finishing it. They are not usually stored in databases, but available via Oracle scripts or defined views into DWH (in Oracle Forms platform).

27. Input statistical data are collected and edited on regional servers. After these activities, data are transferred into the central DWH and available centrally.

28. Ways of quality monitoring

a. Quality monitoring during sub-processes on regional servers. Provisional results for some Q-attributes are available during running the sub-processes. This enables interventions into the sub-process according to the results. For these purposes, SW tools had to be prepared and incorporated into the systems in regions. The monitored Q-attributes are for example **response rates**, including those for particular strata.

b. Quality monitoring after sub-processes on regional server using input statistical variables (see 28.a). Results for some Q-attributes are available after the finishing the data collection and editing on regional servers and their transfer into central server. For some Q-attributes, there is no need to collect any additional variables (except some adjustments in database design). Into this group of Q-attributes belong those on editing and imputation rates, including distinction of inputs, corrections and deletes respectively and recognition of most edited items. The results for these Q-attributes are derived from one or more variables mentioned in paragraph 28.a). In this case it is important to cover in each record both the old value and the new value after editing (i.e. after individual imputation) and the time of change. It is necessary to retain historical records in database.

c. Quality monitoring after sub-processes on regional server using "meta-information variables" (see 28.b). Compared to 32.b), there are some Q-attributes, gained directly from the variables of type 28.b), for example: a way of contact with respondents (personally, by telephone, email, by post, personally or changes without contact with respondent) or a type of individual imputation (after contact with respondent, from previous period, by statistician from the subject-matter domain or from national accounts, technical error such as movement of items etc.)[5]. Such information is proposed for management feedback after finishing the sub-processes. Concerning technical solution, data are collected on the level of questionnaire; however, information for key items in the questionnaire might be mined as well.

d. Quality monitoring of the sub-processes on central server. On central server run mathematical and statistical imputations. There are usually several runs before data are approved. Q-attributes related to these sub-processes are for example indicators on accuracy such as coefficient of variation, imputation rates or revisions. They are mostly derived from the variables ad 28.a). For some Q-attributes, it could worth to monitor the results before data

1.

[5] Both these Q-attributes are in the phase of pilot testing.

are approved and leave the sub-process. For other Q-attributes, it is sufficient to achieve results ex-post, i.e. for the data from the approved run. The decision for concrete statistical task shall consider purpose and priorities of the task. Trade-offs shall be taken into account. Availability of results in the time before data approval depends on the extent of implementation of the SIS and relevant SW tools.

IV. QUALITY ASSESSMENT

29. After values of Q-attributes are available, there is an opportunity for further assessment over the values. As mentioned in the chapters above, the values might be either figures or textual information about some aspects of statistical task, phases or sub-processes of statistical business process etc.

30. Quality assessment procedure has been driven by the top management requirement to design concept for the second run of methodology audits in the CZSO.

31. The CZSO methodology department elaborated a **manual** for **Quality Assessment Guidance (QAG)** in the CZSO**.** The document provides a basic guidance for the audits. It might be used more generally as well, namely for self-assessments. In fact, the self-assessment will be very likely used as a preparation phase for the audit itself.

32. The basic structure of the QAG document strictly follows the ESS **quality criteria** (sometimes called components or dimensions). It provides scheme suggesting, which information should be gained and investigated during the audits or self-assessment. After being completed, it shall provide overview about quality of statistical business process.

33. The document defines **levels of assessment for each quality criterion** as follows**:**

a. Key statistical variable in particular breakdowns,

b. Statistical variable as an aggregate (average) of the breakdowns,

c. Set of similar indicators, quality sub-criterion and criterion and,

d. The audited statistics as a whole.

34. For each quality criterion, the quality assessment is divided into the following sections:

a. **Categorical assessment of Quality and Performance Indicators** (QPI) for key statistical variables in particular breakdowns.

b. **Quantitative assessment,** providing averages of individual results of particular QPIs, or categorial assessment for a group of QPIs, Q sub-criteria and criteria.

c. **Textual assessment and summary** for particular quality criterion and the statistics task as a whole. For this purpose, guidance is provided; especially there are mentioned issues, which should be considered. The textual assessment includes descriptive summary, commentaries and assessment. Possible impacts of concrete results, features of phenomena on quality shall be revealed and discussed. In the final summary, **strong aspects** and **weaknesses** are to be worded, including judgement of their importance. **Proposal of concrete actions** by their priority follows; those most important shall be selected as those for implementation.

35. For categorial assessment, the document proposes 5 categories, namely marks from 1 to 5.

36. Concrete range boundaries for a category are proposed as well, but they might be the subject of discussions between survey manager, methodologist, quality methodologist and auditors. Practically, the definition or adjustment of ranges shall be the subject of the audits.

