An e-science perspective on integration of demographic and geographic data

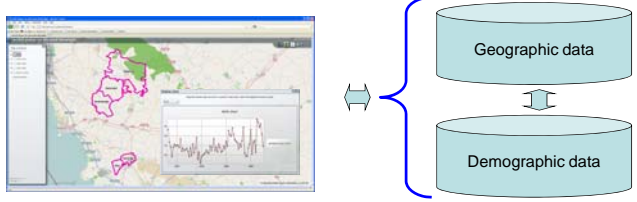Lars Harrie

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1. Introduction

- Large databases has been created with historic demographic data (e.g. SEDD) .

- Standardized technology for storing, distributing and visualising geographic data has been developed.
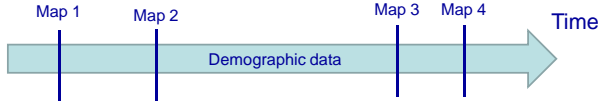

Geographic data

Demographic data

Aim of project

Develop methods and standards for integration, analyses and visualisation of data with different time and space representations. Provide eScience tools so other researcher can use these methods.

The use cases will be based on historic demographic and geographic data.

Methodological contribution

Demographic data has good time resolution ("continuous") while historic geographic data only are snapshots.

Map 1   Map 2   Map 3 Map 4   Time
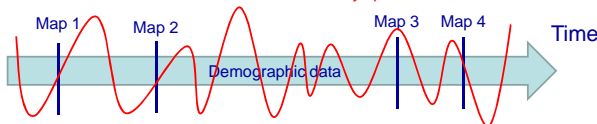Demographic data

Our aim: Develop visualisation methods that combine data with different time representations

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Methodological contribution

Demographic data has good time resolution ("continuous") while historic geographic data only are snapshots.

Step 2: Macro-context data by space and time

Map 1   Map 2   Map 3 Map 4   Time
Demographic data

Our aim: Develop visualisation methods that combine data with different time representations

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Technological contribution

The emerging HTML5 standards will include 2D and 3D graphics.

Our aim: being in the front of how to utilize this new techniques to create good visualisation of geographic and demographic data.

Standardization contribution

Substantial work is done to standardise storage and distribution of historic demographic data.

Our aim: define how geographic data can be included in this standardization.

2. Partners and persons

Science
Physical Geography and Ecosystem Science

Economy
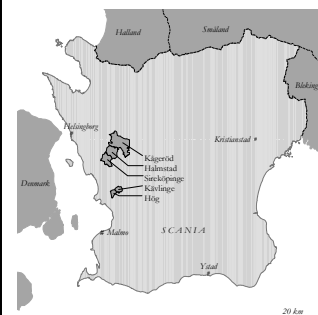**Centre for Economic Demography (CED)**
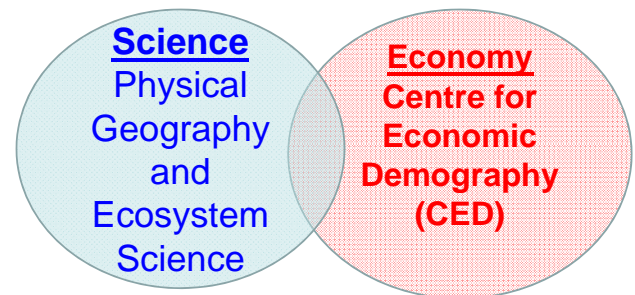
Key personal in project

Centre for Economic Demography

- **Tommy Bengtsson - Project leader**
- **Patrick Svensson – Expert in historic data**
- **Clas Andersson – Database programmer**

Department of Physical Geography
and Ecosystem Sciences

- **Lars Harrie – Co-project leader**
- **Finn Hedefalk – PhD student**

3. Demographic and geographic data

- The Scanian Economic-Demographic Database (SEDD)
  - Five rural parishes (one emerging into a small town)
  - All individuals living in the parishes 1646 to 1968
  - Demographic and economic information on individual level

