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CONFERENCE OF EUROPEAN STATISTICIANS**

**EUROPEAN COMMISSION  
STATISTICAL OFFICE OF THE  
EUROPEAN COMMUNITIES  
(EUROSTAT)**

**ORGANISATION FOR ECONOMIC  
COOPERATION AND DEVELOPMENT  
(OECD)  
STATISTICS DIRECTORATE**

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Session 4      Metadata case studies

## **METADATA CASE STUDY**

Submitted by Statistical Office of the Republic of Slovenia<sup>1</sup>

### **I. INTRODUCTION**

#### **1.1 Metadata strategy**

General strategy:

Where standards, identifiers, procedures and tools are developed, their use is mandatory within the office.

SORS corporate metadata strategy was not published as a single document. However, the authors would like to believe that the main goal of SORS in the field of metadata is to develop an efficient and effective, standardized and integrated system for collecting and editing metadata as an important part of the statistical information system.

##### **1.1.1. Corporate strategy and guidelines for the preparation and dissemination of metadata across the organization**

A centralised, corporate metadata repository is implemented at SORS. It includes metadata about surveys, publications, statistical terminology, classifications and nomenclatures, advance release calendar. For each statistical survey methodological explanations have been developed and are available on SORS's website (in English as well).

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This year the project to extend the metadata repository has been developed. The repository will include questionnaires, variables and connections to databases. The next step will be to connect those two parts with the repository for reference metadata, which will have to be built as soon as possible.

In the centralised metadata repository metadata will be reusable among different surveys and among different statistical domains. They will be disseminated through our website. Due to the Memorandum of Understanding that was signed by different international organisations, SORS decided to consider SDMX standards as the basis for dissemination of metadata to international organisations. At the time being SORS is involved in the project SODI and is testing the "push" method for sending data and metadata to Eurostat.

Implementation of SDMX standards is a technical and a content problem. To be as systematic and effective as possible, a small group of four people has been established at SORS. The main goals of the group are: 1. to monitor the development of the SDMX, 2. to collaborate in different Eurostat activities in the field of development and implementation of the SDMX, 3. to prepare suggestions on how to take steps to implement the SDMX, 4. to acquaint the wider interested public with the SDMX. For SORS's staff metadata and statistical glossaries are available on the intranet. The metadata Common Vocabulary (MCV) is also in the preoperational phase. Because it is a part of SDMX standards, SORS puts great attention to the usage of common methodology for metadata in all statistical domains. Here is to be mentioned the internal SORS's Terminological Group, which is: 1. authorized to give the opinion about initiatives of new statistical terms within the scope of statistical terminology, 2. responsible for the regulation of the terminological database and its maintenance.

### **1.1.2. Existence of corporate database / glossaries to promote the use of standard concepts and definitions**

It is the usual practice that statistical information is accompanied by standardised metadata, available on the website for all users. There is a responsible officer in SORS who checks that metadata are available, and monitors metadata documentation. Methodologies are available on the website and changes are communicated to users and discussed in the statistical advisory committees which include also users of statistical information. SORS has published a number of comprehensive quality reports, consistent with the ESS quality criteria, and plans to add more every year.

### **1.1.3. Processes to ensure that sampling and non-sampling errors are measured, systematically documented and information made available to users for all key statistical outputs**

The process to ensure that sample and non-sample errors are measured is very well used within those statistical surveys which in the recent years have gone through major technical revisions. For these surveys standard quality indicators, among which are estimations for sample and non-sample errors, are calculated automatically within the statistical process. Indicators are available in Standard Quality Reports published on SORS's website (from September 2008 on available also in English).

#### **1.1.4. Metadata are documented according to standardised metadata systems**

Detailed metadata in English can be accessed from the SORS website for over 160 subjects which may also be grouped by the user into 30 fields of statistics. Although the metadata items vary by subject detailed metadata are generally available for:

- purpose of the survey;
- observation unit;
- period of observation;
- sources, coverage and method of data collection;
- definitions and explanations;
- where data are published;
- date when metadata were last updated;
- name of person who prepared the metadata.

A *Guide through Statistics* glossary on the SORS website provides key definitions from statistical surveys and provides an overview of statistical standards used by individual fields of statistics. The glossary does not provide the source for each definition.

#### **1.1.5. Recommendations / guidelines for the treatment of time series breaks**

SORS and the authorized producers in most cases report that they clearly notice the breaks in time series caused by different reasons.

Although national statistics doesn't have special written procedures on the treatment of time series breaks, SORS through the Editorial Board centrally coordinates the publication of the time series breaks in a standardized way.

#### **1.1.6. Recommendations / guidelines for the presentation of time series - including seasonally adjusted data**

Since 2005, internal recommendations for the presentation of indices (WDA, SA,...) have been used at publications and SI-STAT database in the field of short term statistics. These guidelines will be upgraded and the use for the publications in 2010 will be obligatory for all time series. Besides, special guidelines were developed for the publication of time series in the case of Euro changeover.

#### **1.1.7. Within the MEDIUM-term programme of statistical surveys: 2008-2012 we read:**

Current Medium-term Programme of Statistical Surveys 2008-2012 is the third such document in the history of Slovene national statistics. Knowledge and experience obtained in the past period were the basis for preparing the objectives and activities that are part of the Medium-term Programme of Statistical Surveys 2008-2012. Some of the tasks that link both medium-term periods (the other was (2003-2007) are: 1. active presidency of the EU Council Working Group on Statistics during Slovenia's presidency of the EU, 2. Slovenia's preparations for membership of the OECD, 3. preparations for the Census of Population and Housing, which will be conducted for the first time fully on the basis of administrative sources and 4. development projects and temporal and financial analysis of the burden of reporting units and producers of national statistics, which takes place within the Commission and will contribute to further reduction of the reporting burden and costs while achieving the same or even better quality of statistical outputs and services.

A new feature of the medium-term programme is nine strategies that are the framework for quality improvement of already known data requests and for creating the conditions for recognising new contents that will be needed in the future. Strategic activities will be planned for two years in action plans, while their implementation will be monitored with annual reports. The nine strategies are:

- Strategy for the further development of national statistics in Slovenia;
- Strategy in the field of further reduction of administrative burdens;
- Strategy of quality;
- Strategy of data protection;
- Strategy of cooperation with reporting units and reduction of burdens;
- Strategy of dissemination and communication with users;
- Strategy of information technology update;
- Strategy of human resources management;
- Strategy of financial resources management,

Two of the most important main objectives of the medium-term programme of national statistics for the forthcoming five-year period are to provide quality and user-friendly national statistics, and to improve the flexibility of the response of national statistics to the needs and requests of users by using new sources of data. At the same time all institutions in the Slovene national statistics system set themselves a goal to strengthen the trust in national statistics, not only on the part of users but to the same extent also on the part of statistical data providers - including the efforts to reduce their burden when reporting data to producers of national statistics. In the next five years data collection will be rationalized with even more intensive use of administrative sources and new innovative approaches to achieving greater efficiency will be designed.