37. For self-assessment, the decision on range boundaries shall take into account proposal of survey manager and opinion of quality methodologist.

38. According to suggestions, the defined ranges shall relate to legislative requirements, purposes of statistic business process and expectations of users from concrete statistics. It means for example, that response rate might be very good if it is 99% for one survey or 86% for another survey.

39. During categorial assessment, the following types of Q-attributes are considered:

a. Figures (e.g. timeliness and punctuality, length of time series, revision indicators etc.);

b. Rates (e.g. rate of available statistics, response rates etc.) and

c. Group of information, which might be both quantitative and qualitative (e.g. quality level of cooperation with users, quality of particular sub-process).

40. For the rates, one possibility how to find out the mark is indirect recalculation, where e.g. 100% gives the mark 1 and 0% would give the 5.

41. At present, the structure defined for quality assessment exists in the form of MS Excel file as a support for auditing or a tool for self-assessment. In case SW tool is created and incorporated into the SMS-QUALITY, it shall improve comparisons among tasks, mostly for internal managerial purposes. Comparisons among tasks shall be based on purposes of concrete statistics, trade-offs and priorities, legislative requirements and user needs.

V. TECHNICAL ISSUES

42. This chapter introduces some important application tools used in SMS-QUALITY. It should be mentioned, however, that a new technical implementation for the SMS-QUALITY is planned in the framework of the SIS and SMS Redesign project. In the new system the important issue should be the **flexibility** of application tools and **interlinks** among SMS subsystems. The features and functions shall be considered in terms of eventual updates of QF map as a consequence of changes of the ESS quality and performance indicators and their methodology, or changes of proposed Q–attributes in general.

Applications

43. **Software for QF map**. For the phase of design and pilot testing, forms designed within the **Oracle Forms SW** have been used. In this stage the Oracle Forms application has been stored in separate database for testing. So in this sense, testing is not directly affected by problems of other subsystems; we just need to check updates of coding or similar input information, and transfer them into the separate database. After the statistical information system is stabile, implemented, the SMS-QUALITY might be linked to the other SMS subsystems. Advantage of Oracle Forms seems to be a visual layout of Q-attributes.

44. **Application SMS-TASKS**. In the application SMS-TASKS there are defined all Q-attributes. During specifications for concrete statistical task, statisticians can select the Q-attributes relevant for the statistical task. For some of the Q-attributes they could also specify expected values. Actual values of Q-attributes are collected during running of process and stored into the SMS-TASKS database. They are the source for further quality assessment. Compared to Oracle Forms, the SMS-TASKS application is more flexible in terms of content changes. On the other hand, the layout is less user-friendly. Some features (e.g. searching according various criteria, offer of available sections, various ways of presentations and reporting) shall be developed to increase user comfort.

45. **Applications for quality assessment.** Quality Assessment of ESS quality criteria based on gained information (see the chapter 4) is carried out in MS Excel and Word applications in the present. Ways of assessment shall be implemented as an application within SMS-QUALITY in the future. Functions for categorial assessment including possibility to adjust scale for particular categories; or for comparisons in various ways and on various levels shall be embedded.

46. **Application for calculation of key QPI**. Special application in Oracle PL/SQL Developer has been developed for calculation of key QPI, mostly those on accuracy (such as coefficient of variation or response rate; other ones shall be added - e.g. imputation rates). It assures unique methodology among particular statistical surveys, including the way, how non-responding units are treated.

47. Scripts for this calculations have been prepared within methodology department. The pattern of the scripts is identical for all surveys (ate present approximately 25 statistical surveys). However, concrete scripts should be adjusted for every survey separately and updated each year. It has been responsibility of methodology department to assure consistency among surveys.

48. The scripts will be linked directly with Q-attributes in SMS-QUALITY in the next phases of SMS development. All the prepared scripts will be available for subject-matter statisticians for direct use during or after sub-processes. The results can be used for management purposes. Currently, the results for Q-attributes can be entered into SMS-QUALITY manually.

