EU Twinning Project
IS12/ENP-APFI/08

Support to the Israeli Central Bureau of Statistics in the development of National Accounts, Education Statistics, Survey Methodology, ICBS Website and Coordination of Israel National Statistical System

Component E
Dissemination and Website

Activity E6.2
Metadata Integration

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Table of contents

Annexes external to the report:

List of abbreviations

Colectica	Standard metadata management tool for the DDI standard
CoP	European Statistics Code of Practice
DDI	Data Documentation Initiative
ESMS	European SDMX metadata structure.
ESQRS	ESS Standard Quality Report Structure
GSBPM	Generic Statistics Business Process Model
GSIM	Generic Statistical Information Model
ICBS	Israeli Central Bureau of Statistics
NSI	National Statistics Institute
QAF	Quality Assurance Framework
QAF	European Statistics Quality Assurance Framework
SDMX	Statistical Data and Metadata eXchange.
SIMS	Single Metadata Structure
SMU	Subject Matter Unit

1. General comments

This mission report was prepared within the EU Twinning Project between the Israeli Central Bureau of Statistics and Statistics Denmark. The mission was placed as a sub-component of Component E, Dissemination and Website.

The objectives of the mission were to follow up on activity E4.1 with focus on
• Development of the part of ICBS' strategy plan regarding metadata and quality.
• ICBS' specific needs regarding choice of data formats and corresponding software solutions will be discussed

Expected output from activity:
• Live demonstration (with Colectica) of the importance, advantages and functionnalities for internal and external use, of a statistical metadata system (SMS) which is centrally integrated. Hands-on experience. Demonstration of user friendliness in different uses.
• Mission report with recommendations regarding the metadata and quality strategy, data formats and software solutions.

The MS Experts would like to express their thanks to all officials and individuals met for the kind support and inspiring discussions during the stay in Israel which highly facilitated the work.

The views and observations stated in this report are those of the MS Experts, and do not necessarily correspond to the views of the European Union or Statistics Denmark.

2. Methodology: Business Process Management

The overall approach is Business Process Management focusing on the "as-is" and "to-be" states.
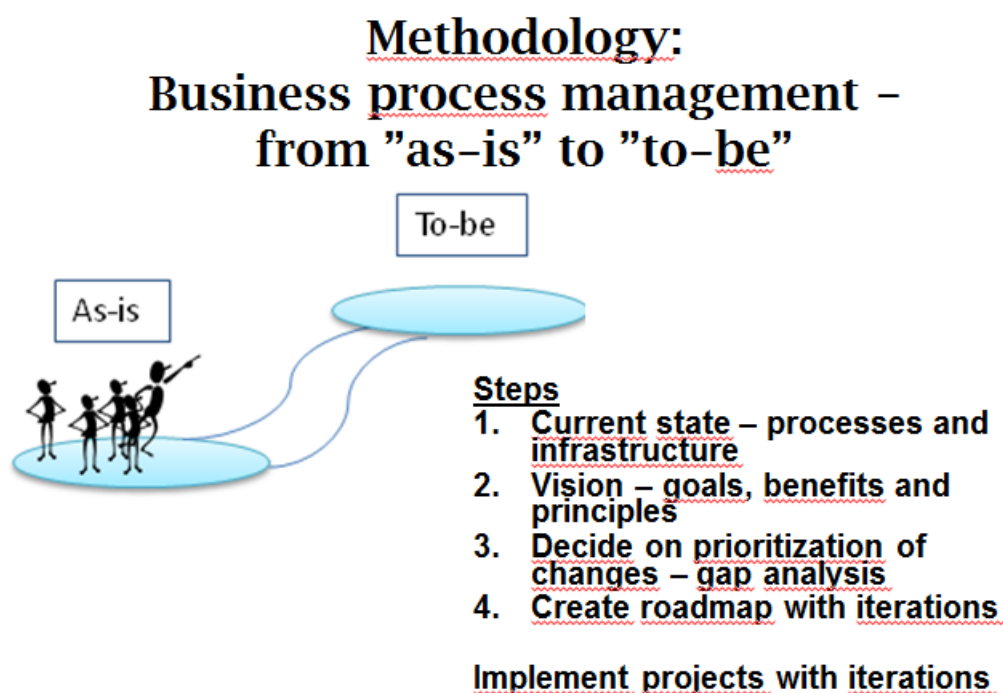
Diagram 1. *Methodology: Business Process Management*

The business process perspective implies that focus is on end-to-end processes, following the ideas on theory on the value-chain. Each sub-process must contribute to the value of the product delivered to the user/customer. The production-processes, including processes on metadata, must be designed to fulfil goals for the organisation – including goals on cost-effectiveness.