## **1.2 Current situation**

### **1.2.1. Slovenia has a centralised, functionally de-concentrated institutional statistical system**

SORS as the main executive and coordinating authority of the national statistics with assistance of authorized producers of national statistics provides relevant statistical information to national and international society and officially delivers data to Eurostat. Moreover, SORS provides to the public administration bodies and organizations, the economy and general public data that are of good quality, timely and comparable in time, space and internationally, on the status and trends in the economic, demographic and social fields, as well as in the fields of environment and natural resources. At the same time aims at providing data for dissemination at minimal costs. By respecting statistical confidentiality, SORS builds users and respondents' trust and its professional independence.

*A register-oriented system:* Slovenia has a relatively developed infrastructure of public evidences and administrative registers. The development of administrative registers and their interoperability is a strategic orientation of the country. Multi-use of registers and their outstanding role in the implementation of e-services are of key importance. One of the most important users of administrative sources of data is the national statistical system, which can be considered as a register-oriented system. Article 28 of the NSA states that administrative and other national authorities, public servants and holders of public offices, as well as authorized producers which collect statistics in their own fields of work and who are not included in the programme of statistical surveys shall define the methodological bases of their own statistical surveys after having obtained prior opinion of the Office.

*Methodologies* are available on the website and changes are communicated to users and discussed in the statistical advisory committees which include also users of statistical information.

*Metadata (Methodological Explanations)*: It is the usual practice that statistical information is accompanied by standardized metadata, available on the website for all users. There is a responsible officer in SORS who checks that metadata are available, and monitors metadata documentation. Detailed metadata in English can be accessed from the SORS website for over 160 subjects who may also be grouped by the user into 30 fields of statistics. Although the metadata items vary by subject detailed metadata are generally available for:

- purpose of the survey;
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- sources, coverage and method of data collection;
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- where data are published;
- date when metadata were last updated;
- name of person who prepared the metadata.

**A *Guide through Statistics* glossary on the SORS website provides key definitions from statistical surveys and provides an overview of statistical standards used by individual fields of statistics\***. The glossary does not provide the source for each definition.

***SORS' release calendar*** is available from the home page of the website from an interactive facility. The site enables users to retrieve release information by field of statistics, subject and series for a time span specified by the user. The facility also allows the user to view all publications released on the current day, week or month. Finally, users may select fields of statistics for which they wish to receive notifications about new releases. The calendar is regularly reviewed by senior management. To cater for releases well into the future SORS maintains a "release not later than" category - releases may be earlier than this (though in practice are firmed up nearer the time) but never later. Any divergence from the dissemination time schedule is publicised in advance, explained and a new release date set. The problem of divergence is well arranged by SORS's internal regulation which gives detailed explanations about the planning procedure for the release calendar. The regulation defines that in case of unexpected events, for which statistical data can not be provided on time (not even estimation!), although publication was planned and its release date confirmed, SORS on its website on the scheduled day publishes special information and notifies users with short explanation by e-mail as well. This information is removed from the website, after confirmation of the next release date. However, these events are extremely rare (once or twice per year).

## **1.2.2. Priorities of the National Statistics in 2009**

### **1.2.2.1. Total quality management at SORS**

In 2009 the SORS priorities will be set considerably wider, and will cover:

- activities to promote the cooperation of enterprises in data reporting;
- concern for the consistent monitoring and analysis of response burden;
- implementation of the process of standardising questionnaires in statistical surveys;

- preparation of documentation on the consistency and coherence of statistical data from various surveys;
- preparation of internal rules and procedures on revisions of published statistical data;
- establishing internal rules and procedures for keeping documentation for the time series breaks.

In line with the adopted action plan for implementing the quality strategy, great attention will be focused on the *preparation of internal methodological manuals* (i.e. textbooks, handbooks, presentations, etc.) for individual parts of the statistical process. At the same time *standard and annual quality reports* will be prepared. By providing the necessary technical and expert support for establishing statistical methodology, SORS attempts to increase interest in implementing the quality standards of the European Statistical System among authorised producers of national statistics. As part of the assessment of the compliance with the principles of the Code among authorised producers, for 2009 SORS is planning to carry out a special series of *training sessions for authorised producers*. In terms of content, apart from the preparation of standard and annual quality reports, the training will cover the formulation of methodological explanations and a release calendar. At the same time a short course is being planned on imputing missing values, data editing in statistical surveys, on sampling methods and data dissemination.

#### 1.2.2.2 SORS infrastructural project

Completion of the project aimed at **modernisation of statistical processing for business statistics** (ISIS information system) at the end of 2008 means that SORS will face a major change in the method of work, and this will be visible in 2009. In addition to optimising the current procedures, the changes will also affect work, which will henceforth be based on metadata driven processes; individual processes will be carried out in a standardised way, which will also contribute to less time spent.

Changes to procedures affect all areas of statistical process:  
 from the *preparation* of statistical survey through to the introduction of a common base of variables, questions and questionnaires,  
*data collection* through the introduction of e-reporting, optical reading of printed questionnaires, the implementation of communication types and a common directory of business that will be based exclusively on the statistical business register,  
*data processing* through the inclusion of data from various sources, simplified metadata processing and so forth.

At the end of the project and its implementation in practice in 2009, SORS must carry out several small organisational and procedural changes to support the new infrastructural purposes - i.e. support for enterprises (reporting units) in implementing e-reporting, establishing a call centre and so forth. The transition of statistical surveys to the new system will be gradual for enterprises and SORS.

#### 1.2.2.3 Establishing a new statistical business register within the ISIS framework

In 2009 upgrading will be completed on the **statistical business register**, which will include the Register of Enterprise Groups. With this project SORS will succeed in responding to the majority of requirements of the EU regulation on business registers and also the requirements of internal SORS users, i.e. our employees. Indeed for business entities the register will enable the central keeping of data, which through the use of appropriate statistical methods will be conducted on the basis of a combination of administrative and statistical data.

#### **1.2.2.4 Further development of cooperation with reporting units**

While it continues its efforts to reduce the response burden, SORS is also seeking appropriate technical methods for reporting data. In addition to the aforementioned e-reporting, in 2008 we started introducing internet telephony. In addition to automatic dialling, one major task will be establishing an *Information base for reporting units*, accessible on the SORS website. This will contribute to better quality communication with reporting units, which is also in line with the medium-term strategy 2008-2012.

