



UGC-HEMIS

Using a Data Warehouse in Higher Education Decision Making

Peter Muessig-Trapp, HIS Hanover

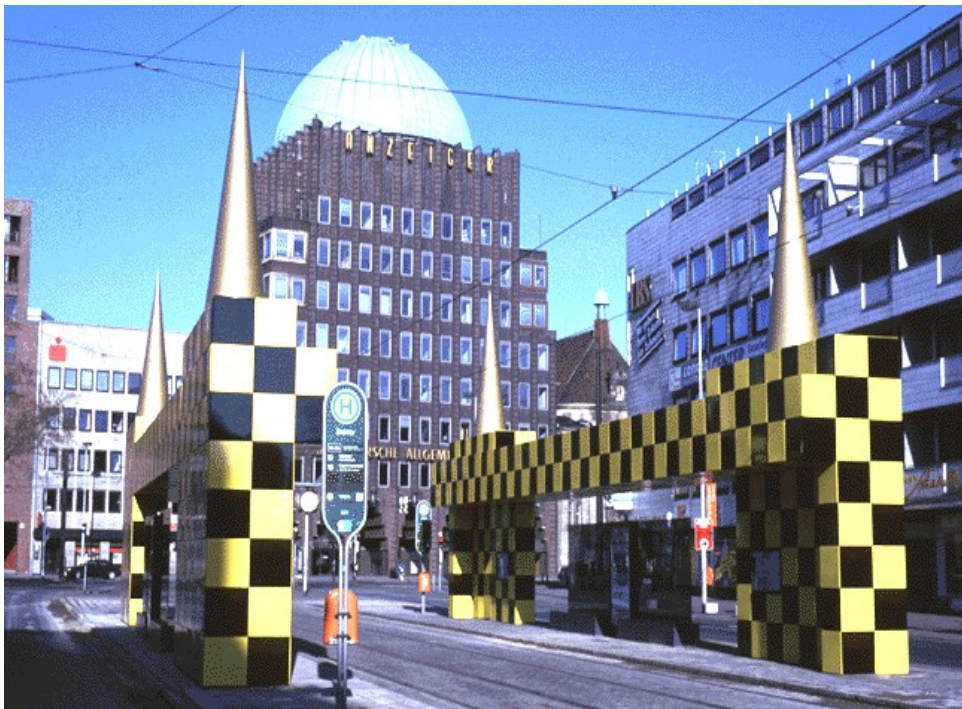
Colombo, 24 March 2009

Hochschul-Informations-System GmbH

(Higher Education Information Agency Germany)

Assisting:

- Leadership
- Decision-making
- Steering



Higher Education-IT

Information technology for higher education administration

Research on Higher Education

Studying, teaching, research, funding

Higher Education Development

Planning, resources, organisation

General information about HIS

- HIS was founded in 1969 and is jointly owned by the Federal Republic and the *Länder* (*States*) of Germany
- Headquarters in Hanover, Germany
- HIS has around 280 employees, 140 of them working in ICT
- Annually HIS receives government grants of about €8.5 million and additional project funds of around the same size

How was UGC-HEMIS implemented?

- UGC-HEMIS was implemented by customizing an already developed system: eduStore
- eduStore was developed by HIS Higher Education Information System, Germany
- The system has been used over 13 years in Germany by Federal Ministries and State Ministries of Education to produce various reports needed to make decisions.