Diagram 2. *Business process perspective with environment elements.*

3. Activities during the mission, issues and recommendations

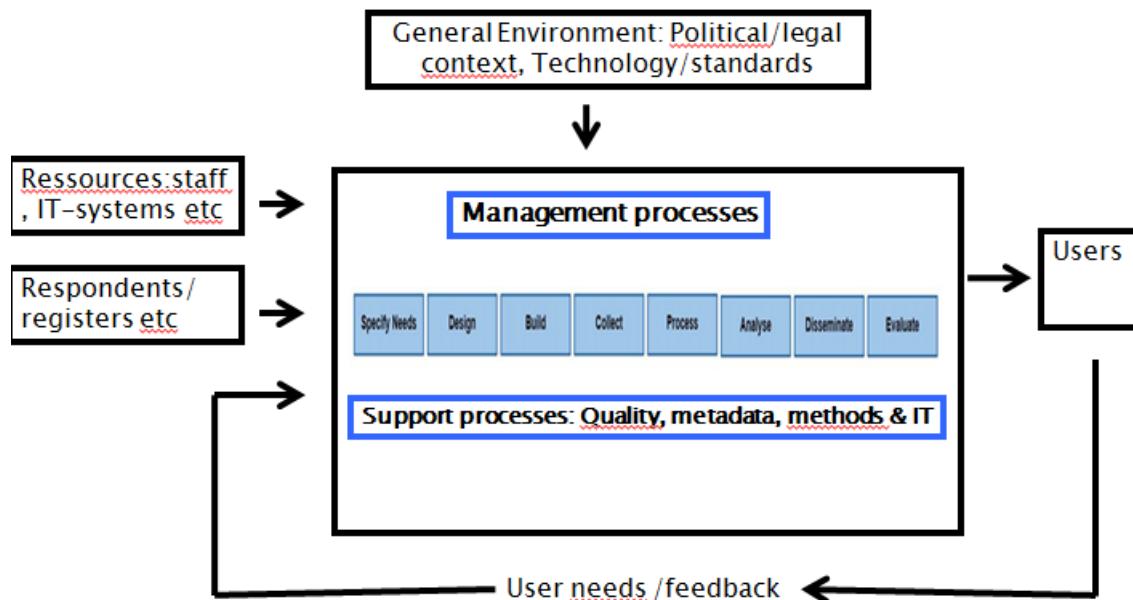## 3.1 End-to-end perspective on the production of statistics – methodology and standards

The first part of the mission had the following items in the ToR:
- *Introduction of end-to-end perspective on the use of metadata in the production of statistics; Methodology, metadata concepts, standards*
- *Metadata management based on GSBPM*
- *Advantages of integrated centralized metadata system: linked diamond elements, permissions, search and retrieval for intranet users etc.*
- *Integration with other systems, e.g. PC-Axis, web site and SDMX file exchange.*
- *Centralized vs. decentralized administration.*
- *Cross sectional example of all metadata on one topic (live presentation)*

As can be seen these items required MS Experts presentations on a complete framework for the production of statistics including how you should do metadata management, how you should work with surveys, how you should use standards on processes, metadata etc., how you should build IT solutions. The ideas on end-to-end production have existed for many years in the international statistical community, but very few NSI's have managed to walk successfully down that road. Examples on very ambitious implementation can be found in Canada, Australia and Sweden. They have all put a lot of resources into building advanced cross-department solutions. The challenge for smaller NSI's with less or very few resources is

how to benefit from these ideas using standards and standard-solution taking small manageable steps in the right direction.

To handle this challenge, the MS experts recommended Business Process Management as the methodology. This implies (among other things) that you carefully go through the following steps when creating a strategy:
1. Analyse current state
2. Create vision, principles, goals and benefits (short and long term)
3. Prioritize (gap analysis)
4. Create roadmap

In order to illustrate the way forward with small steps a model on maturity was discussed. Before possibly moving into metadata driven production it is important to adopt and implement basic standards on metadata and quality, and also GSBPM.

In order to present the end-to-end perspective on the use of metadata in the production of statistics the MS-experts first introduced metadata-concepts and principles from Code of Practice and Quality Assurance Framework, and GSBPM. After this an overall model of end-to-end work-processes was introduced. Regarding metadata the MS Experts focused on what must be considered the most important principles regarding metadata: reuse of metadata, active metadata and integration into GSBPM.

To demonstrate the use of metadata and Colectica as a standard tool the following use cases were integrated into the presentation of an end-to-end perspective:
- Use case 1: Demonstrate how Colectica can be used to build metadata for a simple questionnaire with reuse of code lists and variables
- Use case 2: Demonstrate how Colectica can be used to build metadata for a simple data-structure (micro-data from survey/administrative data)
- Use case 3: Demonstrate how Colectica can be used to build an aggregated dataset using N-cube, with reuse of variables and code lists from micro-level.
- Use case 4: Demonstrate how Colectica can be used to support work on quality-declarations with reuse of statistical concepts and with integration into GSBPM

As part of use-case 3 it was shown how N-cubes in Colectica could be used to create PX-data and metadata. Using this type of integration will promote reuse and thereby ICBS could benefit from having common metadata used across the processes in GSBPM.