#### **1.2.2.5 Concern for the reduction of response burden and cost effectiveness**

Monitoring and analysing the burdening of reporting units and producers of national statistics. Based on the Action plan to reduce administrative burdens and costs, which was published on 24 January 2007 by the European Commission, on the Commission's request SORS estimated the time and costs of reporting units and producers of national statistics for statistical surveys conducted on the legal basis determined for this estimate by the Commission. The estimate for 2005-2007 was carried out on the basis of the internationally adopted methodology of the Standard Cost Model. By the end of October 2008 we will also have completed measurement of the burden for all tasks of the annual statistical programme for which SORS is responsible. The findings will be an important basis for the further reduction of response burden and rationalisation of the work of SORS.

#### **1.2.2.6 Classifications**

Introducing KLASIUS into procedures for accreditation of programmes and catalogues and into data collections and statistical surveys.

In 2009 SORS expects the competent ministries, institutions and other bodies, in line with the Agreement on cooperation in implementing the classification system for education and training, to implement KLASIUS in procedures of accepting the accreditation of programmes and catalogues for national vocational qualifications, and to ensure that the existing programmes will also be furnished with KLASIUS codes. This will enable SORS to set up in 2009 a new base - a statistical collection of educational activities/outcomes, which will form the basis for drawing up detailed coded KLASIUS lists, and e-browser and other aids. These activities will be followed by the second phase of introducing KLASIUS, specifically in data collections in which the primary unit is a person, education or inclusion in education as the characteristic of a person - starting with records on labour market statistics, M forms and records or databases from the Employment Service of Slovenia.

## **II. STATISTICAL METADATA SYSTEMS AND THE STATISTICAL BUSINESS PROCESS (SLOVENIA)**

### **2.1 Statistical business process model**

SORS is one of the offices that are (was) studying processes carefully.

Looking back it now, it seems that idea was on the table already in 2002. Top management started to talk about "pillars" of official statistics; under vision of SORS. "Modern approach to total quality management, competency of the staff, up-to-date harmonization with the international environment, user-orientation, modernisation of processes and improvement of working conditions are the most important activities which enable the Slovenian statistical system to complete the mission."

The thorough process of analyzing processes in connection with future IT development started in 2006. The exhaustive study of processes in the office was done with a major commitment from top management. These discussions took more than one year (from 2006 to spring 2007). As a result, an exhaustive document was prepared. This was later sent as an input to explain what SORS wants to achieve in ISIS project.

As it looks now, the breakdown of processes (structure) presents a sound basis, which on the other hand, should be accompanied with a detailed documentation and explanation (separate documents) for every item at the detailed level to assure understanding of IT providers. Around 150 meetings and workshops from January 2007 to November 2008 helped clarify objectives of the project. On top of this figure, majority of the operational communication regarding testing and bug repair was conducted by e-mail or telephone.

There were more challenges revealed, namely the problems of updating and documenting the process on the survey level and how can the business process model be adjusted when software platforms change.

We compared SORS process model with GSPBM process model and presented the analysis in [Annex 2](#). With comparison we found out that there are a lot of similarities between them. However,

- some sub processes in our process are the same as in GSBPM;
- some sub processes are left out;
- some sub processes are left out in our process scheme, but they are performed in our office;
- some sub processes are left out in GSBPM as well (1.6 Methodology analysis; 1.7 Incorporation in annual program of statistical surveys - legal grounds; 2.7 Agreements with other institutions regarding provision of data or joint data collection; 9.4 Analysis of process data);
- some sub processes of our process are positioned differently than they are carried out in GSBPM. It is not marked in the scheme.

### **ISIS and SORS process model**

As stated above, the analysis of processes was one of the inputs into the project ISIS. We will show you here only picture of the highest level - modules captured in the project. In [Annex 3](#) is a more detailed functional scheme with sub processes covered in the ISIS.

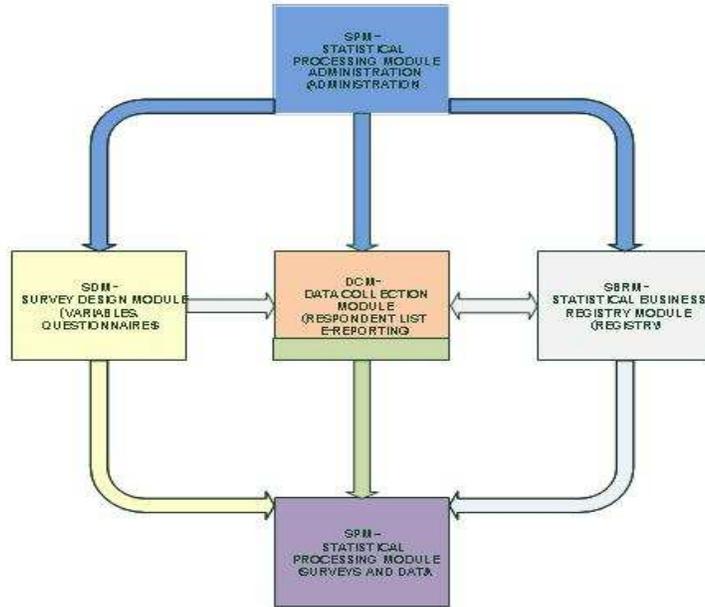


Figure 1: ISIS conceptual modules

### Archiving phase in SORS process model

SORS creates a diversified documentary material that as to the content, purpose and procedures of the formation is separated in the administrative documentary material (ADM) and statistical documentary material (SDM). The renovation of the processes of storage and archiving of ADM has already been carried out in 2005 within the framework of the renovation of administrative procedures and introduction of a document management system SPIS4 to support these

procedures.