## Scanian Economic-Demographic Database (SEDD)

- Based on
  - Church records, daily
  - Population registers after the 1810s, yearly
  - Land and income registers, yearly
  - Local prices and wages, yearly - later monthly
  - Height and health information
- Is currently updated until today (2001)
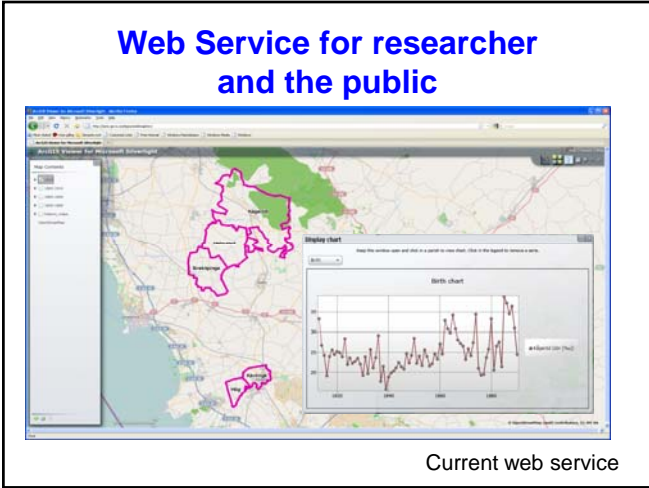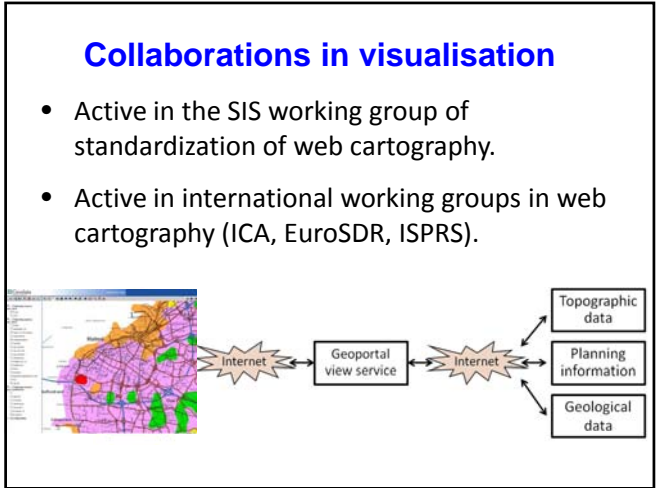- SQL-server database (Intermediate Database Structure)

SEDDMAP

- Scanned and digitized historic maps from 1750 to 1915 over the 5 parishes.
- Modern geographic data (including web services).

4. Collaboration and outreach
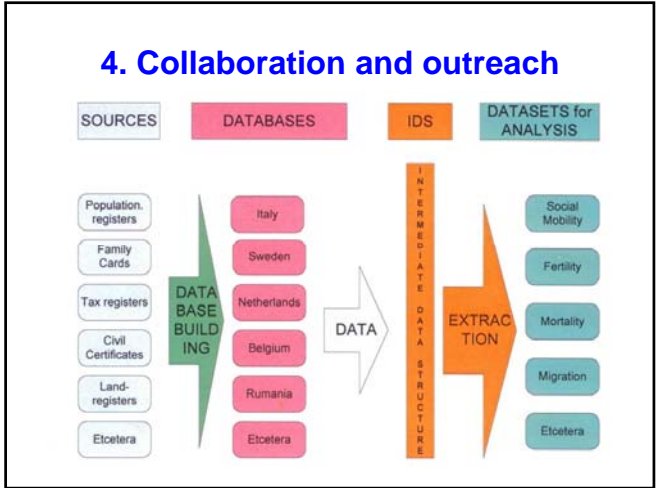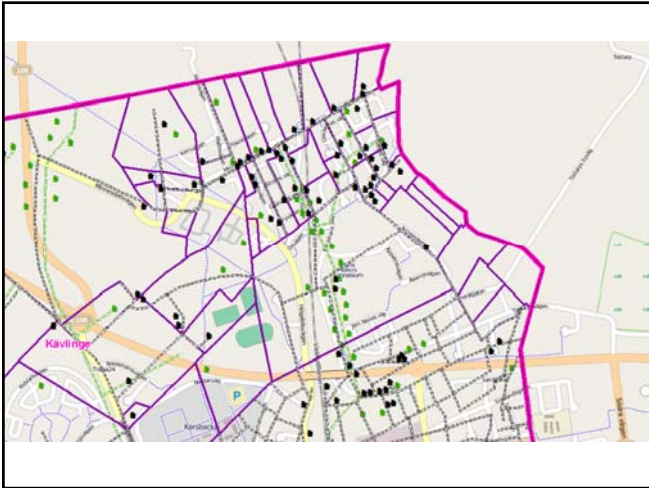
Research collaboration

– Research collaboration based on use of SEDD:
  • Researchers from 16 universities world-wide (will increase significantly autumn 2012 through open-access of SEDD)
– Research cooperation with:
  • Max Planck Institute for Demographic Research
  • EurAsia and EurAmerica projects
  • and more…

Collaborations in visualisation

• Active in the SIS working group of standardization of web cartography.

• Active in international working groups in web cartography (ICA, EuroSDR, ISPRS).

Web Service for researcher and the public

Current web service

5. Outcome of project

• Publications of improved methods and standards for integration, analyses and visualisation of data with different time and space representations.

• Integrate time-dependent macro data, bound by geography, with continuous demographic, and snapshot geographic data.

• eScience tools for better access to, visualisation of and analyses of integrated demographic data and geographic data.