

How to fulfil all demands for quality reporting

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Abstract

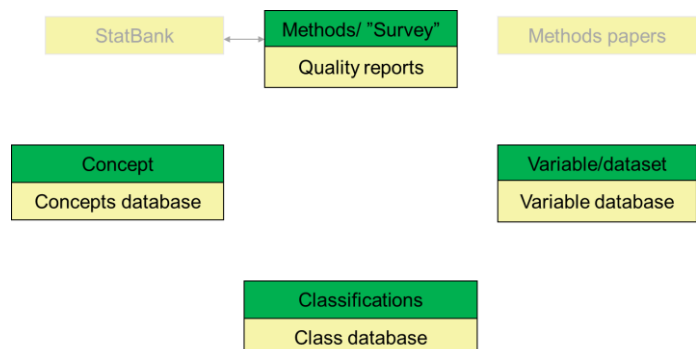
At Statistics Denmark, we have implemented the DDI based software Colectica to organise metadata. The idea was that all metadata should be organised using international standards and metadata should be gathered in one place and be reused. For all published statistics in Statistics Denmark all the fields of SIMS (Single Integrated Metadata Structure) are filled in and stored in Colectica. On our website the user oriented SIMS fields are shown and presented in layers – the overall picture first – and more details for the more dedicated users. An important feature of our new metadata system is the reuse of data. All ESMS fields can “automatically” be transferred from Colectica to the ESS Metadata Handler for those statistical domains that have chosen this way of quality reporting.

1. Introduction

There are many different demands for metadata – national and international. On quality reporting there are demands nationally and from the EU and other international organisations like the IMF. These are not aligned across domains or organisations. The systems we have had in Statistics Denmark for metadata has reflected this in many ways. The system we have had for quality reports did not communicate with other systems, so reports for different purposes had to be made separate. We wanted to integrate all the different metadata sources in one system.

2. Implementing Colectica

Statistics Denmark has worked dedicated for an integrated metadata system since 2009. At that time, we had several different systems to manage our metadata. We had one system for quality reports, one for concepts, one for variables and several for classifications – one for each classification. This is illustrated in the figure on this side – with four main metadata areas with no connection between them.



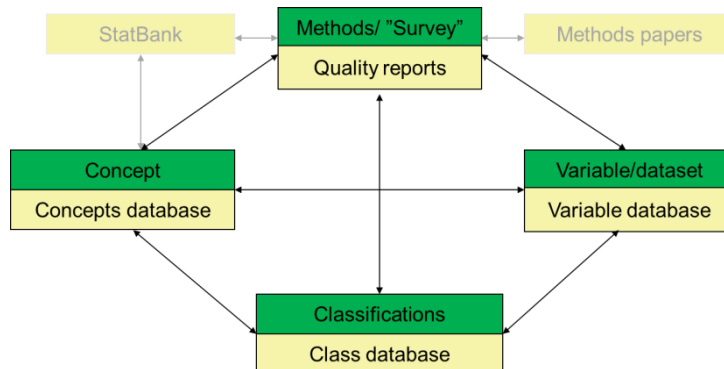
We received an EU grant to implement Colectica and update our system for quality reporting. The new system should be based on international standards and it should be possible to gather the different types of metadata in one place and reuse the information for different purposes. Colectica is based on DDI (Data Documentation Initiative). Our quality reporting is based on SIMS (Single Integrated Metadata Structure). The idea is - in one product - to cover all demands for quality reporting – national and international (EU for a start). Hence, the quality reports are prepared in both Danish and English. The system for quality reports in Colectica was completed in 2014 and the updated quality reports (documentation of statistics) was launched on Statistics Denmark's webpage in 2015.