Using Colectica requires that you implement a common metadata-repository in SQL-server or Oracle. Colectica Designer Colectica SDK (Software Development Kit) and other client-tools will work on top on the repository. You can insert and extract information using the client tools. It is not possible make changes to the repository using other tools e.g. Oracle tools.

4. Recommendations on methodology, processes and metadata

Recommendation from report on *Activity C.6, Awareness about the National Statistical System*

1. *The consultants' advice to ICBS is to not build it yourself:*
    It will lead to considerable developments costs, delays and eternal maintenance
2. *It should rely on accepted international statistical standards: SDMX, DDI, GSBPM, SIMS*

> *This will allow ICBS to communicate and share experiences with other NSIs, and to switch to other systems also building on standards, should the need arise*
> 3. *We recommend to use a standard commercial system*
> 4. *We recommend Colectica because:*
>   - *It is used by some good NSIs: New Zealand, Canada, Denmark; and more are planning to join*
>   - *This allows for help & sharing of knowledge among sister organisations*
>   - *Elements from NSIs are progressively being integrated (features that are of joint interest) and can be shared*
>   - *It is provided by a competent company (Algenta) with high quality people*
>   - *Statistics Denmark has had very good experience with implementing the system, highly cost efficient*
> 5. *Management should decide on the strategy for metadata, preferably including the platform, by 1 November 2014, so that it can be discussed during the next activity.*

These recommendations are reflected in the recommendations below.

Recommendation: Use the following three steps in the development and implementation of the strategy on quality and metadata
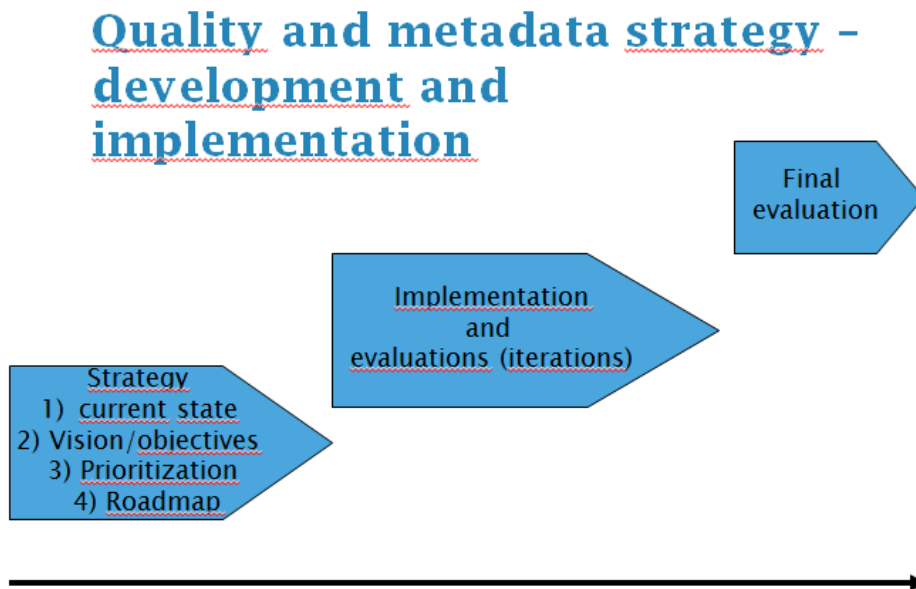
Diagram 3. *Development and implementation of the strategy on quality and metadata*

The analysis of the current situation carried out the mission in February 2014 showed a lack of standards on metadata and other standards. It also indicated a need for improvement of systematic planning/ methodology / management / documentation of the working-processes. See details in mission-report. Regarding the overall time-planning it is recommended to follow the maturity steps below. As a first step it is recommended to focus on standards and improvement of processes including management of processes, in order to get end-to-end solutions and to implement common standards across domains.

STANDARDISATION AND INTEGRATION (maturity steps)

Develop
- Common infrastructure
- Common work–processes

Focus on automation (plug and play)

Develop and implement
- Common guidelines on core processes
- Change work processes
- Change management

Develop and implement
- Common standards
- Project management
- Common metadata including overall documentation of processes

Focus on integration of data and metadata and redesign of work-processes

Focus on standards, and management (overall and survey level)

- Develop strategy – current state, vision, gap analysis and roadmap
- Establish cross–cutting organiation

Silos

2014   2015   2016   2017   2018   ?