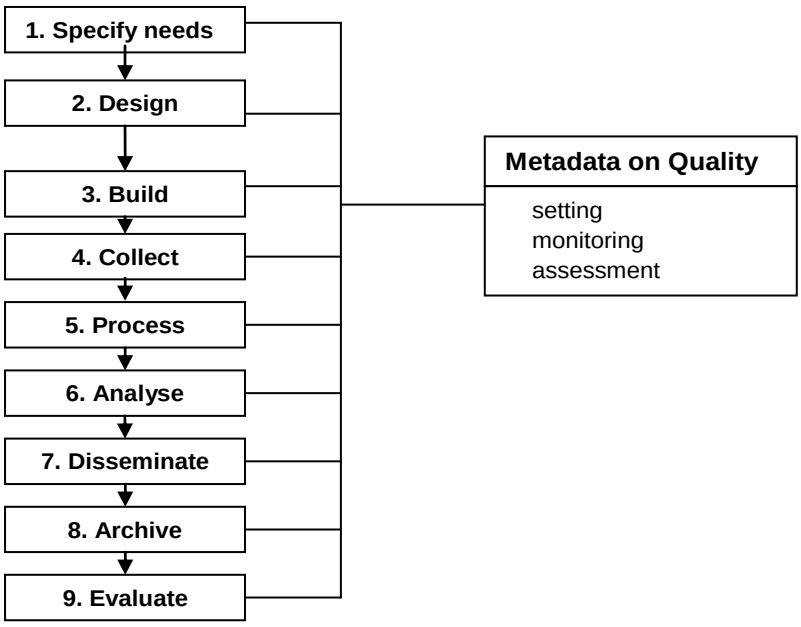
VI. LESSONS LEARNED

49. In this chapter are emphasized some important lessons learned so far in the SMS-QUALITY design and implementation. Those aspects should be focused on in further development of the SMS-QUALITY, applying a system approach.

Links to statistical business process

50. The SMS-QUALITY covers statistical task in all phases of a statistical business process (see **Figure 2**). Although a lot of work in this respect has been already done in the framework of the project on SIS Redesign, there is still a lot to be completed in any phase of the statistical business process in future.

Fig. 2 SMS-QUALITY and Statistical Business Process



Cross-sectional Cooperation. Applicability to Different Types of Surveys.

51. As to the links of SMS-QUALITY with other parts of the SIS and SMS, it has been important to clarify competences, requirements and realistic possibilities, find out consensus or compromise solutions.

52. The SMS-QUALITY is considered for all statistical tasks/surveys, for business and social statistics. It covers also, partially, national accounts.

53. It implies necessity to take into account differences among various branches of statistics (e.g. sampling, way of data collection or survey methodology etc.). It concerns for example design of Q-attributes and relevant coding of them. Statisticians from different subject-matter departments have been involved in the SMS-QUALITY project team for (not only) these reasons.

54. The proposal of Q-attributes for SMS-QUALITY should avoid any duplications or missing items in SMS subsystems. This requirements should be ensured already in the stage of a SMS-QUALITY architecture design.

55. Support of top-management and leading teams of the SIS and SMS has been an important precondition for development of SMS-QUALITY.

Time coordination of SMS subsystems design and implementation

56. The development of some SMS subsystems had later timing than SMS-QUALITY. In such cases, those SMS subsystems have to be developed in cooperation with SMS-QUALITY, taking into account the SMS-QUALITY requirements. One example can be the SMS-DISSEM. The defined requirements of SMS-QUALITY have concerned information related to dissemination, products, accessibility and clarity. Implementation into the SIS databases depends on the implementation of the SMS-DISSEM subsystem.

Roles of subject-matter statisticians and methodologists

57. The SMS-QUALITY project team has been appointed by the top-management. It is composed of leaders and experts from the methodology department and statisticians from different subject-matter departments. The experts involved in previous activities on quality reporting participated in the preparation of the SMS-QUALITY concept.

58. The methodology department played a major role in the phase of preparation of Oracle Forms and testing the software. Methodologists prepared definitions of Q-attributes and explanatory notes into Oracle Forms. Data for testing were provided by subject matter statisticians.

59. The SMS-QUALITY project team have maintained a sustain overview about particular stages of statistical business process and different types of surveys, about current situation in development of other parts of the SIS and SMS and about quality methodology and its development on the ESS level.

60. After implementation, the subject-matter departments shall administrate Q-attributes related to their statistical task in the SMS-QUALITY. Methodology department shall provide support for them. The calculation of QPI shall continue within methodology department as well as updates of QF map in terms of methodology content.

Being in line with ESS quality framework

61. The SMS-QUALITY should comply with ESS Quality framework. The ESS requirements have been taken seriously into the consideration in the CZSO project from its very beginning. Bearing in mind, that the ESS quality system might further develop, a maximum flexibility of the SMS-QUALITY should be ensured.

VII. CONCLUSIONS

62. According to the work plans of the CZSO, a lot of activities in further developments of the SIS, SMS and SMS-Quality are scheduled for the next two years to come. The top management has ranked those projects with the highest priority. The solution in SMS-QUALITY will be concentrated mostly on the issues, highlighted in the previous chapter.

63. Bearing in mind links between SMS-QUALITY and other SMS subsystems, the success in the development of the SMS QUALITY will rely on the progress in the development of related SMS subsystems.

64. Last but not least, many experts from the quality team are participating in the real production of quality reports. The progress in further development of SMS-QUALITY will also depend on the capacities of the experts available for the SMS-QUALITY development.