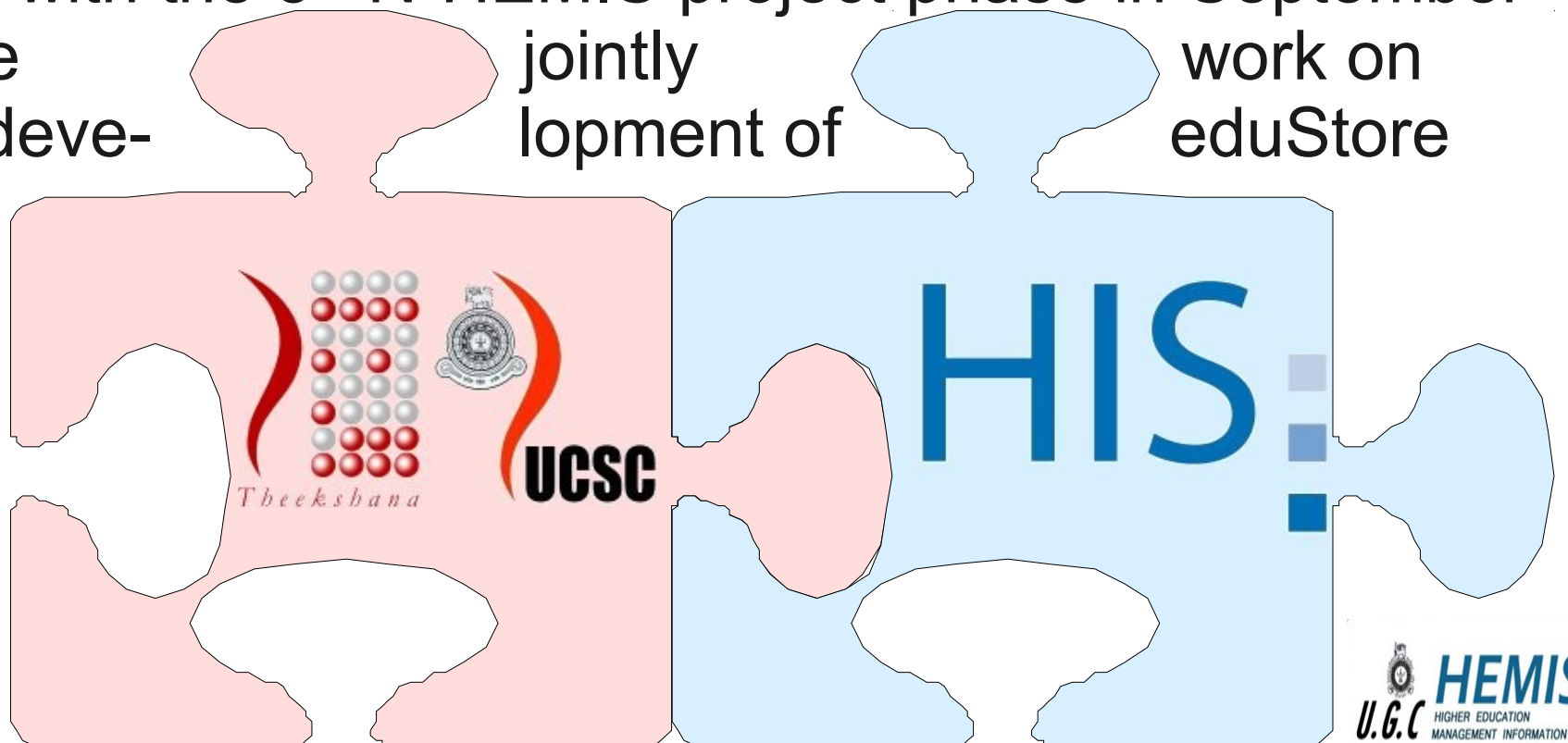
eduStore is free software!

- Open Source: **Source code is available free of charge**
- Everybody is allowed to use the software
- Everybody is allowed to **change the source**
- Everybody could **adapt the software** to one's specific needs
- Open Source software provides you with the **freedom of independency**
- **No new dependencies** on foreign countries or on any company

Sri Lankan – German collaboration

HIS Hanover and UCSC Colombo have established a long-lasting collaboration ...

- ... for helping to bring N-HEMIS and UGC-HEMIS on the way
- ... for common further development of eduStore
- Starting with the 3rd N-HEMIS project phase in September 2008 we further develop- jointly work on development of eduStore



What is eduStore?

- eduStore is a web-based Data Warehouse Application.
- It comprises of
 - A data store: Data is organized around topic fields – Data Stocks.
 - Each Data Stock is characterized by a set of keys (characteristics and attributes)
 - A collection of tools
 - To import data to the data store.
 - To manage the data store.
 - To analyze the data.
 - To produce reports.

eduStore main System Features

- **Web application:** Access via Java capable Webbrowser
- **Open Architecture - Platform independence**
 - **Operation System:**
Server-side: Linux, Sun OS, MS Windows
Client-side: All commonly-used platforms
 - **Database:**
Commercial Databases: Oracle, Informix
Open Source Databases: MySQL, PostgreSQL

Feature: Flexibility

- **Flexible data import**
 - Data with any structure and depth of structure can be imported
 - New topics can be included
- **Flexible data analysis**
 - Flexible table generator
 - Combining information from several data stocks
- **Flexible data export**
 - HTML, MS Excel, PDF, XML, ...

Feature: Data Integration

- Data harmonization with an **integrated key system**
- **Centrally maintained** uniform eduStore key system
- **Equivalency rules**
- System knows **internal key hierarchies**

Feature: eduStore user-tables

- Analyses can be stored as eduStore user-tables in standard table collections on the server
- **Integrated automatic updating** of eduStore user-tables (or whole user-table collections)
- eduStore user-table export formats: HTML, XML, MS-Excel, Gnumeric, PDF, ...