Diagram 4. *Steps towards more standardisation, integration and automation*

The idea behind a maturity model is at have go through a number of phases and you cannot skip phases. This means that you cannot start by implementing integrated and standardized systems on all surveys. It is important to get hold on how to do project management, introduce metadata standards. It is off course a good idea to do experiments on how an integrated standardized would look like. This is reflected in the drawing where you have some of "green-phase" behind the "yellow-phase"

A well-known model is the CMMI model (Capability Maturity Model Integration). This model used the following phases: Initial, Repeatable, Defined, Managed and Optimizing Link: Wikipedia ..

The diagram below gives another perspective with more details on the steps of the work on strategy. It is based on "Enterprise Architecture as Strategy", by Ross et al[1].

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[1] Ross, Jeanne, Weill, Peter & David C. Robertson (2006). *Enterprise Architecture as Stategy. Creating a Foundation for Business Execution.* Harvard Business School Press, Boston Massachusetts.
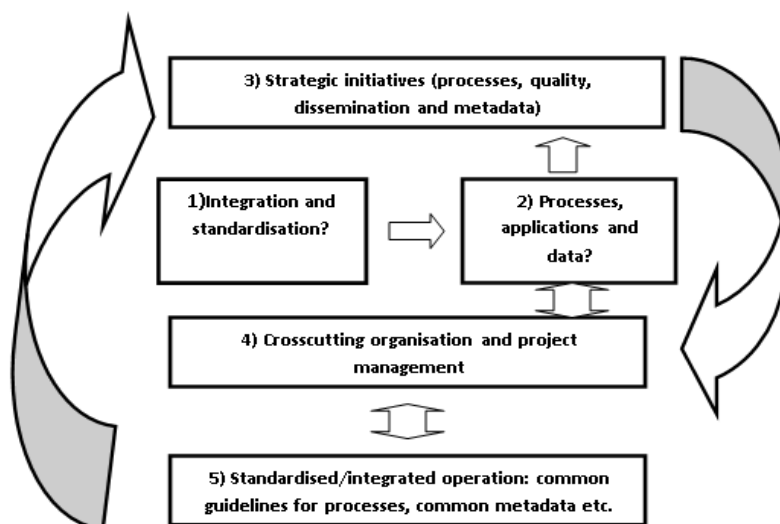
Diagram 5. *Strategy model*

In contrast to a traditional strategy approach, the model in diagram 5 recommends to start with decisions on how to handle integration using common data and common applications *(step 1)*. Hereafter general decisions on processes, applications and data should be taken, i.e. enterprise architecture *(step 2)*. This step should include decisions on how to describe the existing processes (the *as-is* situation). Having taken decisions on this, ICBS should choose a number of strategy initiatives *(step 3)*. Then, a project for each initiative is established *(step 4)*. The last step is the actual implementation of the projects *(step 5)*.

On standardisation is it recommended
- to implement GSBPM including training in the use of simple templates for documentation of processes. The benefit will be sharing of knowledge, in general. Besides this the information can be used for decision making on future steps on improvements of existing processes and of redesigning processes using the end-to-end perspective on the production of statistics.
- to start the harmonisation of questions in survey questionnaires, code lists, concepts and classifications, and to implement quality declarations. The shared metadata elements should be used on the concrete documentation of databases and other types of data. The benefits will be shared knowledge to be used for decisions of improvements / redesign of processes but also for improved end user knowledge on statistics
- to implement and dissiminate quality declarations following international standards (2-digit SIMS suggested)

On integration of data and metadata it is recommended to
- decide on building a common metadata-system to be used across the organisation. Short term: simple pilot system using a test version of DDI/Colectica on a few surveys. Long run: standards based metadata-system: The building and decision on content of statistical databases should be based on how to fulfil external and internal user-needs.
- to implement GSBPM as the common business process architecture for ICBS. This task involves ICBS's "formal" adoption of GSBPM,
- To introduce an end-to-end perspective on the productions using metadata actively. The overall work-processes can be seen in Annex E6.2.x (Power-Point presented during the mission).
  - Short term: Launch a pilot project with end-to-end production of statistics using metadata-driven production. The purpose of this project should be to

support decisions on the possibilities on a new production model using integrated metadata (metadata-driven production). See also the slides of the Power Point presentation: GSBPM model and metadata and data flow. How to move from yellow to green?

Other recommendations:
- Metadata management. The work should be organised with a central function (unit of the ICBS) managing concepts, classifications, survey questions etc. Staff from Colectica and from other NSI's could advise on the best way forward for ICBS
- What to do with code list? Code lists in DDI and SDMX are almost identical in structure. As part of the harmonisation it is recommended to include the following four elements: code-name, name, label and description. See diagram 6 below. As a way forward ICBS can use Excel with a spreadsheet for each code list with columns as listed in diagram 6. Later, when moving to Colectica or another standard-software, the code lists can be directly imported.
- Inhouse vs. standard-based solutions. Don't build it yourself. It requires too much knowledge and time. Experience from other countries shows that it cannot be handled by a single NSI. Standards (and standard software). Guidelines and examples on implementation of metadata systems can be found on the UN-page Common Metadata Framework and on a page by Bo Sundgren. The future international development will take place around GSIM and related implementations standards: DDI, SDMX, Neuchatel etc. It is recommended to follow and benefit from this development.