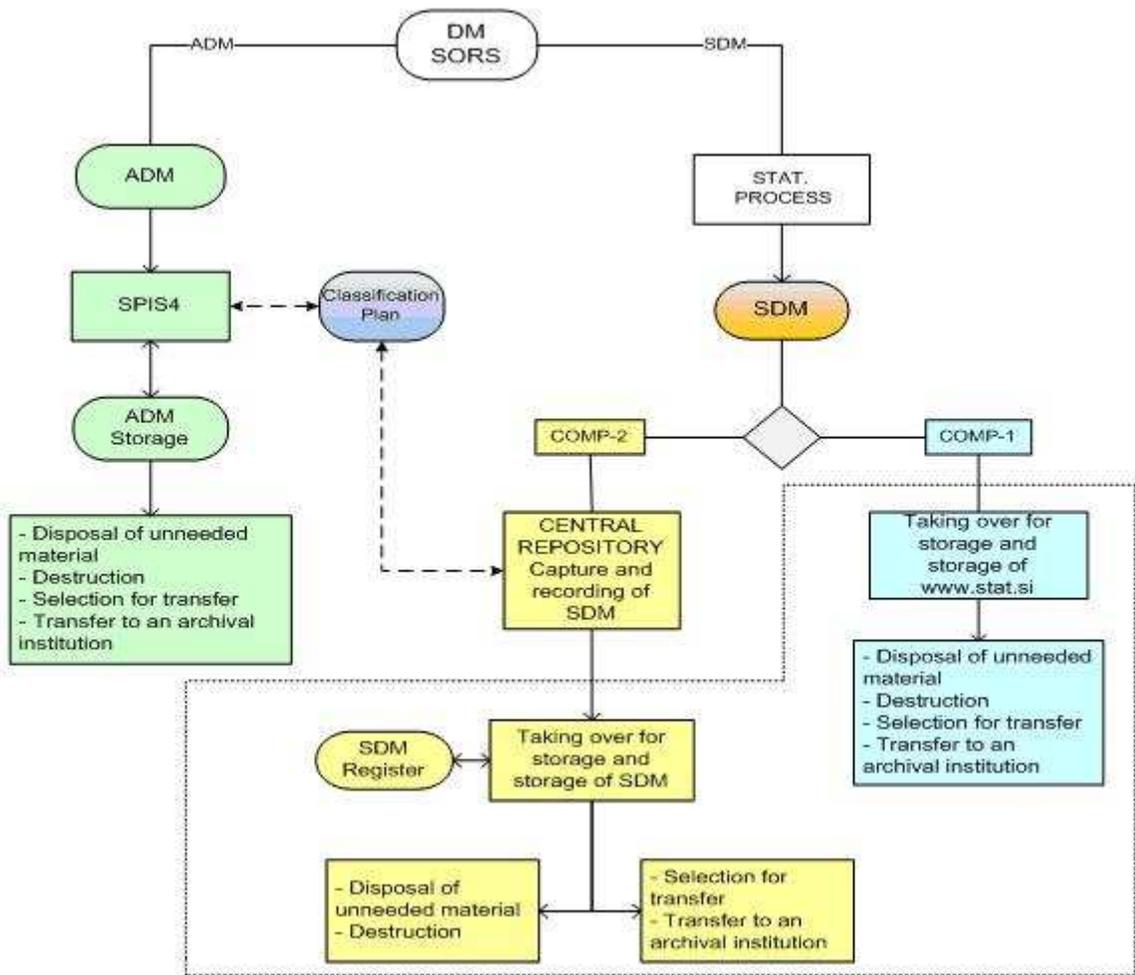


Figure 2: Archiving phase in SORS process model

In 2006 SORS started with the project of renovation of the processes of storage and preservation of SDM. The project aims to address the shortcomings in the field of preservation and storage of SDM, and achieve greater efficiency and reliability of business processes on the level of total SORS with the transition to electronic storage and electronic archiving. This transition is enabled by the adoption of new legislation on protection of documents and archives in 2006 and, consequently, the increased supply of suitable equipment and services in the market.

The main objective of the project is to establish electronic archiving and storage of SDM, and to link these processes with the ongoing statistical process. The objective will be achieved through the realization of the three sub-objectives as follows:

- establishment of the processes of electronic archiving of SORS web site (COMP - 1);
- establishment of procedures to retain the other statistical data and materials (COMP - 2);
- preparation and the adoption of internal rules on the retention of documents and archiving in SORS.

Given the fact that the SORS web site is the primary dissemination channel for the SDM, we addressed the first sub-goal with the highest priority and it was successfully realized. The site

content is stored by the outsourced digital storage services provider, which also provides for the establishment of the state of the site on a given day.

The second sub-goal has been realized in part. Types of SDM, which are the subject of storage, have been identified in all phases of the statistical process and also metadata that define each type of SDM. The architecture of the solution have been defined, which is based on a single recording of SDM and disposal in a central repository where SDM will be taken over by the digital storage services provider.

For the time being the project is stopped because we are waiting for the Archive of the Republic of Slovenia to publish technical requirements for digital storage of the documentary material that is during the business process primarily located in large databases or registers, which is typical for the SDM. The second problem is unclear governmental security policy, or more precisely, the policy regarding the submission of confidential and classified information in the retention of an outside contractor. Guidelines for the retention of such documentary material of the public authorities should be given on the basis of studies carried out by the Archive of the Republic of Slovenia. Guidelines should be published before the end of 2009.

SORS will continue with development and the introduction of internal solutions, call for the selection of external storage service provider will be carried out when the Archive of the Republic of Slovenia's requests are clear.

## **2.2 Current system(s)**

A centralised, corporate metadata repository is implemented at SORS. It includes metadata about surveys, publications, statistical terminology, classifications and nomenclatures, advance release calendar. For each statistical survey methodological explanations have been developed and are available on SORS's website (in English as well).

Metadata repositories were developed over the years and today they are dislocated:

- Klasje - classification server,
- METIS for the annual programme of statistical surveys, survey instances, activities, working plan with activities, publications (and) release calendar,
- ISIS is a system for variables, questionnaires, address lists, process metadata.

Integrated Statistical Information system (ISIS) is integrating all those systems.

We expect ISIS will become the central metadata system in SORS. The connection to classification server is very important especially when we prepare new variables. We define variable in ISIS. If the variable has the classification behind, than that classification has to be defined in classification server. From the ISIS there is the possibility to search through classification server and to find the proper classification for a new variable. If we do not find it, we have to insert it for the first and then find it from ISIS. In the next step the application shows us all versions of the chosen classification. That allow us to choose the version we need. And in the third step we can chose one of the levels in hierarchy of the chosen version. With confirming one of the levels of the version of the classification, we connect it to the new variable. We do not load all the categories to the ISIS database from classification server, but there is written only the link to those categories that the new variable needs.

## **2.3 Costs and Benefits**

The current metadata system was gradually developed, starting in 1997.

### **2.3.1**

It started with a "Modernisation and development of the statistical information system in Slovenia", Feasibility Study on the Architecture of Information Systems and Related Equipment Issues.

The study was carried out in the period of February - September 1997. A number of short term missions to SORS by experts from Statistics Sweden took place. Among the main conclusions of the study were:

- SORS has an excellent potential for developing a modern, register-based statistical system, based upon administrative sources in combination with sample surveys (which need to be designed in a more optimal way than at present). However, there are many demanding tasks to be tackled within a relatively short time period and with quite limited resources. In this situation there is an urgent need for focus and systematic planning in the development work.
- One way to obtain better focus in the development of the systems for statistics production in Slovenia is to specify very precise and concrete target architecture for the development, and to formulate a strategy for implementing this architecture step by step, in a systematic way. As a matter of fact, this approach has been proposed by SORS itself. Both top management of SORS and other staff members have expressed their sincere interest in establishing an "ideal" target architecture and a systematic implementation plan.
- The information system architecture for a statistical office should cover a number of different information systems types and their relations to each other: registers, survey processing systems (primary systems), analytical systems (secondary systems), and metainformation systems.
- It was further recommended, that the first step in the proposed architecture should be the building of a classification database. The prototype was presented at the board of director general as of 1 March 2000 and put in production in November 2000.

