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Quartiersprofile für optimierte energietechnische Transformationsprozesse

"Neighbourhood Profiles for Energy-related Transformation Processes"

Forschungsprojekt im Rahmen des Stadt der Zukunft Förderprogrammes (2. Ausschreibung)

Workshop Report

16 June 2016, TUtheSKY

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Technische Universität Wien
Department für Raumplanung
Stadt- und Regionalforschung
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Project Idea and Topics

Political goals/background → inadequate instruments, funding opportunities, planning processes

Resilience of cities, urban districts, resource efficiency, intensified use of renewables

→ Reinforcement of effective energy-related transformation processes

- City as the (most) important energy-related planning scale

  → Citizens / buildings, economic activity, traffic → energy consumption and provision

- Urban redevelopment / renewal / energy transition

  For designing the energy future some disciplines are needed

  → Interdisciplinarity

  → Integrative approaches

Project Goals

Basics for an integrative strategy to support energy transition in neighbourhoods/districts (*Quartiere*)

Starting point are local, small-scale conditions as orientation framework for funding approaches and activities

→ Focus on local potentials, opportunities and barriers in order to increase the effectiveness of transformation processes of neighbourhoods

Planning Approach (analysis and simulation) of Neighbourhood Profiles as basis for energy-related transformation processes

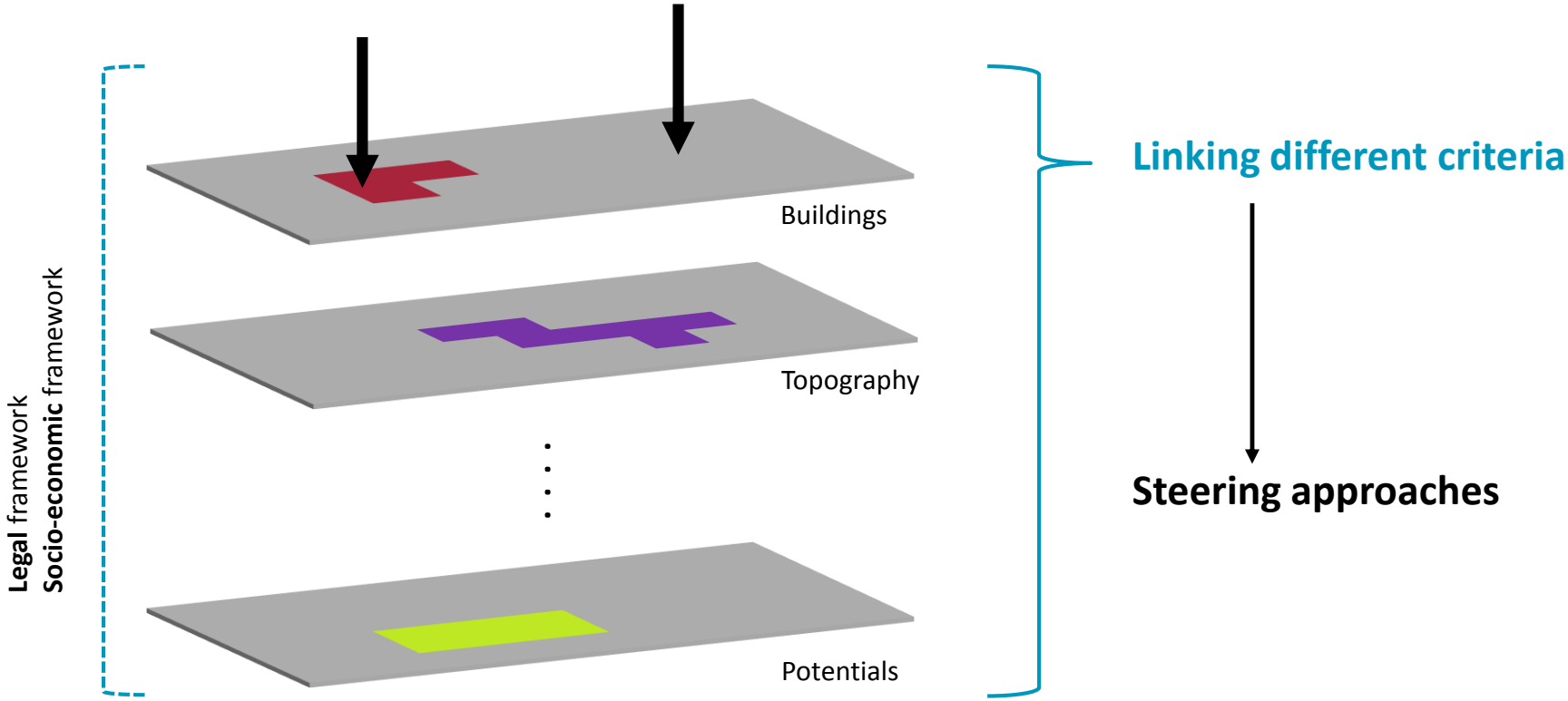
Neighbourhood Profiles (local transformation conditions) as starting point for elaboration of a roadmap (transformation path)