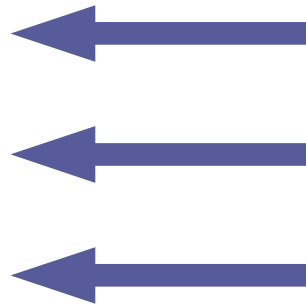
2 access paths

User-tables

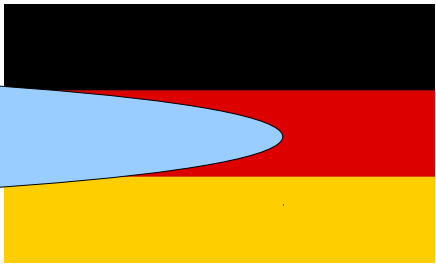
- individual collections
- table search module
- authentication
- integrated automatic updating
- library management

Table Generator

- Table generation
- Calculation, e.g.: percentages differences
- multi stock tables
- Format conversion
 - XML → HTML
 - Excel
 - PDF
 - etc.



UGC-HEMIS



Commission of KMK
gathering information and data in ICE

Operational Group
for all ICE installations

ICE land
data warehouse
State Ministries, Science Council,
Universities, etc.)

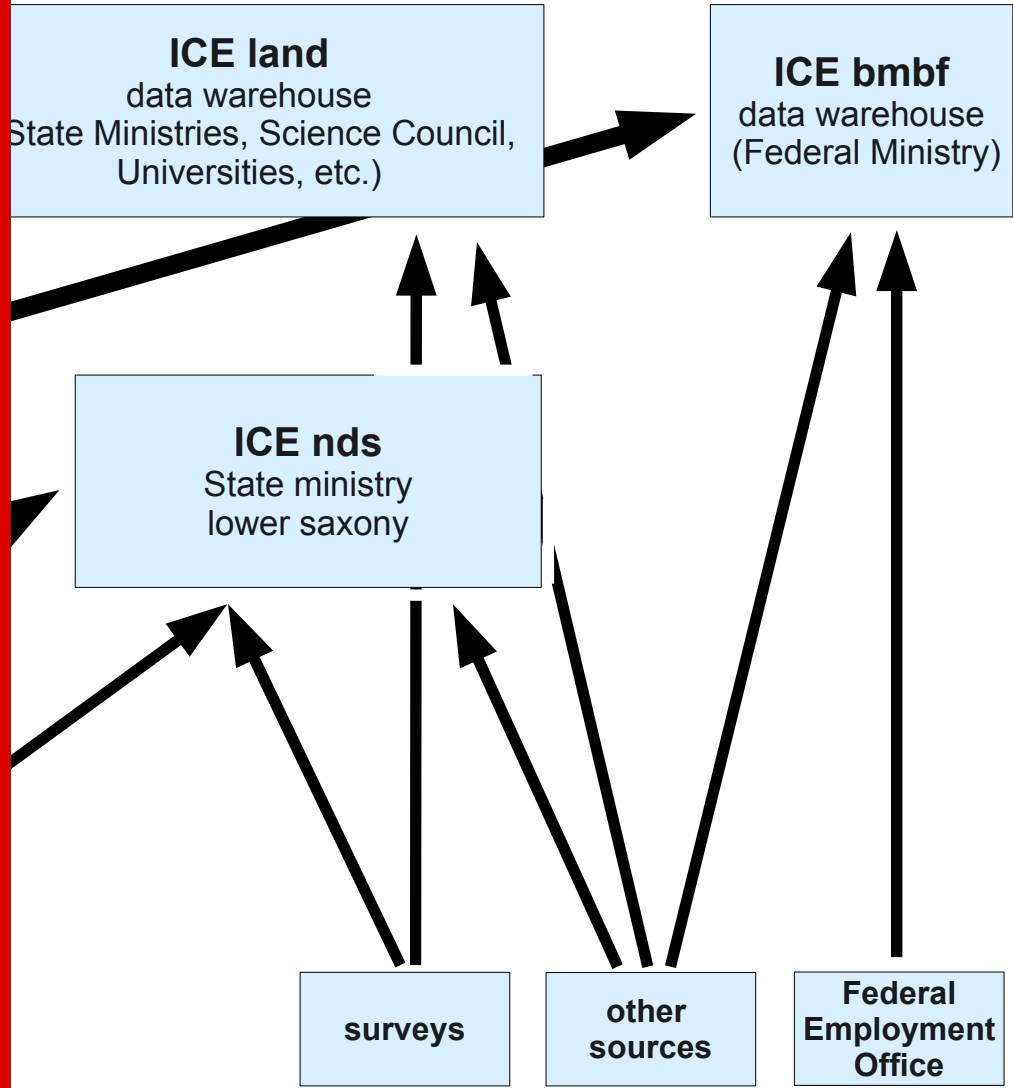
ICE bmbf
data warehouse
(Federal Ministry)