REFERENCES

1. Fischer Jan, A Statistical System for Future Generations. IAOS Conference, Shanghai, 14-16 October 2008.

2. ESS Handbook for Quality Reports. Luxembourg: Office for Official Publications of the European Communities, European Communities, 2009, ISBN 978-92-79-07855-2, ISSN 1977-0375.

3. ESS Standard for Quality Reports. Luxembourg: Office for Official Publications of the European Communities, European Communities, 2009, ISBN 978-92-79-07854-5, ISSN 1977-0375.

4. ESS Quality and Performance Indicators, 2009, Doc. ESTAT/B-1/Quality/2009/05C, Eurostat, European Commission (unpublished).

5. Guidelines for measuring statistical quality, London: Office for National Statistics, 2006, ISBN 1 85774 578 7.

ABBREVIATIONS

ST	Statistical Task
CZSO	Czech Statistical Office
DESAP	Development of a Self-Assessment Program
DESAP Checklist	The European Self-Assessment Checklist for Survey Managers
DQF	QF map filled with values of Q-attributes
DWH	Data warehouse
EFQM	European Foundation for Quality Management
ESS	European Statistical System
QA	Quality Assessment
QAG	Quality Assessment Guidance
QF map	A list of quality metadata items in approved structure
QPI	Quality and performance indicators
SBP	Statistical business process
SIS	Statistical information system
SMS	Statistical metainformation system
SMS-CLASS	Statistical metainformation system CLASSIFICATIONS
SMS-DISSEM	Statistical metainformation system DISSEMINATION
SMS-QUALITY	Statistical metainformation system subsystem QUALITY
SMS-TASKS	Statistical metainformation system STATISTICAL TASKS
SMS-USERS	Statistical metainformation system USERS
SMS-VAR	Statistical metainformation system VARIABLES

ANNEX 1

Examples of metainformation gained from SMS-TASKS

The SMS-TASKS encompasses about 200 Q-attributes. Q-attributes are structured in 20 groups. Some examples of groups and their Q-attributes are presented in the table below.

Group of Q-attributes	**Q-attributes**
Important users	The most important category of users
	The most important users
Cooperation with users	Date of meeting with internal users
	Date of meetings with users form ministries
	Data of meeting of the Council of users
	Conclusions of the Council of users meeting
Tests of input questionnaires	Cooperation with users on the questionnaire design
	Amount of design cycles
	6. Amount of tested questionnaires
	Start and end dates of questionnaires tests
Training of users and staff	Target group of participants
	Start and end data of trainings and workshops
	Topics of training and workshops
Feed-back from users	Identification of the user
	Category of the user
	User comment
	Opinion of the CZSO
	Reaction of the user
Data disclosure control	Methodology
	Rules
Statistical methodology	Stratification rules
	Imputation methods
	Variables

ANNEX 2

Sections and Q-attributes of Quality Map Form

Sections	Q-attributes
Statistical Task & Relevance	Information on statistical task (survey) Most important user categories Most important users Key statistical variables
Design of statistical survey & Relevance	Cooperation with users Testing of questionnaire Training of staff Feedback from users incl. requirements.
Frame and Sample & Relevance, Accuracy/Coverage	Description of frame and sample files and sub-files Differences between target population and frame and their impact Extent of frame and sample Updates of frame and sample Sample, statistical and respondent units
Secondary input data (admin. data, data from other statistical tasks etc.) **& Relevance, Accuracy/Coverage)**	Purposes of use Information on cooperation Used variables, availability of micro-data Adequacy of data as to the needs of assessed statistical task
Survey methodology & Accuracy/Sampling errors, Coverage	Sampling methodology Methodology of estimations Methodology of imputations Methodology of variance estimation Seasonal adjustment methodology Small area estimations
Data disclosure control	Number of protected data Information on methodology Data protection measures
Data collection, capture, processing	Ways of data collections Motivation of respondents Identification of missing and incorrect data Sources of errors; Reduction of errors Treatment of Outliers
Accuracy evaluation for key statstical variables or statistical process (quantitative/numerical or qualitative/textual quality indicators)	Sample errors Non-response Coverage, misclassifications Editing and imputations Revisions
Schedule & Timeliness and Punctuality	For phases, sub-processes, outputs Planned and actual dates and assessment Persons responsible for sub-processes
	Approval of data for release Providing of data before release Outputs, Release of data Products published
Accessibility and clarity	Types of published data (s.a., estimates and revisions) Info on methodology documentations and its accessibility Accessibility of outputs
Comparability	Length of key time series
Coherence (Deviations, discrepancies, methodology.)	Within statistical task Between different data sources / statistics Between different periodicities International coherence
Cost and burden	Cost of the process Respondent burden