

5. System and design issues (Statistics Norway)

5.1 IT Architecture

Statistics Norway's technical solutions shall be built mainly upon the principles of service-oriented architecture. Guidelines on this are presented in *Norway's eGovernment plan*. All solutions for external users and most solutions for internal users shall:

- Have support for *open standards*.
- Be *platform independent*.
- Be *component based*.
- Have support for the packing in of data and functions in the form of *services* (web services).

These are central principals in service-oriented architecture. By applying these principles, applications and services can reuse existing functionality/components completely independent of the system they were developed in. In addition, by use of this technique, we can extend the lifetime of older applications, which have important functionality we wish to expose, just by creating a service layer on top of these. This increases the possibilities for collaboration between old and new applications in a completely new way, which gives benefits in the form of shorter development time, increased reuse and more consistent systems. This also enables us to replace systems behind the scenes, because communication with these is not directly exposed to the users.

For more information see: http://www.ssb.no/english/about_ssb/strategy/it_strategy.pdf

System architects

System architects are introduced for each of the following areas in the top-level information architecture: data collection, metadata and dissemination. The mandate for this role supports the system architect's responsibility to ensure that IT development projects are in line with the IT strategy.

Solution architects

Solution architects are appointed for each new development project to ensure that the systems development is in accordance with the current IT-strategy, architecture principles, recommended tools and practices.

5.2 Metadata Management Tools

All our master metadata systems have Oracle databases. Links are mostly hard-links between these databases. Our web applications obtain metadata from our service library for metadata systems.

5.3 Standards and formats

Our classifications system is an implementation of Neuchâtel Terminology Model Part 1 Classifications v2.0 with the addition of an attribute on the Correspondence Item for Item Change from v2.1.

We are contributing to a task force looking at a revision of the Neuchâtel Terminology Model Part 1 Classifications v2.1

Our variables system is a partial implementation of Neuchâtel Terminology Model Part 2 Variables. The extent to which we follow ISO/IEC 11179, is best described by the figure in the attachment to this chapter where the number of instances of the objects per 2012 are given in the brackets. The figure in the attachments illustrates that there is little re-use of data elements or value domains in the current archive. This is a situation that we hope to address in the coming years.

We are considering using DDI in connection with micro-data for researchers.

We have used definitions of key metadata concepts from SDMX MCV where possible.

We have contributed to the development of GSIM (Generic Statistical Information Model) v1.0.

We are contributing to a task force looking at the flow of GSIM v1.0 information objects in GSBPM v4.0.

5.4 Version control and revisions

Metadata have valid to, valid from and last updated.

Program code for web-services is checked in and out of subversion.

5.5 Outsourcing versus in-house development

1. Improved editing tool for our classification database - previous editor was developed out-of-house.
2. Analysis of the end-to-end creation and re-use of metadata in one production cycle for one type of statistics - no system development required (purely analysis).
3. Service library for master metadata systems was developed in-house.
4. Metadata portal on the Internet and intranet was developed in-house.
5. Variables documentation system was developed in-house
6. About the statistics as a content management system instead of just a text document was developed in-house
7. Improved access to micro-data for researchers (About the data collections) was developed in-house
8. Administrative system for projects, products and processes was mainly being developed in-house, but we had substantial help from external consultants on-site.
9. Continuing development of a master metadatabase for questionnaires - in-house development, but with help from external consultants on-site.

5.7 Additional materials

Some data models and XML-schema can be made available on request.