### **2.3.2**

Within the StatCop98 project, the component 4.1: Development of conceptual, technical and software solutions of common (infrastructure) importance had the following goals:

- creating the concept of a statistical data warehouse with special emphasis on common functions and metadata as well as its testing on a pilot project;
- specification, development and introduction of EDI tools and procedures;
- classification database - upgrading the existing functionality, developing software for managing the concordances;
- developing software for browsing classifications via internet.

Another component - 4.3: Development of databases and software solutions - aimed at an integrated process of aggregation and dissemination of data from the Census of agriculture, horticulture and viticulture 2000 (AC2000) and other agricultural statistics (AGRISTAT). Within

these two components, the basic common functions in the context of statistical data warehouse were defined according to Sundgren (Sundgren 1997): "Statistical metadata are descriptive information or documentation about statistical data, i.e. microdata, macrodata, or other metadata. Statistical metadata facilitates sharing, querying, and understanding of statistical data over the lifetime of the data".

### 2.3.3

The next project, STAT 2000 - focused on dissemination procedures. At that time, we believed that the electronic dissemination procedures at SORS are not well adapted to user needs and EU requirements. Most of the data collected by SORS are to the users available disperse, i.e. not in an integrated and comprehensive form and in addition they mostly lack the metadata. All official statistics have to be available in a uniform and user-friendly way via the Internet. Providing users with ample amounts of high-quality metadata encourages them to process and analyse official statistics in their own computer environments and to give feed back to the statistical office. The interaction between production and dissemination systems has to be organised on metadata based concept, so that the production system automatically feeds the output database, used by dissemination systems, with data and metadata.

An integral and contemporary dissemination system should be designed to cover the national and international user's needs. The data used in the compilation of SORS's dissemination system will cover all fields of statistics as well as series of regional data indicators for which the metadata system has already been initiated in the scope of the COP 98 project.

Metadata play a major role in dissemination of statistics, including helping users to find, understand and assess statistics in the context of their specific objectives. As standard tools and approaches to creating and managing, the metadata used for dissemination can also be used for survey design and statistical production activities.

Sharing information and metadata requires standard solutions both for the technology and the content.

Within the STAT 2000 project it was therefore essential to analyse and establish the underlying principles for specification and modelling of the dissemination database.

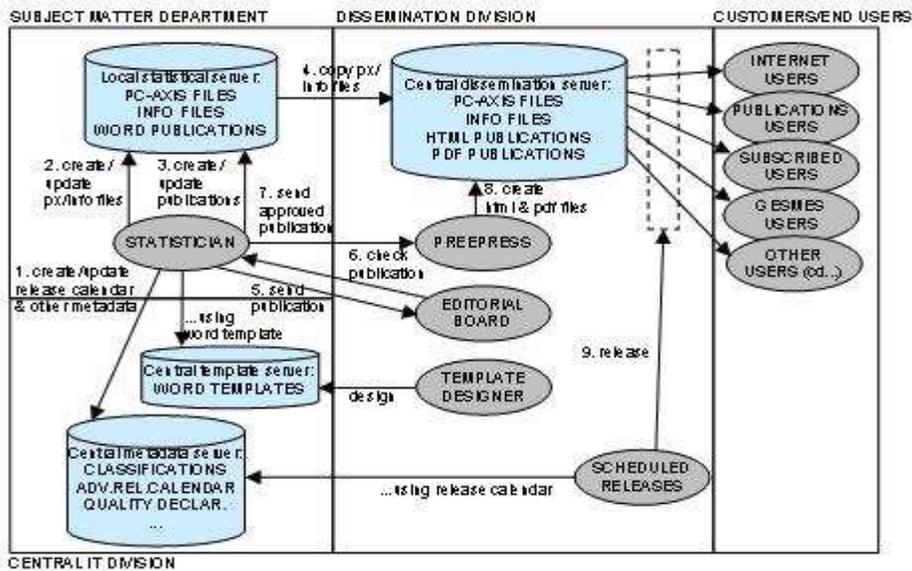


Figure 3: Conceptual scheme of functions to be supported within the "output" process

It was essential to study the entire data and metadata flow as far as possible all the way from the microdatabase to allow effective and efficient process, based on guidelines and rules that facilitate both: first production of statistical data and any other future use and reuse of the data and metadata.

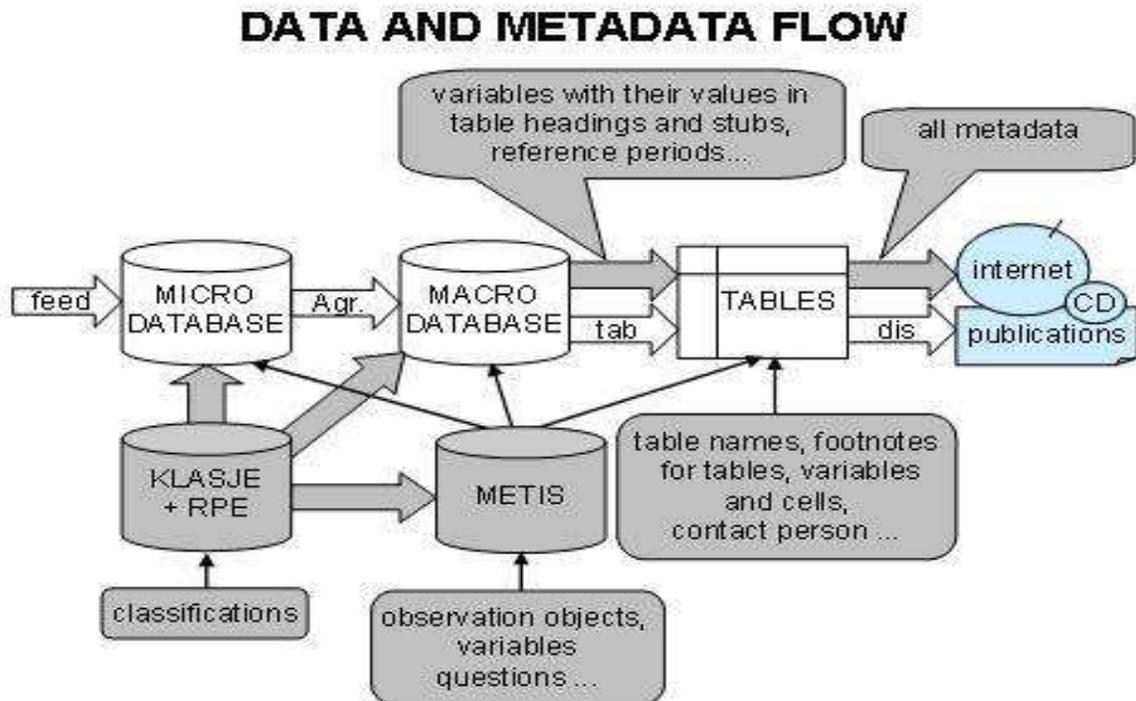


Figure 4: Conceptual scheme of the data and metadata flow from the microdatabase to the end user

## **2.4 Implementation strategy**

Despite the fact that a large part of the development tasks in the area of information services for the support of statistical production should be finished by the end of 2008, the introduction of solutions into regular production is a particular challenge, and will continue at least until 2010.

