Social Planning with Tangible Visualization Tools

GWF 2023:
Bridging Technology Accessibility and Ensuring Inclusiveness in Mapping Approach and Practices

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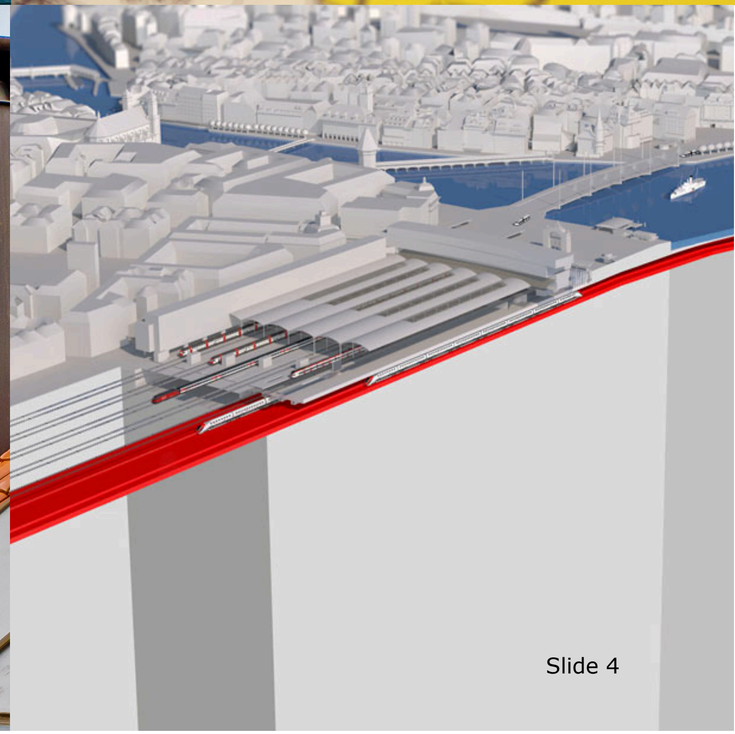
Central Switzerland is shaped by many beautiful mountains, small/mid-sized cities and villages distributed in 6 cantons.

HSLU

Source: https://en.wikipedia.org/wiki/Central_Switzerland#/media/File:Karte_Zentralschweiz_2013.2.png by Tschubby

Smart Region Lab

- Supports the more rural & alpine Central Switzerland at digital transformation
- Interdisciplinary project at Lucerne University of Applied Sciences and Arts
- Geospatial analyses, simulations and visualizations for **public value**
- Tailored tools for **social planning, energy transition, mobility and touristic movements**

