

# 5. System and design issues (Statistics Austria)

## 5.1 IT Architecture

One of the cornerstones of Statistics Austria's IT strategy is the use of the database DB2 on the mainframe computer. Web applications run on Linux servers (which are logical partitions of the mainframe). Server programs are developed in Java and deployed with IBM Websphere as application server. To a large extent, PC software is also written in Java.

However, Statistics Austria still has a relatively heterogeneous, historically grown IT landscape which is composed of a large number of legacy systems and components. As a consequence one can find a multitude of programming languages, development environments and IT architectures. A few examples:

**ISIS:** The statistical output database is a mainframe application which was developed completely by Statistics Austria. PL/I and assembler were used as programming languages.

**ISISGui:** At the beginning of the new millennium a graphical user interface for ISIS was implemented as Java applet.

**e-Quest:** The electronic questionnaire software which is installed on the PCs of the respondents is a Visual-Basic 6.0 application and stores data and metadata in the Microsoft relational database MSDE (at Statistics Austria DB2 is used instead). A number of supplementary programs were written in VB6 or Delphi.

**Publication Database:** The core of the Publication Database is a commercial document management software (Stellent). Extensions and adaptations developed especially for Statistics Austria are written in Java and a proprietary Stellent script language.

**IMS:** If the decision is made to realize the integrated metadata system IMS, the implementation will be carried out in accordance with the IT-strategy (storage of metadata in DB2 on the mainframe, business-logic-layer as Web application under IBM Websphere on Linux, client software written in Java).

## 5.2 Metadata Management Tools

Due to the existence of several isolated metadata systems, there also exist a number of different metadata management tools. Some examples:

**Standard Documentations:** The standard documentations are written in Word using a predefined template, stored in the Publication Database, converted to PDF and finally replicated on the Web server.

**ISIS:** Management tools for ISIS are mainframe applications written in PL/I or assembler.

**e-Quest:** Statisticians define electronic questionnaires using a graphical editor ("e Quest Metadata Manager") which was developed in Visual Basic 6.0.

**Classification Database:** Administration software for interactive editing and processing of classifications does not yet exist.

**IMS:** The development of a management tool which can easily be extended by plug-ins, based on the Eclipse RCP (Rich Client Platform) architecture, is planned.

## 5.3 Standards and formats

**Classification Database:** The Classification Database was based on the Neuchatel model; however, the system is not a complete implementation of that model.

**IMS:** Two of the proposed IMS subsystems ("Variables" and "Value Domains") are based on ISO 11179.

## 5.4 Version control and revisions

Version control of metadata is a complex topic. Within the framework of the IMS it is planned to specify version objects whenever version control is found necessary during analysis (for example, a survey would be composed of one or more survey versions). This approach was also used in

e-Quest and proved successful.

Regarding the IMS subsystem "Concepts and Definitions", it was decided that identifying versions of definitions is not necessary because handling them would be too difficult. It is the opinion of subject matter experts that most of the definitions can remain static. If there are changes in some definitions, these will be described in the corresponding text of the definition.

Concerning revisions, it should be a feature of the metadata repository software that prior versions of an item are not deleted, but remain available.

In the Classification Database versions of classifications can be accessed.

## **5.5 Outsourcing versus in-house development**

Due to limited human resources the outsourcing of software development often is inevitable. However, project management is still carried out by employees of Statistics Austria.

The Classification Database was developed internally (although a prototype was written by an external company).

## **5.6 Sharing software components of tools**

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## **5.7 Additional materials**

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