MapView:
Providing GIS functionality for
multi-regional INFORUM models

Frank Hohmann

What is a GIS (Geographic Information System?

- ◆ **Key features**
    - ◆ Stores, edits and analyzes geographic information
    - ◆ Geographic information has a *space-time* reference
      Space: Location of the data (stored as longitude/latitude coordinates)
      Time: Occurence of data at a certain date/time/period
      Example: Population for Germany in 2011

- ◆ **Data representation**
    - ◆ Raster images (e.g. satellite photos, digitized maps)
    - ◆ Vector data (shapes built from a collection of long/lat coodinates)

- ◆ **Wide range of applications**
    - ◆ Archaeology, urban planning, marketing, …, econometrics
    - ◆ Vector data (shapes built from a collection of long/lat coodinates)

- ◆ **Problems**
    - ◆ A range of incompatible file formats
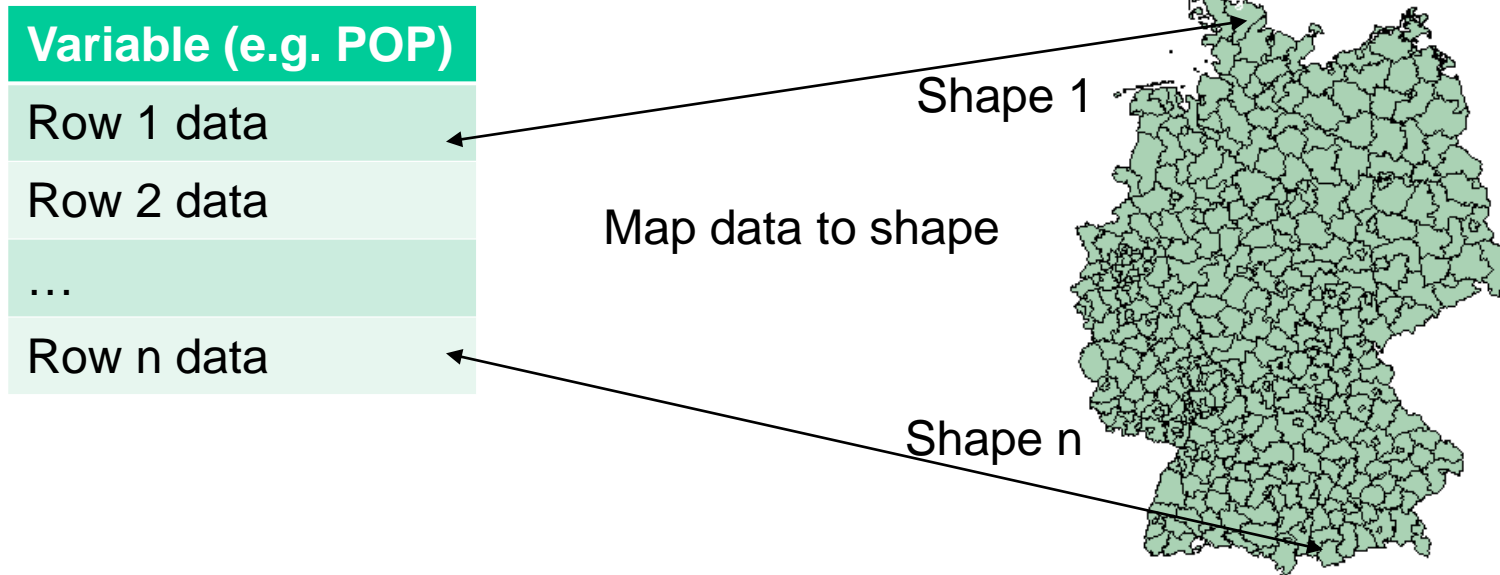   - ◆ Visualization is labour-intensive