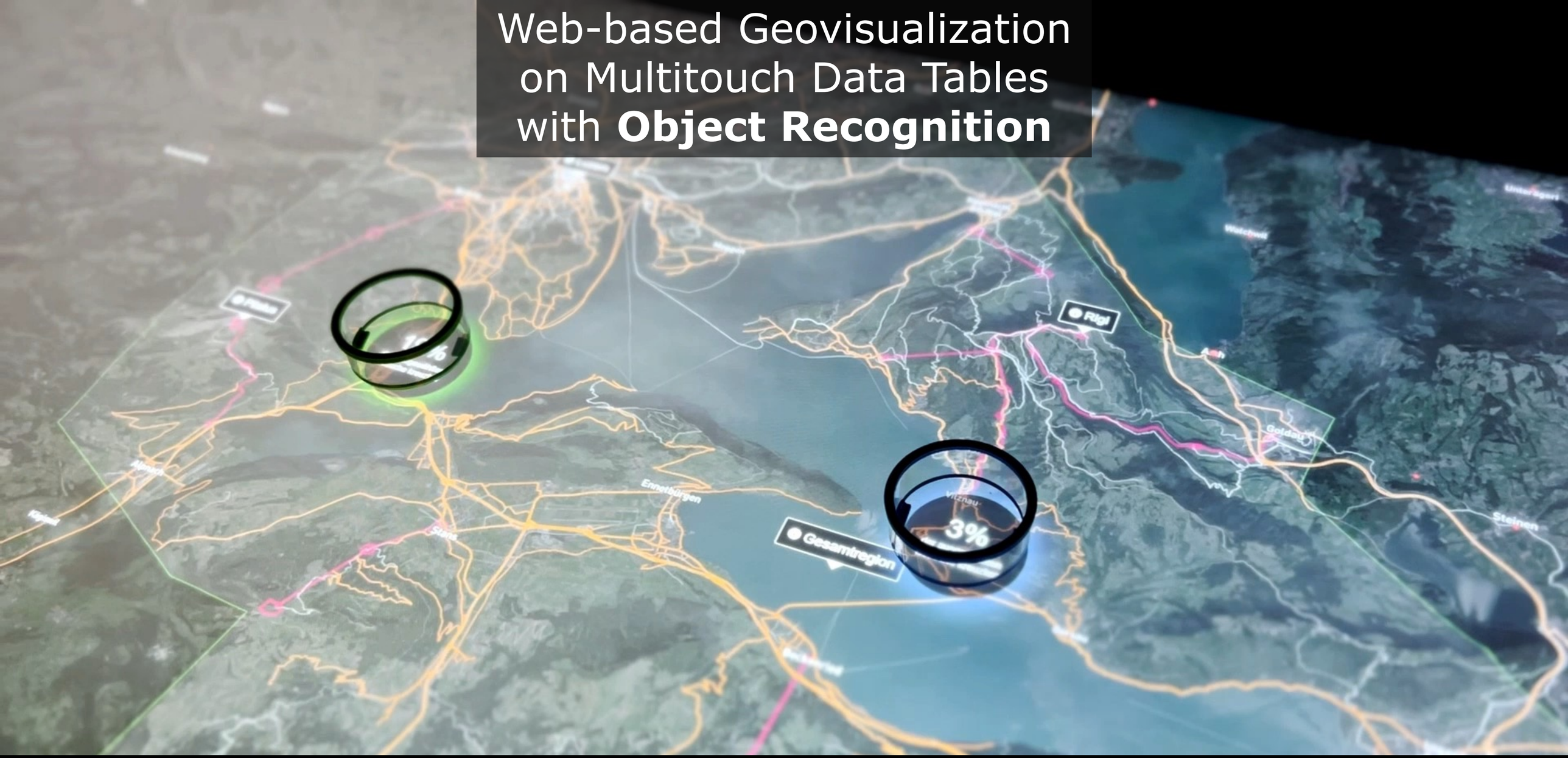


International Cooperation

CityScienceLab
HafenCity University Hamburg

MIT Media Lab – City Science Group
Massachusetts Institute of Technology

Web-based Geovisualization on Multitouch Data Tables with **Object Recognition**



Making complex problems and data visible, tangible and understandable to anyone

https://tinyurl.com/55kac7pz

For data-driven, collaborative decision making: Bring diverse stakeholders to one data table

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For data-driven, collaborative decision making and communication: Bring data tables to communities, citizens and authorities