The introduction of new applications and tools into general use will increase SORS's need for constant improvement of the level of IT services (providing functioning, user support, infrastructure management, etc.) in order for the second main goal of the strategy to be efficient, and that internal and external users of information services are satisfied.

The following actions plans are elaborated in \\*Priorities of the national statistics in 2009 ([Annex 6](#)):

- Action plan for implementing the STRATEGY FOR FURTHER DEVELOPMENT OF NATIONAL STATISTICS IN SLOVENIA in 2009;
- Action plan for implementing the STRATEGY FOR FURTHER REDUCTION OF ADMINISTRATIVE BURDENS in 2009;
- Action plan for implementing the STRATEGY OF QUALITY in 2009;
- Action plan for implementing the STRATEGY OF DATA PROTECTION in 2009;
- Action plan for implementing the STRATEGY OF COOPERATION WITH REPORTING UNITS AND REDUCTION OF BURDENS in 2009;
- Action plan for implementing the STRATEGY FOR DISSEMINATION AND COMMUNICATION WITH USERS in 2009;
- Action plan for implementing the STRATEGY OF INFORMATION TECHNOLOGY UPDATE in 2009;
- Action plan for implementing the STRATEGY OF HUMAN RESOURCE MANAGEMENT in 2009;
- Action plan for implementing the STRATEGY OF FINANCIAL RESOURCES MANAGEMENT in 2009.

## **III. STATISTICAL METADATA IN EACH PHASE OF THE STATISTICAL BUSINESS PROCESS (SLOVENIA)**

### **3.1 Metadata Classification**

not elaborated

### **3.2 Metadata used/created at each phase**

not elaborated

### **3.3 Metadata relevant to other business processes**

MFERAC

A uniform computerised accountancy system for the implementation of the state budget.

## SPIS

SPIS (official paper, case) is the mandatory general government system for electronic data management, enabling complete electronic business, including document recording, storage and imaging, receipt and checking of electronically signed documents, electronic signatures and transmission of signed documents and connection to electronic faxing.

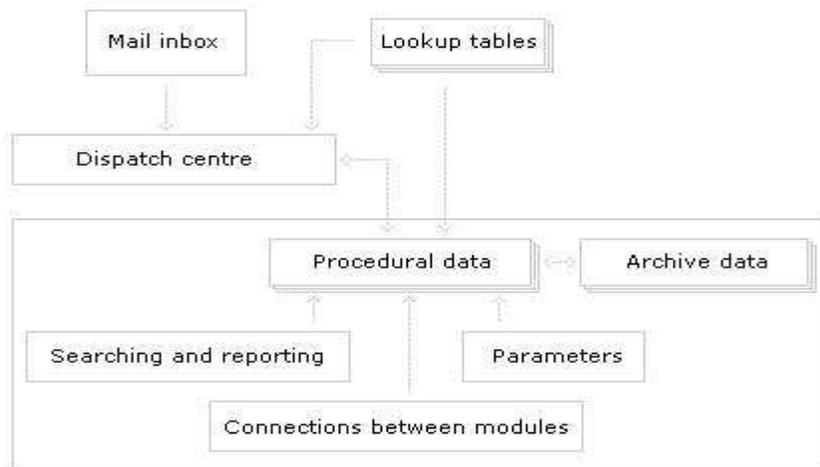


Figure 5: Conceptual model of SPIS

## IV. SYSTEM AND DESIGN ISSUES

### 4.1 IT Architecture

SORS is a user-oriented organisation which is organised with an emphasis on processes and the quality and protection of data provided by reporting units. Information technology (IT) must follow the mission, vision and values of SORS, and provide for the efficient, professional and economic execution of SORS's mission and tasks.

Key goals for the realisation of the tasks set forth are:

1. well computerised and efficient statistical process, supported by general user-friendly information solutions;
2. efficient and satisfied internal and external users of information services;
3. competent IT experts;
4. electronic storage and archiving.

#### Computerised and efficient statistical process

This will be achieved by developing and introducing general information to support the statistical process, which enables more transparent and efficient statistical processes and long-term savings in the maintenance of these solutions.

Such an approach brings new challenges from the aspect of development and introduction. Planning, development, testing and the introduction of general information systems require the use of better defined and adequately supported methodology in terms of organisation. The IT unit

will start introducing established standards and development methodologies which cover the entire life-cycle of the application software (CMMI). The next important activity is improving organisation within the IT by introducing process organisation of development activities, which will enable IT experts to specialize in individual expert areas and be independent from the statistical content in their work. This will lead to a more transparent process in the development of information systems, a higher concentration of IT knowledge, and easier and more efficient allocation of human resources.

### **Consolidation and standardisation of software**

SORS has consolidated its development environments in recent years and will standardise them considering individual statistical processes. Besides a long-term focusing on relational technology of Oracle databases (and in certain areas of Microsoft SQL Server) SORS has chosen NET as an application development environment, SAS as the environment for processing and analyses, and tools developed in statistical offices (Blaise, PC-Axis, Argus, etc.) for specific statistical areas (collection and arrangement of data, dissemination, protection, etc.). The use of commercial and statistical tools wherever possible and the development of our own application solutions only where they are necessary for the smooth functioning of the statistical process remains a constant guideline. The main challenge will therefore be to integrate individual technological solutions into an integrated system, which will be achieved with the improvement of interoperability between individual systems and the introduction of the principles of service oriented architecture. A very important activity will be finalising the transfer of processing and data into a LAN server environment, with which SORS will conclude the use of its IBM central computer, and will also transfer data and processing performed on working stations. Due to the increasing importance of XML technology in the area of statistical data and metadata, SORS will start developing and introducing SDMX technological solutions.

The first step in this direction is the introduction of ITIL guidelines, which is a long-term process of constant improvement, which will enable SORS employees and external users to work smoothly and efficiently. In terms of organisation, this will bring the establishment of a modern service centre and adequate process organisation in the area of IT services.