In our system up to 2009 we had challenges on fulfilling user-needs in a cost efficient way. The existing work-processes and metadata were fragmented and the work-processes were non-standardised. From each of the metadata systems the metadata were linked to final data and there was no reuse of the data. Also the presentation of the different metadata was fragmented and incomplete. We had and still have a concepts database, but it was not systematically updated and harmonized in the whole organisation and it was incomplete. Our classifications and different code lists are placed in the different statistical domains where they are kept, managed and organised by the subject matter responsible. With the new system we will introduce standards for classifications as well.

In the process of implementing Colectica several international standards were introduced. Standards introduced are the GSBPM (Generic statistical business Process Model), SIMS (Single Integrated Metadata Structure), SDMX (ESQRS and ESMS) from Eurostat and DDI and DDI-tools to ensure integrated metadata.

The main goal with the new system was to streamline and harmonise quality reporting and other metadata. We started out with the quality reports. Colectica is a reporting framework that makes it possible to store the reports in the same database in a flexible and up to date system. The flexibility of the system makes future extensions possible by adding new concepts.

Our system for an integrated metadata system is still on the way, but at the present we are working on integrating concepts, variables and classifications into Colectica. Pilots are ongoing entering variables from different statistics and different classifications into



Colectica. Concepts are already in place in Colectica, but harmonisation of concepts across domains has not yet been carried out within the system. The goal for our metadata system is illustrated in the figure with arrows between all the four main metadata areas.

3. SIMS (Single Integrated Metadata Structure)

SIMS was developed to streamline and harmonise quality reporting in the European Statistical System. Before SIMS was developed two reporting standards existed: ESMS (EURO-SDMX Metadata Structure) and ESQRS (ESS Standard for Quality Reports Structure). These two systems were integrated and harmonised in SIMS. All concepts now only appear once and common guideline have been developed.

In their meeting in November 2015, the ESSC endorsed the revised version of SIMS and stated that SIMS will be the reporting standard for quality reporting according to Article 12 of Regulation 223/2009 on European statistics. We foresee that all statistical domains in the ESS in a near future will adapt to using the ESS Metadata handler and that SIMS will be the basis for all quality reporting. This is not yet in place for all statistical domains in EU. Some domains also have regulations explicitly mentioning how the quality reports should be made and may therefore not be compliant with SIMS for some time.

In our metadata tool, Colectica we have chosen SIMS as the basis for quality reporting. For all statistical domains, the subject matter responsible must fill in all the fields of SIMS for each individual statistics – both in Danish and English.

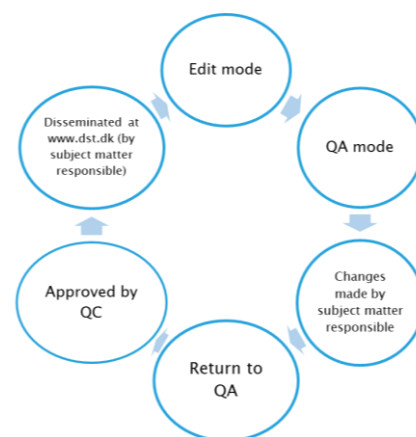
For many of the 250 statistics this has been a challenge. In many cases, this is felt to be a task (or more a burden) on top of the production. In many cases, the concept of filling in the right information in the SIMS fields has been a new way of thinking. To meet these challenges we have arranged seminars and courses in using the tool and filling in SIMS and we have an internal support function. The ESS handbook for quality reports and the Technical Manual of the Single Integrated Metadata Structure (SIMS) are used as guidelines.

The ESS handbook for quality reports contains SIMS in an annex and gives guidelines and examples for preparing detailed quality reports. The Technical manual of SIMS gives an overview and guidance on the use of the structure.

3. The process of quality reporting in Statistics Denmark

One important feature with our new system for quality reports is systematic quality assurance of the content and update with any new dissemination of the statistics. It is actually the filling in of the fields in SIMS that is updated with any new dissemination of data.