Name: Sex			
Code list	Name	Label	Description
M	Male	Male	Male
F	Female	Female	Female

Diagram 6. *Example on the element in the code list on sex.*

5. Recommendations on the strategy on metadata and quality

The MS Experts recommend the following structure (an outline) for the ICBS strategy document on metadata and quality:

1. Introduction including results of the the analysis of current state
2. International standards, definition of metadata and roles of a Statistical Metadata System
3. Vision, objectives, principles and benefits (short and long term)
4. Tasks and time-table (roadmap)
5. Organisation
    Annex 1. Guidelines for production and use of metadata
    Annex 2. IT-solution (short and long term)
        i. High level architecture
        ii. IT tools, applications and databases

Ad. 1. The current state

Recommendation: This chapter of the strategy document should include a short summary description (1-2 pages) of the current state with focus on the following existing elements (general level):
1. Overall strategy and supporting strategies
2. Existing work-processes. Summary conclusions using ideas from the LFS-exercise
3. Management of processes (top-level as well as day-to-day). The description can be based on the documentation of existing processes (bullet 2)
4. Standards currently used (GSBPM;SDMX, etc.)
5. The actual IT-Infrastructure covering all phases

The description of current state can be based on an analysis of "as-is" situation on selected representative surveys and other input, e.g. from the Twinning mission. The chapter could end with a description of possible improvements and benefits when moving towards more standardisation and integration. The input for possible improvement can be found in Twinning mission reports (E4.1, C.4, C.6).

Ad. 2 International standards, definition of metadata and roles of a Statistical Metadata System

Could include elements from this report, e.g. Accepted international statistical standards: SDMX, DDI, GSBPM, SIMS

Ad. 3 Vision, principles, goals and benefits (long and short term)

ICBS vision
1) Cost-efficient production using common metadata
2) Quality of statistical products and processes
3) Fulfilment of user needs on documentation

Principles.
General principles: Code of Practice and Quality Assurance Framework. It is recommended to use Code of Practice (CoP) and Quality Assurance Framework (QAF) as an overall framework, and link initiatives to principles in CoP / indicators in QAF

Metadata principles: Use selected principles from the UN Common Metadata Framework. The most important principles are: a) Reuse metadata where possible for statistical integration as well as efficiency reasons (we don't want metadata graveyards); b) manage metadata as an integrated part of GSBPM; c) make metadata active to the greatest extent possible, active metadata being metadata that drive other processes and actions. Treating metadata this way will help to ensure that they are accurate and up-to-date.

Goals
Long term
- Fully integrated and automated production-system, including guidelines on the production and use of reference and structural metadata
- Metadata driven production. The idea is presented in the power-point-presentation.
- Quality Management System implemented. ISO 9001 gives ideas on the elements in a QMS.

The long term objectives should be discussed and possibly reconsidered.

Benefits:

- Cost-efficient production and high quality of statistical products
- Co-operation with other NSIs and international organizations (sharing of metadata)

Short Term

Goals:	Benefits: how does this goal improve: Cost effiency, fulfilment of user-needs and Better quality of products and processes
1. Quality Declarations: Produce and disseminate Quality Declarations for all statistical products according to common standard (template), for example SIMS. The electronic dissemination of Quality Declarations must include links to and from data.	• Improved user satisfaction • Possibility for further knowledge sharing with other NSIs (regarding SIMS)
2. Harmonize variables, code lists and concepts and decide on software to be used (Surveys and administrative files).	• Improved quality of statistics • Improved user satisfaction • Possibility to provide the research community high-quality micro-data
3. Pilot-project: Introduce new processes and integrated metadata: pilot using active metadata (new and changed survey). Assumption: DDI and Colectica. Training, guidelines	• Knowledge established in ICBS regarding the DDI format and the related possible benefits and future perspectives, first of all metadata-driven production
4. Introduce GSBPM including documentation of statistical processes	• Harmonization of the documentation of the different statistics production systems in ICBS: easier to replace or rotate staff in the organization. When finalized, the material will provide the basis for an analysis of how to harmonize/optimize the production processes across the organization.