#### Shared servers and dedicated ISIS servers

Main SW	Operational system
Oracle 10.2.0.3 EE	Windows 2003, SP2, 64 bit
MS IIS 6.0, .NET FW 3.0	Windows 2003, SP2, 64 bit
BizTalk Server 2006, MS IIS 6.0, MS SQL Server 2005	Windows 2003, SP2, 64 bit
MS IIS 6.0, .NET FW 3.0, Blaise 4.8.	Windows 2003, SP2, 64 bit
SharePoint Server 2007, MS IIS 6.0., SQL Server 2005	Windows 2003, SP2, 64 bit
MS Analysis Services 2005, MS SQL Server 2005	
Blaise 4.8.	
SAS 9.2.	

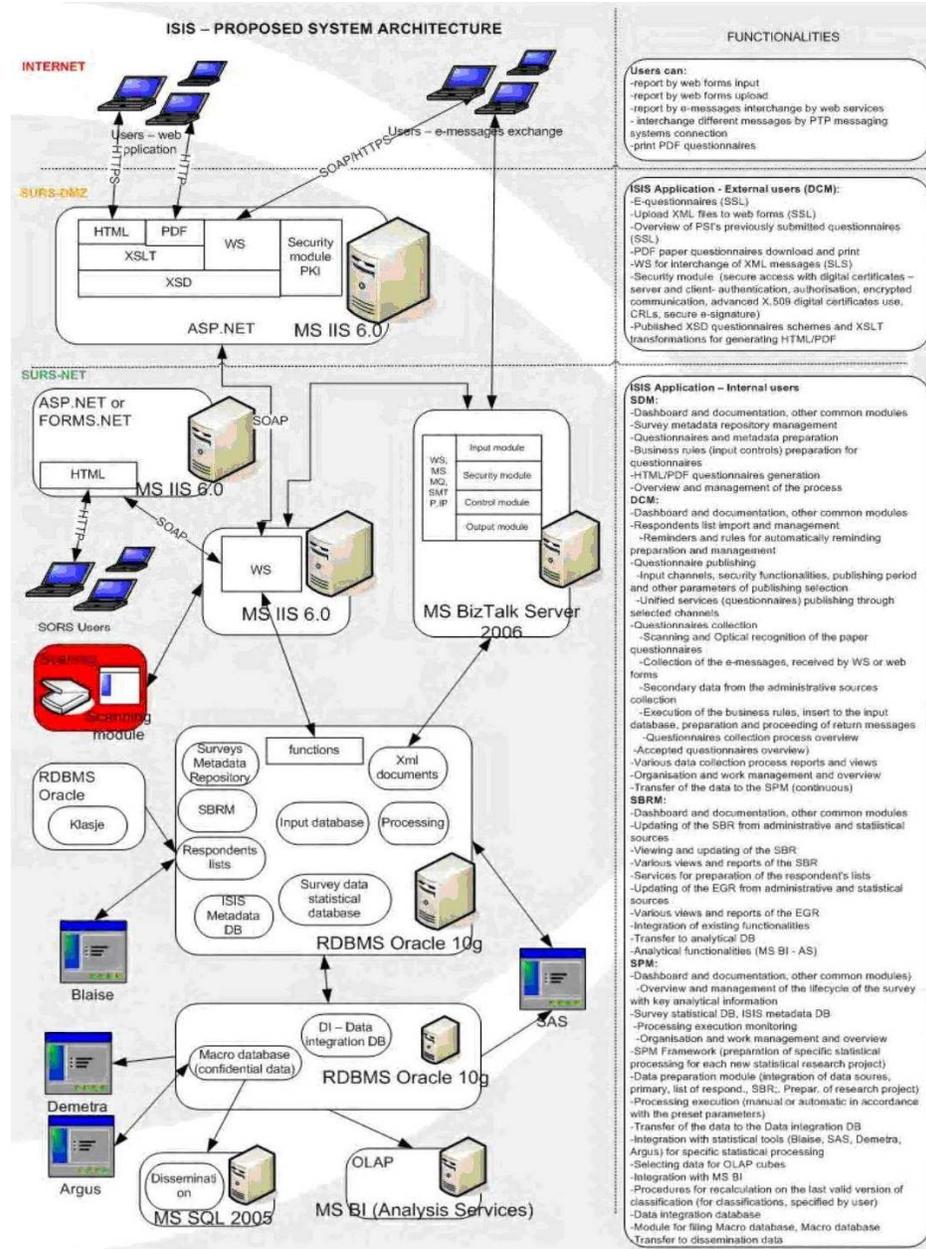


Figure 6: ISIS system architecture

## 4.2 Metadata Management Tools

no special tools are used

## 4.3 Standards and formats

not elaborated

## 4.4 Version control and revisions

Different rules.

#### 4.5 Outsourcing versus in-house development

Due to constant challenges in updating information systems in SORS, which challenge the personnel potentials and knowledge of the internal IT staff, SORS will continue to efficiently use both internal and external human resources. In doing so, SORS will focus on the internal management of the statistical core business and will outsource when this is cost-efficient and/or presents an opportunity to expand internal know-how, and not as the provider of all development activities in individual areas (complete outsourcing).

#### 4.6 Sharing software components of tools

scripts, guidelines, manuals for: classification database, advance release calendar, WebCMS, registry of statistical surveys and survey instances and planned activities within survey instances

#### 4.7 Additional materials Links to additional materials such as data models.

[Annex 3: ISIS functional diagram](#)

### V. ORGANIZATIONAL AND WORKPLACE CULTURE ISSUES

#### 5.1 Overview of roles and responsibilities

Component	Responsible SORS unit
Classification server	General methodology and standards
Registry of surveys, survey instances, working plan	General methodology and standards
Annual programme of statistical surveys	General methodology and standards
Working journal	General methodology and standards
Quality reports and standard quality reports	General methodology and standards
Terminology database	General methodology and standards
Advance release calendar	General methodology and standards
Standardisation of questionnaires	General methodology and standards
Statistical process	General methodology and standards
SDMX	EDP infrastructure and technology
Archiving	EDP infrastructure and technology
Metadata in dissemination	Department for Electronic Dissemination

#### 5.2 Metadata management team

There is no permanent metadata management team for the moment.

#### 5.3 Training and knowledge management

Due to the increasing complexity of the application environment, constant education of (internal) users is a key factor which enables efficient work and prevents incompetent or unsafe use of information equipment. SORS prepared and continually carry out targeted seminars and workshops for users in order to raise the level of their knowledge.

Work in IT requires trained experts, so the constant development of competences of the employees of SIIT is necessary. Considering that SORS is an institution which works with data,

the competence of information personnel is of a key importance for its proper functioning and further development.