When introducing the new system an important issue was to introduce the concept of making quality reporting part of the production process. To do this we mapped all the SIMS fields into the GSBPM. In the first version of Colectica the entrance to the SIMS fields was via GSBPM. This was a little premature for the organisation so now there are three different entrances – the GSBPM, SIMS and dissemination structure (for www.dst.dk). The idea is still, however, that making the quality reports should not be something extra you do when you have made your data, but something you do during the process of producing data.



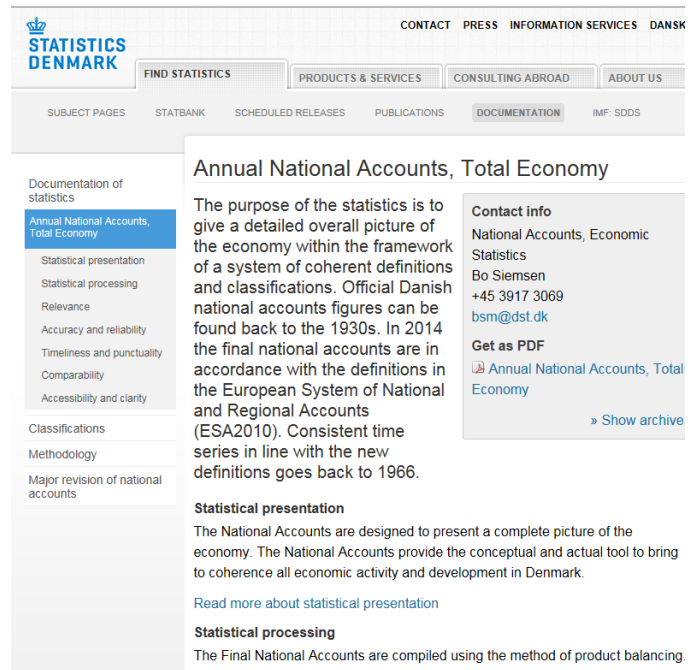
When the SIMS fields have been updated, the subject matter responsible sends the quality report to quality assurance. The quality coordinator will read the report and give comments and suggestions. The subject matter responsible will then update the quality report and make it ready for dissemination. The relevant fields will be updated on Statistics Denmark's webpage and the relevant fields will be sent to e.g. Eurostat. There is an archive with historic quality reports (documentation of statistics). The process is illustrated in the figure on this side.

4. Outputs from our metadata system

Having filled in all the fields of SIMS the subject matter responsible is well on the way. Reports can be made to those EU domains that use the ESS metadata handler, dissemination on www.dst.dk/documentation can be made, and reports can be made and extracted in either Word or Excel.

The quality reports (documentation of statistics) that disseminated on Statistics Denmark's webpage contain relevant fields

from SIMS (user-oriented fields). On the webpage we have chosen to publish in to layers. The first layer is the "front page fields" with an overview. The "front page fields" give a short overview of contact information, introduction of the statistics, a statistical presentation, statistical processing, relevance, accuracy and reliability, timeliness and punctuality, comparability and accessibility and clarity. In the figure on this side the documentation of statistics as it is on our webpage is shown. The box with contact information is fixed on the right side. On the left side the headlines of the "front page fields" are shown. A click on one of these will bring the user to more detailed information in the second layer of the documentation of statistics. The details of the second layer can also be seen by clicking under each of the "front page fields" (Read more about...).



The screenshot shows the Statistics Denmark website. The main navigation bar includes 'CONTACT', 'PRESS', 'INFORMATION SERVICES', and 'DANSK'. Below this is a search bar and several menu items: 'FIND STATISTICS', 'PRODUCTS & SERVICES', 'CONSULTING ABROAD', and 'ABOUT US'. A secondary navigation bar contains 'SUBJECT PAGES', 'STATBANK', 'SCHEDULED RELEASES', 'PUBLICATIONS', 'DOCUMENTATION', and 'IMF: SDDS'. The 'DOCUMENTATION' section is active, showing a list of topics: 'Documentation of Statistics', 'Annual National Accounts, Total Economy' (highlighted), 'Statistical presentation', 'Statistical processing', 'Relevance', 'Accuracy and reliability', 'Timeliness and punctuality', 'Comparability', 'Accessibility and clarity', 'Classifications', 'Methodology', and 'Major revision of national accounts'. The 'Annual National Accounts, Total Economy' page is displayed, featuring a main heading, a detailed introduction, and sections for 'Statistical presentation' and 'Statistical processing'. A 'Contact info' box on the right provides contact details for National Accounts, Economic Statistics, including the name Bo Siemsen, phone number +45 3917 3069, and email bsm@dst.dk. A 'Get as PDF' button and a 'Show archive' link are also visible.