Ad. 4 Roadmap

1. __Quality declaration__
Tasks at cross-cutting organisation level:
- Planning including provision of ressources
- Infrastructure: 1) excel solution and 2) dissemination system: integration into Content Management System (CMS) including linking)
- Training (pilot, guidelines etc.)
- Prepare template and collect existing content (pilot-study, guidelines) based on two-digit SIMS-level / ESMS-standard

Tasks at survey level
- Fill in templates

2. Harmonization of concepts, code lists etc. and pilots
Task at cross-cutting organisation level:
- Planning including, provision of ressources, prioritization on which elements to start with
- Infrastructure. This includes decision and implementation of software-system to be used. As a start simple Excel or Oracle can be used to gather common concepts, codelists etc. Regarding full documentation on 2-5 surveys: Colectica trial software should be considered.
- Training (pilot, guidelines etc.)
- Glossary by topic (concepts and definitions 2015). This is an on-going activity
- Code lists: Evaluate main existing code lists and prepare plan for selected new code-lists
- Questions-catalog. This is an on-going activity
- Classifications: synchronize and harmonize the main international classifications
- Variables: prepare and overview on initiatives, plan and establish bank with 20-50 harmonised variables. One of the initiatives was presented at the mission.

Tasks at survey level
- Fill in templates
- Prepare full documentation on 2-5 surveys combining local and common metadata

3. Pilot on new processes using integrated metadata
Task at organisation level:
- Planning
- Tools (assumption: Coletica trial)
- Training
- Guidelines for the future production of statistics (draft provided by MS experts)

Task at survey level:
- Pilot surveys

4. GSBPM
Task at cross-cutting organisation level:
- Planning
- Tools
- Training
- Introduce template (same structure as template for LFS-survey)

Tasks at survey level
- 1-2 surveys, representative on survey types, department etc, using the LFS-template prepared at the mission.

Ad. 5 Organisation
A project organization involving all relevant stakeholders in the metadata project should be established. The MS Experts suggest that the following structure could be useful:

Steering Committee on Metadata (Heads of Departments, IT, Methodology, SMU)
Implementation Group (Methodology, Dissemination, IT, SMU)

Recommendation: conduct internal user consultations (Methodology, IT, Dissemination, SMU)

Short description of the role of each of the groups:

The steering committee should approve the overall project and be responsible for decisions on resources, handling of risks and detailed plans. The implementation group is responsible for the day-to-day work.

Tasks for the implementation group (ICBS revise)
- Prepare strategy and recommendations for the steering group
- Create and maintain business process architecture documents: GSBPM overall, guidelines etc.
- Identify, prioritize and scope business process change projects including projects on quality and metadata
- Training on standards and support on day to day work
- Recruit needed professionals including help from consultants

Ad. IT tools

It is recommended to evaluate Colectica in the pilot-project starting in 2015

Why use Colectica
- Builds on well established standards
  - Integration of metadata on all phases require DDI and DDI tools (SDMX, SIMS, GSBPM should be used also)
- Standard product
  - Minimized own development
  - Minimized maintenance
  - Total cost decimated
- Used by some good NSIs
  - New Zealand, Canada, Denmark
  - Allows for help & sharing of knowledge
- Elements from NSIs being integrated
- Competent company with high quality people

Issue: how to share customized code from Statistics Denmark. It is recommended to start with implement quality-standards included in the standard software. In parallel the development of sharing of code should be followed at the International User Colectica Conference and via the global Colectica discussion forum.

Issue: Handling risk of using software from a small company:
Worst case scenario: Colectica ceases to exist
- Export DDI from Colectica and use other DDI software
- Continue with all source-code from Colectica Contract must allow access and ownership of full source code
- Collaboration with other organisations. A global discussion forum for developers has been created.

It is recommended to evaluate the risks as part of the evaluation of Colectica

Issue: Training courses: recommendation: share knowledge, use Colectica conference in London

Issue: planning of tasks. Recommendation on project management methodology: Use a simple system (already existing) and conduct training.

Annex 1. Terms of Reference

Mandatory result	Benchmark
MR22. Drafting of an ICBS dissemination and communication strategy document	Strategy drafted by 6th project quarter

Subject / purpose of activity E6.2

Follow up on activity E4.1 with focus on
- Development of the part of ICBS' strategy plan regarding metadata and quality.
- ICBS' specific needs regarding choice of data formats and corresponding software solutions will be discussed

Expected output from activity E6.2

- Live demonstration (with Colectica) of the importance, advantages and functionnalities for internal and external use, of a statistical metadata system (SMS) which is centrally integrated. Hands-on experience. Demonstration of user friendliness in different uses.
- Mission report with recommendations regarding the metadata and quality strategy, data formats and software solutions.

Participants

CBS: The Metadata Steering Committee, the Metadata implementation team, the subject matter staff responsible for quality declarations, the dissemination unit.