SORS constantly makes sure that its information personnel are adequately trained. An activity which will enable even more focused and efficient training is the typing of working places in IT and more emphasis on self-education at the working place. Operating results frequently depend on how well employees are informed on the strategic and tactical guidelines of SORS, which can be improved with workshops and brainstorming, and participation in interdisciplinary project groups which deal with development activities.

#### **5.4 Partnerships and cooperation**

SORS is participating in relevant international meetings, for instance METIS, OECD and Eurostat. SORS is also member of PC-Axis reference group.

The classification server was developed with thorough documentation from Statistics New Zealand.

The majority of the projects from 1997 up to now were financed within PHARE (COP98, STAT2000, cca 2,5 mio Euro) and 2005 Transition Facility Program (ISIS, cca 1,2 mio Euro).

#### **5.5 Other issues**

SORS is carefully studying solutions developed elsewhere. The case studies published on UN/ECE website are of utmost importance for our office.

## **VI. LESSONS LEARNED**

1. Participation in pilot projects enables less experienced employees to gain the experience necessary for independent work. Due to the similarity of the statistical process, it is very important for the IT personnel in SORS to gain experience from other statistical offices, which is ensured through participation in expert conferences and bilateral cooperation with foreign offices.

2. Metadata usage in production tools has shown many opportunities but also a lot of new challenges.

3. In 2009 within total quality management priorities will cover:

- activities to promote the cooperation of enterprises in data reporting;
- concern for the consistent monitoring and analysis of response burden;
- implementation of the process of standardising questionnaires in statistical surveys;
- preparation of documentation on the consistency and coherence of statistical data from various surveys;
- preparation of internal rules and procedures on revisions of published statistical data;
- establishing internal rules and procedures for keeping documentation for the time series breaks.

4. Great attention will be focused on the preparation of internal methodological manuals (i.e. textbooks, handbooks, presentations, etc.) for individual parts of the statistical process.

5. By providing the necessary technical and expert support for establishing statistical methodology, SORS attempts to increase interest in implementing the quality standards of the European Statistical System among authorised producers of national statistics. This will cover also the formulation of methodological explanations and a release calendar. At the same time a short course is being planned on imputing missing values, data editing in statistical surveys, on sampling methods and data dissemination.

6. From ISIS final report: Provided ISIS information system is designed in a highly flexible and scalable way, based on modern technological approach (SOA), to assure easy adaptation to future changes, reusability of developed services and further development of the SOA end electronic business at SORS. Relevant actors (users) were engaged in testing in early phases of project to know the new system and to be able to start use it after the end of the project in the most efficient way. Consultant believes that the ISIS information system as the heart of the project's results will represent sustainable solution which will serve SORS as the core of the business statistics IT support for years. Significant organizational adaptation of SORS will be necessary for implementation of the ISIS, its maintenance, operational on-going and help desk.

## **6.1 Descriptions of the problems**

### **6.1.1. Complexity of the project / relatively short time for implementation**

Project ISIS is exceptionally complex. Information system ISIS covers metadata management system, entire process of flexible and metadata driven statistical surveying, sophisticated electronic reporting system, Statistical business register and special respondent's management system, seasoned with heterogeneous technological platform and all kinds of integration demands with specific statistic tools. It is not common to undertake such an ambitious project (actually a whole set of integrated projects) in only two years time and with relatively limited resources.

### **6.1.2. User specifications**

Although detail user specifications for programming were expected as an input from CA before the commencement of work, in most cases user specifications were too general. Consultant did prepare technical documentation during analysis and design phases which has described the future information system; however, the technical documentation in most cases was not transparent enough for users to understand the designed system in details before it was built.

### **6.1.3. Fluctuation of the consultant's staff**

Consultant (S&T) was confronted with heavy fluctuation of the staff during the project, which was producing organizational problems and set-backs during entire project. It took significant organizational efforts to overcome these problems to some extent.

### **6.1.4. No remote access to the SORS test environment**

There was no possibility of remote access from the consultant's premises to the SORS test environment, despite persistent consultant's appeals and argumentation of necessity of such connection (CA enabled the Consultant to work at their premises instead). Thus, consultant did have to physically drive to SORS for any minor intervention (e.g. in order to continuously update

application in SORS test environment from its development environment - frequent process during development - or to clarify any user questions during user testing phase). In this way, important and unnecessary waste of resources and additional tasks were caused to the consultant that could have been easily avoided.

### **6.1.5 Organizational adaptation of SORS**

Information system like ISIS, inevitable results in fundamental adaptation of organizations. ISIS will enable CA to turn paper-centric statistical surveying into paperless statistical surveying - it is hard to imagine a bigger change. It would be best if the processes were redesigned before preparation of detail specifications for ISIS. Anyhow, CA will inevitable have to adapt some of its processes to implement ISIS successfully in its processes. Implementation of electronic reporting alone demands entirely different "service and customer-centric" organization of data collection process. Consultant suggested CA on several occasions to start the adaptation process timely. However, although CA considered carefully the requests for adaptation process in terms of current workload and processes and introduced changes accordingly to the development of the modules, additional changes will be needed before implement of ISIS.

### **6.1.6. Organization of user testing and bug repair**

User testing and bug repair process on some modules was not organized efficiently enough and it did not enable to complete the user testing and bug repair phase timely. There was some lack of strictness by terms consideration on both sides (CA and consultant) which led to the consequence, that some modules which could and should have been completed months earlier, are still "close to completion".

### **6.1.7 Some recommendation for the future:**

- Contracting authority could consider to split the complex projects like ISIS into two or three smaller projects and perform them in accordance with its organizational capacity;
- Contracting authority could consider to split future projects in two parts to assure high quality of specifications and results, that will correspond fully to the specifications and redesigned business processes;
- Detail specifications preparation together with business processes redesign;
- Implementation of the solution based on the results of the first project;
- Contracting authority should enable remote connection to its test environment for the future projects.

## **VII. ATTACHMENTS AND LINKS**

[Annex 1: Organisation scheme (SORS)]^Organisation scheme (SORS) Annex 1 new.XLS]

[Annex 2: Process model (SORS)]^Process\_model\_(SORS)\_Annex\_2.doc]

[Annex 3: Functional scheme with sub processes covered in the ISIS (SORS)]^Functional scheme with sub processes covered in the ISIS Annex 3.doc]

[Annex 4: TQMStrategy 2006 (SORS)|^TQMStrategy\_2006\_eng.doc]

[Annex 5: Quality of statistics with links (SORS)|^Quality of statistics\_with\_links.doc]

[Annex 6: SORS PRIORITIES 2009 (SORS)|^SORS\_PRIORITIES\_2009\_ENG.doc]