The reports that can be extracted from Colectica when all the SIMS fields are filled in are:

- SIMS
 - that contains all SIMS fields. This can be used for all kinds of quality reporting based on SIMS by "picking" the relevant SIMS fields.
- GSBPM
 - that contains all SIMS fields, but is arranged according to GSBPM. E.g. Relevance will be found in the needs phase and Accuracy and reliability will be found in the Analysis phase of GSBPM.
- ESMS
 - which gives all ESMS fields that can be entered into the ESS metadata handler

- ESQRS
 - which gives all ESQRS fields
- MIP
 - which gives the SIMS fields that are in the MIP (Macro Imbalance Procedure) quality template. The institutional fields in the template are prefilled.
- We are working on mapping SDDS to SIMS so that we can also report to IMF via Colectica.

5. Examples from the National Accounts

For national accounts there are many demands for quality reporting of different kind. From the EU there are several different quality reports. There is the GNI report – which in detail explains sources and methods used in the National Accounts (for Denmark: Danish National Accounts - Sources and Methods). In connection with MIP (Macroeconomic Imbalance Procedure of the EU) there is an inventory report and a quality report (on the way). Eurostat is also working on a quality report for national and regional accounts as part ESA 2010 and implementing the EU regulation 549/2013. The draft from early 2016 had a major part prefilled by Eurostat that the member states where to comment on. This quality report is not yet in place and may change in many ways for the final version.

For the MIP's e.g. a generic template for quality reporting has been developed by Eurostat and member states in cooperation with the European Central Bank. The MIP's are also reported by institutions that are not part the ESS. They are not necessarily familiar with SIMS, but a compromise was reached so that all the fields in the MIP quality reporting template where mapped to SIMS. Hence, for reporting quality on MIP, an extraction from the SIMS fields entered in Colectica can be used. Some of the fields in the MIP quality report are not part of SIMS, e.g. the fields about institutional issues. These fields are prefilled in Colectica and will be identical for all the different domains reporting to MIP. Some challenges with e.g. the MIP-Inventory template is that they claim to follow SIMS, but introduce new details which are actually not details in SIMS e.g. S21.1, S21.2, S21.3 etc.

Quality report on National and Regional Accounts – states that it follows SIMS. The challenge with the draft as it has been presented is that this is a common report for Annual National Accounts,

Quarterly National Accounts, Government finance statistics, Non-financial sector accounts, Supply-use, Input-output and Regional accounts.

Some of the challenges with the drafts seen so far is to comment on single figures – makes a standard update difficult. In other cases it can be unclear how to comment – also in connection to what is expected to fill in in the different SIMS fields. E.g. how many revisions made – is perhaps not something that will be submitted in the SIMS fields S20.1 or S20.2 with an explanation because these fields ask for revision policy and revision practice. In our system Colectica we have made entries separately for the areas of Annual National Accounts, Quarterly National Accounts, Government finance statistics etc.

References:

- ESS handbook for quality reports, 2014 Edition, Luxembourg 2015
- Technical Manual of the Single Integrated Metadata Structure (SIMS), Luxembourg 2014
- Danish National Accounts - Sources and Methods 2003, Copenhagen 2007
- Regulation 549/2013 on the European System of National and Regional Accounts of the European Union 2010.
- Regulation 223/2009 on European Statistics