Statistics Denmark:
Mogens Grosen Nielsen, Chief Adviser, Methodological Division, Statistics Denmark
Kim Duncan Bendix, Head of Section, Methodological Division, Statistics Denmark

Annex 2: Programme 29 September – 2 October

Date	Time	Event
Mon 29/9	09:00	Welcome, introduction and objectives of the mission, and ICBS presentation of actual status on metadata
	09:30	Statistics Denmark (30 minutes coffee break around 10:30): • Intgroduction of end-to-end perspective on the use of metadata in the production of statistics; Methodology, metadata concepts, standards • Metadata management based on GSBPM • Advantages of integrated centralized metadata system: linked diamond elements, permissions, search and retrieval for intranet users etc.. • Integration with other systems, e.g. PC-Axis, web site and SDMX file exchange. • Centralized vs. decentralized administration. • Cross sectional example of all metadata on one topic (live presentation)
	12:15	Lunch
	13:30	Live presentation and discussion of: • Use case 1: A simple questionnaire • Use case 2: A simple data-structure (survey/admin. micro-data) • Use case 3: How to create an aggregated dataset using N-cube • Use case 4: A quality-declaration
	15:30	End of day 1
Tue 30/9	09:00	Continuation of use-cases from day 1 (30 minutes coffee-break around 10:30), then: • Metadata management based on GSBPM • Colectica in practice: hands-on interactive session using a trial version of Colectica installed on ICBS computers
	12:15	Lunch
	13:30	Elaboration and recapitulation • Summarizing the contributions of an integrated SMS in the use / reuse of metadata, managing links between data and metadata and between metadata objects, reducing metadata burden, supporting metadata harmonization etc. • What comes with Colectica (built-in): Which statistical standards / classifications / definitions, standards updates, sharing enhancements implemented by other NSI's. • Discussion on Colectica: Questions and answers
	15:30	End of day 2
Wed 01/10	09:00	Separate session with subject matter staff in charge of statistical topics on the new website: • ICBS: Introduction of the metadata project to the staff and referring to the Hebrew version of SIMS • Statistics Denmark: Presentation of the metadata concepts, SIMS in general and SIMS indicators of quality and methodology.
	10:30	Coffee break
	11:00	ICBS: Introduction to ICBS metadata strategy
	12:00	Lunch
	13:15	Statistics Denmark: • Discussion on the metadata strategy and the adoption of GSBPM • Identification of sub-projects derived from the strategy and needed for the implementation of an integrated metadata system. • Challenges to be addressed, including the coordination on the organizational level, human resources and capacity building • Discussion of the work-plan.
	15:30	End of day 3
Thu 02/10	09:00	Report writing and preparations for debriefing
	13:00	Debriefing
	15:00	End of meeting

Annex 2. Persons met

Name	Organisation	Department
Lior Yeshayahu	ICBS	Economic Infrastructures
Nili Karshai Bibi	ICBS	International Relations & Stat. Coordination
Batia Attali	ICBS	International Relations & Stat. Coordination
Olivia Blum	ICBS	International Relations & Stat. Coordination
Sigalit Mazeh	ICBS	International Relations & Stat. Coordination
Yotal Weiss	ICBS	International Relations & Stat. Coordination
Rami Harel	ICBS	IT
Shahar Katz	ICBS	IT
Yossi Nissim	ICBS	IT
Oz Shimoni	ICBS	Director, Macro-economics
Tom Caplan	ICBS	Office of the Government Statistician
Yael Natan	ICBS	Information and Media Relations
Mirit Cohen	ICBS	Information and Media Relations

Annex 4 Terms with short explanation

CoP	*Code of Practice,* European recommendations on production of statics – including quality assurance
QAF	*Quality Assurance Framework*. Can be seen as a European toolbox for CoP.
BPM	*Business Process Management*. A method for dealing with improvement of work processes. In a process improvement project, an analysis team models and examines several aspects of the current (AS-IS) situation. The purpose of the analysis is to create a visual diagram along with its associated text and determine if there are possible areas of improvement. (e.g., reductions in cost, time or just a need for better documentation) If improvements are identified, the team constructs a modified description (TO-BE) with the improvements and then conducts a gap analysis on how to transition can take place. The GSBPM-model, BPMN-standard can be used for describing the AS-IS situation.
BPMN	*Business Process Model Notation*. A standard used for creating diagrams showing workflow.
DDI	*Data Documentation Initiative*. Metadata described so that they support a process lifecycle. The model is mainly used for microdata
SDMX	*Statistical Data and Metadata eXchange*. Standard for exchanging reference-metadata and structural metadata. ESMS and ESQRS are used as standards for reference metadata. These standards are used for quality-reporting
ESMS	Reference metadata for *European SDMX Metadata Structure*. Standard for building quality declarations. This standard is mainly used for transmission of reference metadata to Eurostat related to SDMX structural data/metadata. In the SDMX (Eurostat) world this standard is considered as a standard to fulfill users' needs for reference-metadata.
ESQRS	*ESS Standard Quality Report Structure*. This standard is mainly used for quality reports. In the SDMX (Eurostat) world this standard is considered as a standard to fulfill producers' needs for reference-metadata.
SIMS	*Single Integrated Metadata Structure* that can be used to derive both ESMS and ESQRS. The metadata structure is expected to be used for storing reference metadata for ESMS and ESQRS. The metadata-structure is being discussed in Eurostat task-force.
GSBPM	*Generic Statistical Business Process Model*. Workflow Model, which describes every step in a workflow, from needs assessment to evaluation.
GSIM	*Generic Statistical Information Model*. Model, at an abstract level, describing the information objects that are input and output from GSBPM processes. The model used as the basis for the introduction of common understanding of content in technical standards as DDI and SDMX standards
Colectica	Standard metadata management tool for the DDI standard. The tool is expanded so you can also integrate standards regarding. quality declarations
Colectica SDK	*Colectica Software Development Kit*. A software package (collection of files) with features to help programming using Colectica.
Colectica Designer:	The program / software which Algenta provide to us and to be used as an interface for updating and maintenance of metadata (in the first place quality declarations / possible terms). Colectica Designer will be extended with simple user interfaces for quality declarations, concepts, classifications mm.
Colectica Repository	The underlying database where all metadata is stored centrally