- **Project REFINA**
  - Research for the Reduction of Land Consumption and for Sustainable Land Management in Germany
  - Funded by German Federal Ministry of Education and Research (BMBF)
  - Model used: Extended version of environmental model PANTA RHEI (Data for 16 federal states, 439 counties
- **One key requirement:**
  - Provide a royalty-free, user-friendly application for data analysis
- **Problem to solve: How to visualize the model results?**
  - Third-party software could not be used
  - Graphs/tables not suitable for data from 439 counties
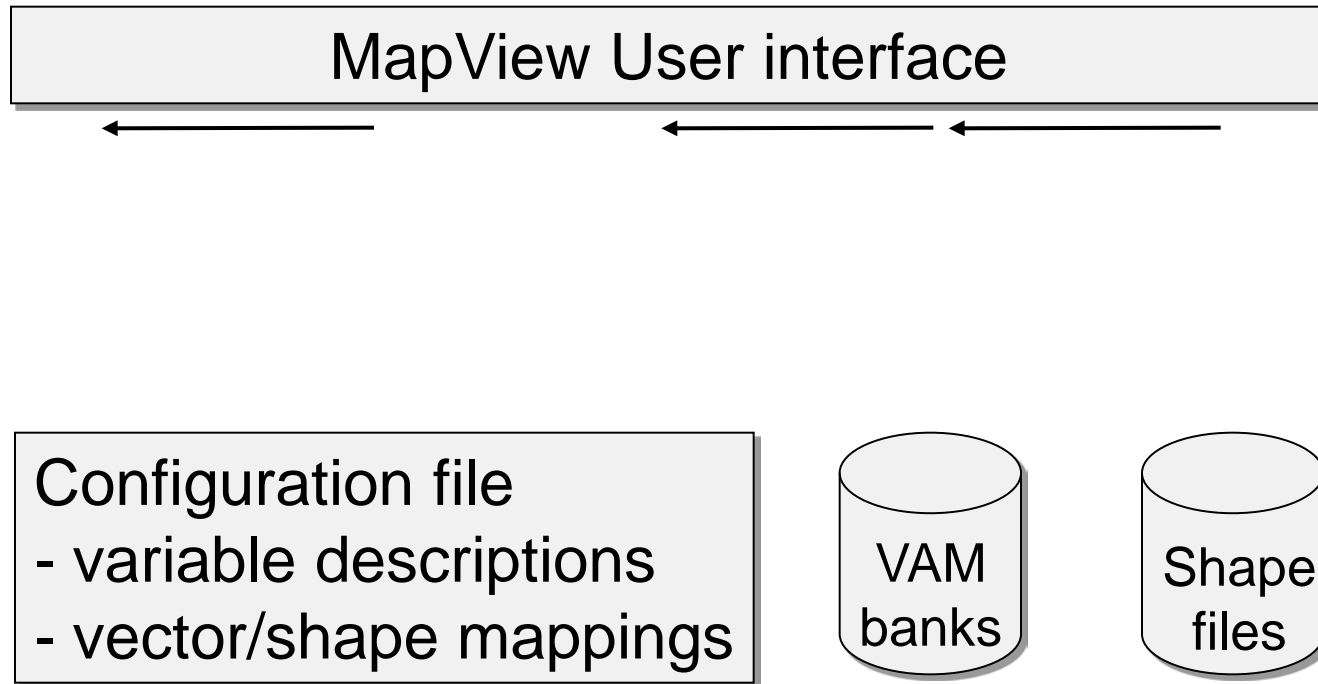- **Solution: Build an application („MapView") that links model data to GIS data**