Some Central Questions in Social Planning

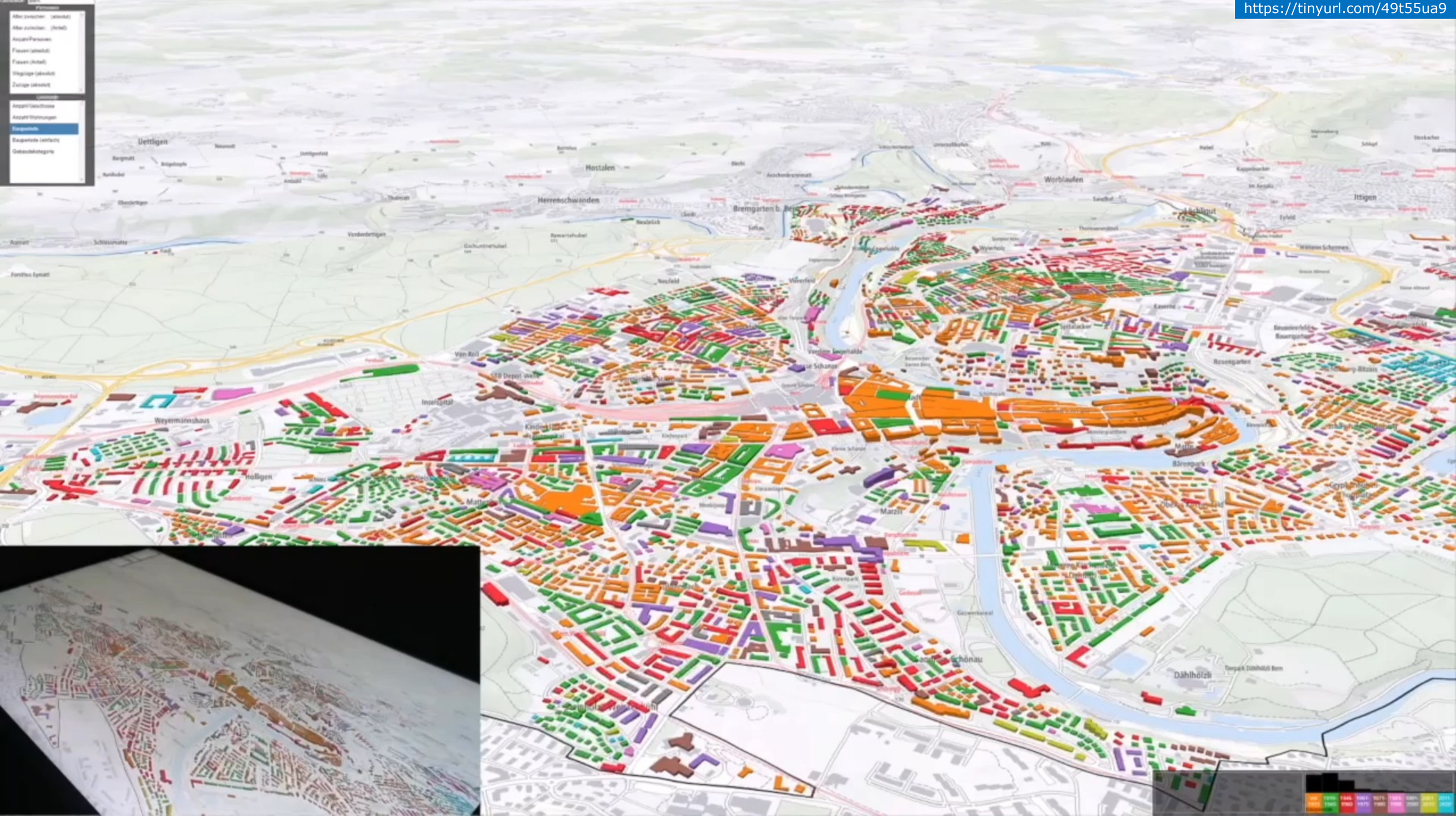
- How to ensure demand-actuated living for diverse citizen groups?

  -> E.g., for elderly: freedom from barriers, access to public transport, flat shares against solitude

  -> E.g., for young families: day care availability & proximity

- From which areas, when & why exactly are particular citizen groups moving away?
- Where are underpopulated buildings?

- **Crucial: Detailed understanding of patterns: sociodemography, mobility, economy and more**
- **Therefore we are implementing dozens of social indicators in our tool**


https://tinyurl.com/49t55ua9
Uettligen
Hostalen
Herrenschwanden
Bremgarten b. Bern
Worblaufen
Ittigen
Inselspital
Weyermannshaus
Holligen
Marzili
Dählhölzli