Annex 5. Chart on metadata driven production

DESIGN PHASE	BUILD PHASE	COLLECT PHASE	ANALYSIS ETC. PHASE	DISSEMINATE PHASE

Collection of data
Questions
Questionnaires
etc.

Databases
Survey systems
Output systems
etc.

Data collection

PX files
etc.

*variables
concepts
code lists
etc.*

Dissemination
tool
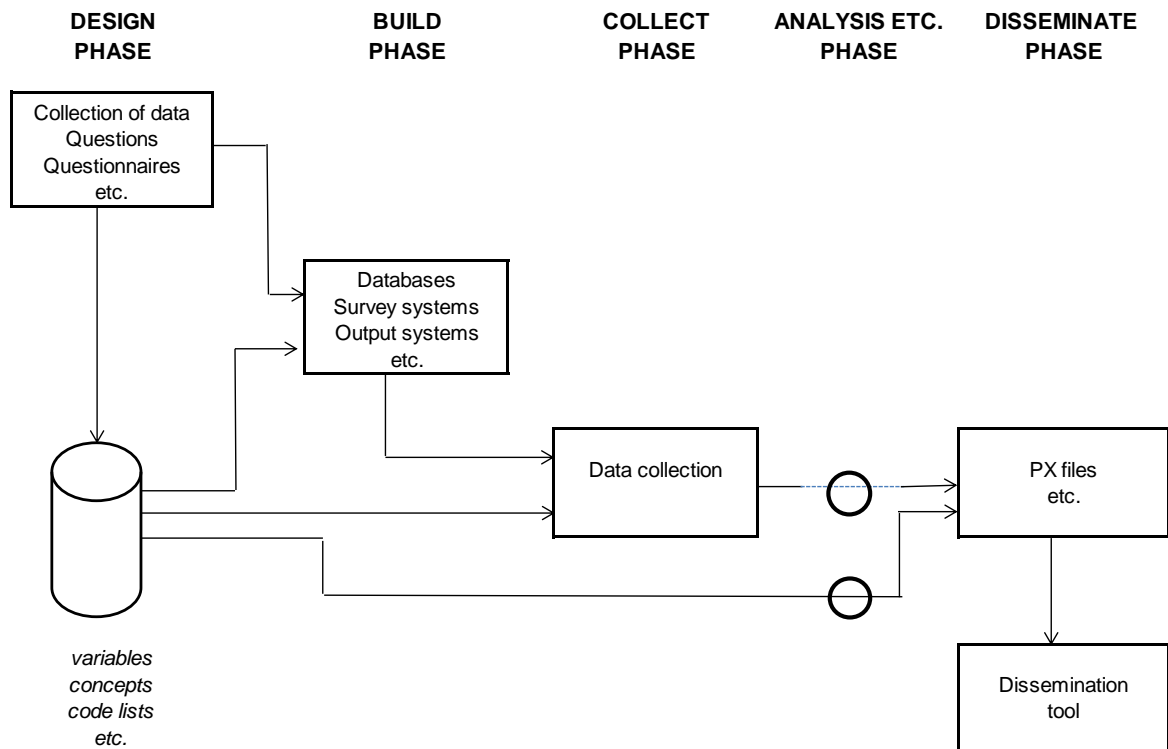
Annex E6.2.6 Simple questionnaire used for Colectica example

Q1. Sex?

   1. Male
   2. Female

Q2. How old are you?

_____

Q3. Parents income level?

1. 0-24999
2. 25000-99999
3. 100000 -

Q4. Parents education level?

1. Low
2. Medium
3. High

Q5. What type of school do you attend?

   1. Public school
   2. Private school
   3. Do not attend school