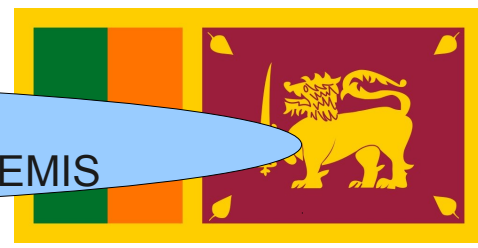
ICE nds
State ministry
lower saxony

surveys

other sources

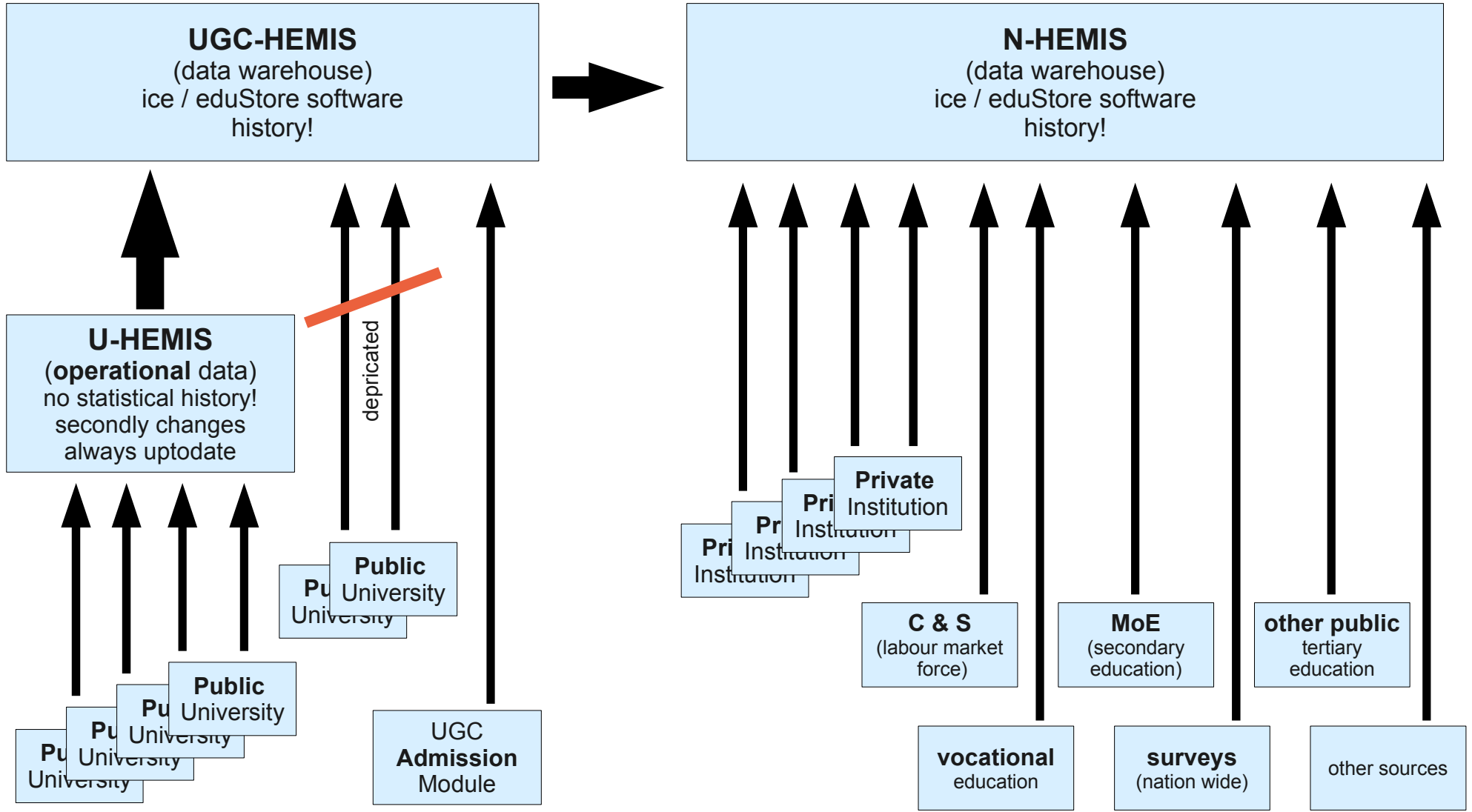
Federal
Employment
Office





HEMIS Management Committee
 defines requirements concerning information and data in UGC-/N-HEMIS

N-HEMIS Operational Group (N-HEMIS-OG)
 operates and maintains UGC-HEMIS and N-HEMIS



German Federal Higher Education Statistical Law

All Higher Education Institution have to deliver the following data twice a year:

- About **students/graduates**: e. g. gender, study program / discipline, semester etc. (~ 50 characteristics)
- About **staff members**: e. g. category (scientific / administrative), gender, discipline, salary-levels, nationality etc. (~ 20 characteristics)
- About **rooms and spaces**: e. g. room dedication, size in sqm etc. (6 characteristics)
- About **finance**: revenues, expenditures, non-government-income etc. (~ 15 characteristics)