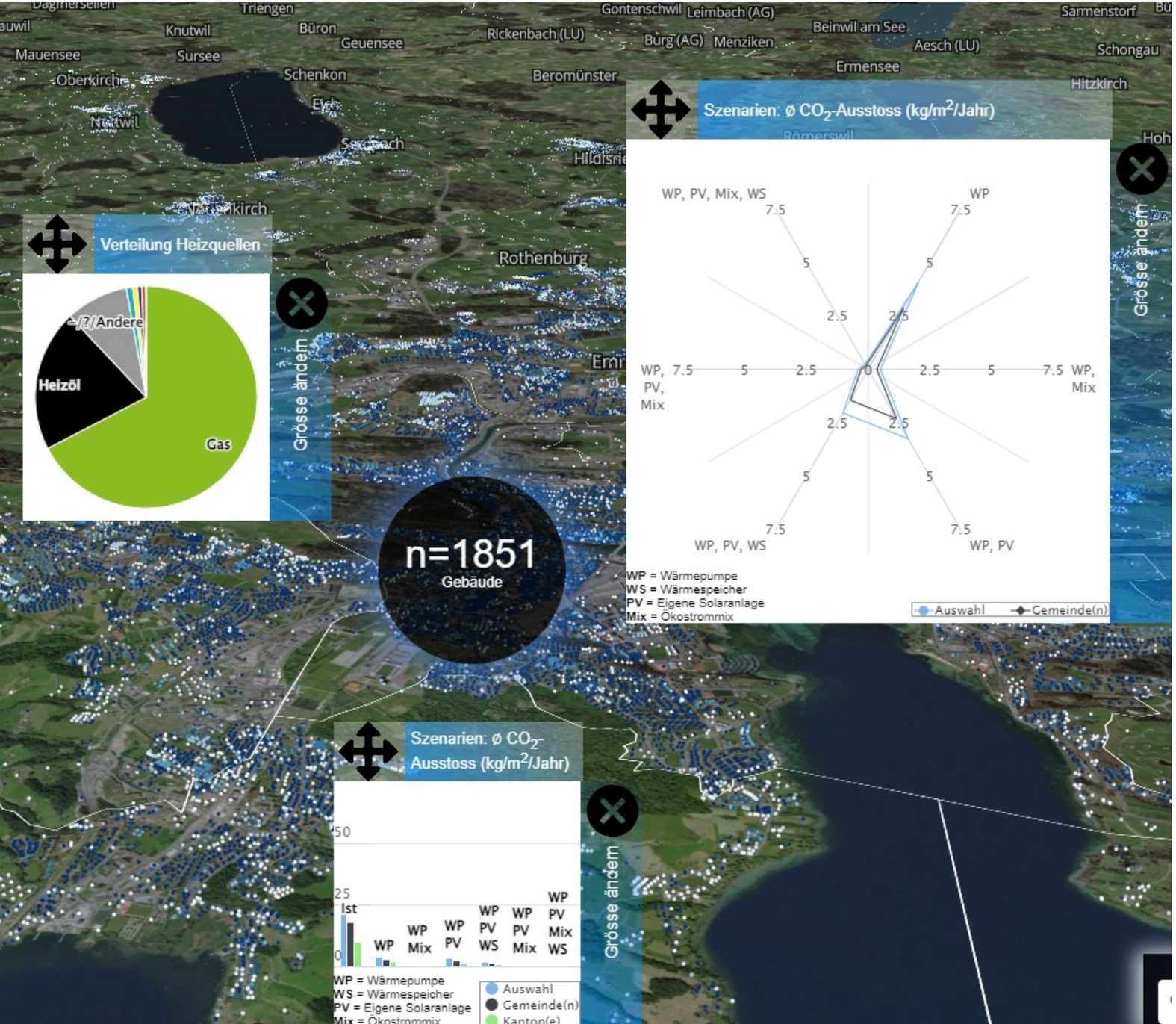
Technology Stack

- Web applications based on JavaScript ES6, Mapbox GL JS and node.js Express backend
- Object recognition with AI-based technology and TUIO protocol
- PostgreSQL database with PostGIS, placed in highly secured and scalable data center
- Dozens of social indicators are calculated ad-hoc via PL/pgSQL

Data Sources

- Millions of high-dimensional data points about people, flats, households, buildings and movings
- Swiss-wide and partly over 10+ years
- Data from federal offices
- Comprehensive data protection contracts are signed and many methods are implemented to **ensure privacy & security**

There is much more (to come) ☺



<- Swiss-wide approximation of CO_2 emissions and reduction scenarios per building

Thank you very much!

Find out more:

- www.hslu.ch/smartregion
- Project movie with English subs on next slide
- philipp.meschenmoser@hslu.ch

Project Movie:
https://tinyurl.com/2r28m9wm