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INFORUM Model data
- regional data stored in vectors
- Each vector row represents
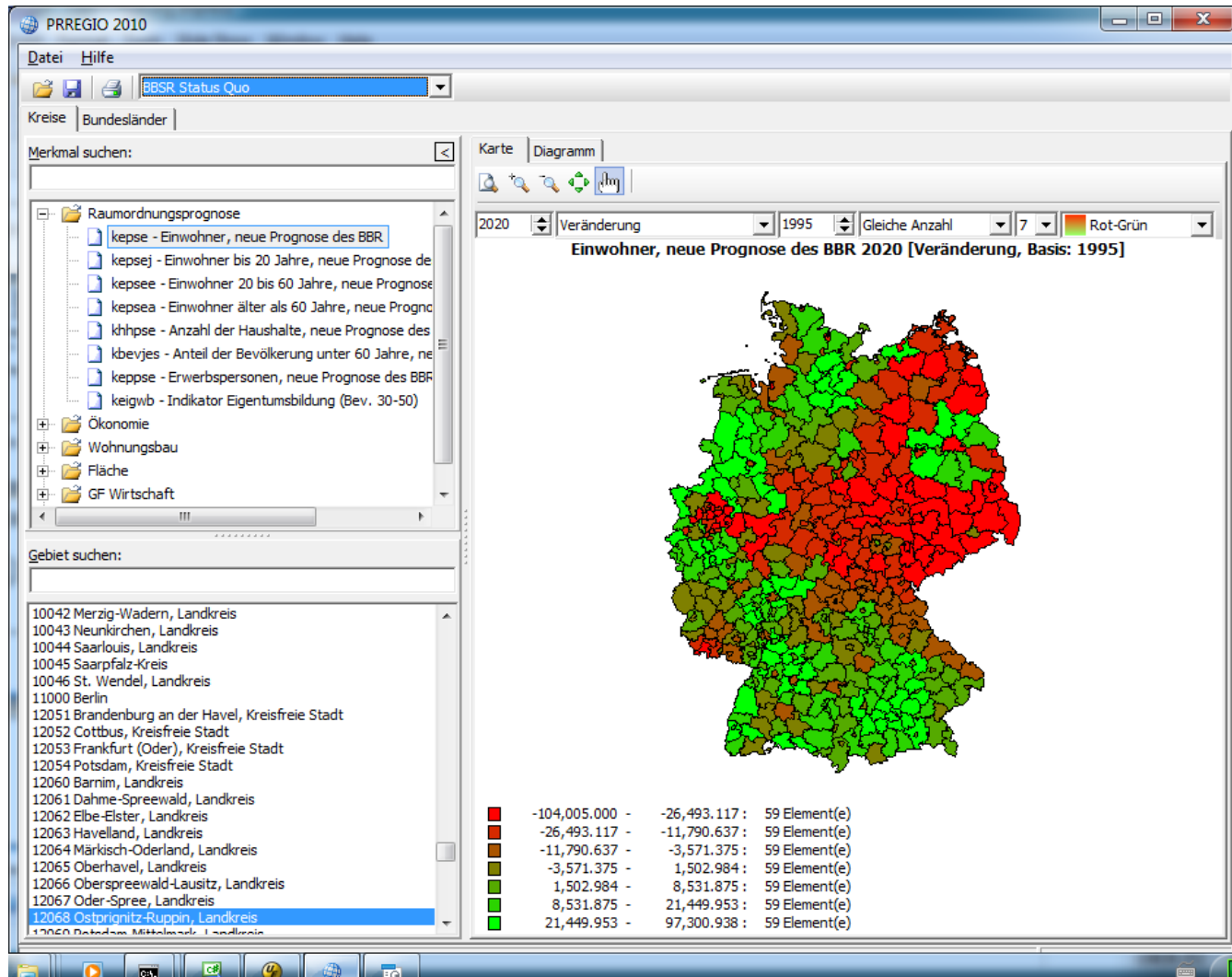 a region (e.g. county)

Map data (ESRI shape files)
- Shapes built from polygons
- Polygons built from 2D vectors
  (long./lat data points)
- Shapes are indexed

Variable (e.g. POP)
Row 1 data
Row 2 data
…
Row n data

Shape 1

Map data to shape

Shape n

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MapView User interface

Configuration file
- variable descriptions
- vector/shape mappings

VAM banks

Shape files

Demonstration: MapView in action…

Thanks for your attention

Ansprechpartner:

Frank Hohmann   0541-40933-130

Heinrichstraße 30   hohmann@gws-os.com
49080 Osnabrück   www.gws-os.com