→ Feasibility analysis / implementation

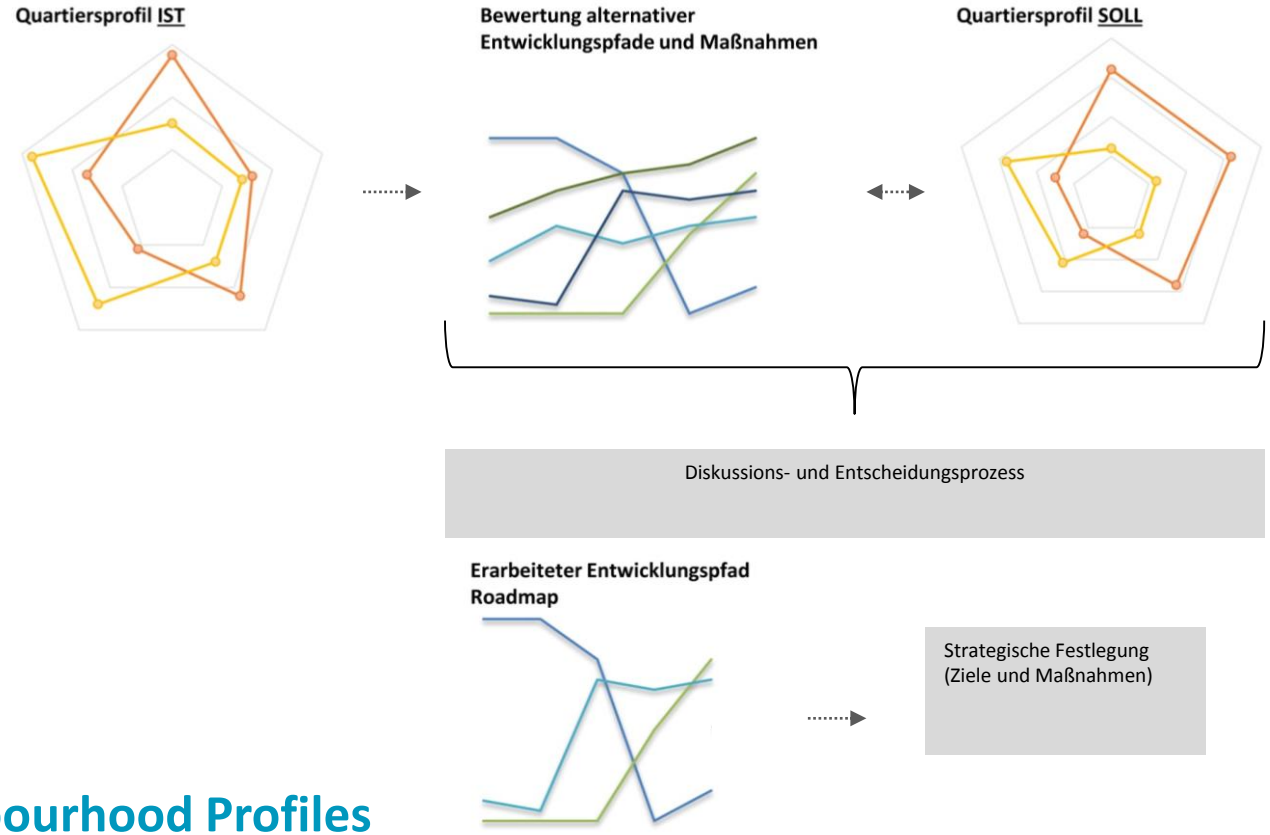
→ **Structural and process evaluation**

Effectiveness & Steering Approaches

Spatial energy transformation conditions
on different spatial scales



Feasibility & Implementation



- **Neighbourhood Profiles**
- Actual state of pilot neighbourhoods *Franckviertel* and *Kleinmünchen*
- Key objectives and perspectives: potential paths of energy transition

→ Specific objectives for *Franckviertel* and *Kleinmünchen*

Feasibility & Implementation

- **Planning Process**
- Definition / modelling of recent energy demand of buildings
- Elaboration of target states of pilot neighbourhoods → creating target profiles for *Franckviertel* and *Kleinmünchen*

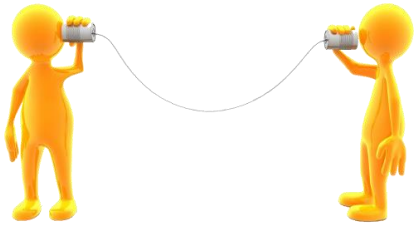

- Pointing out the most important potentials, barriers and actors
- Identification of a corresponding set of measures (retrofitting, renewables, etc.)
- Identification of transformation paths
  → develop a roadmap

→ Summary of results in a guideline

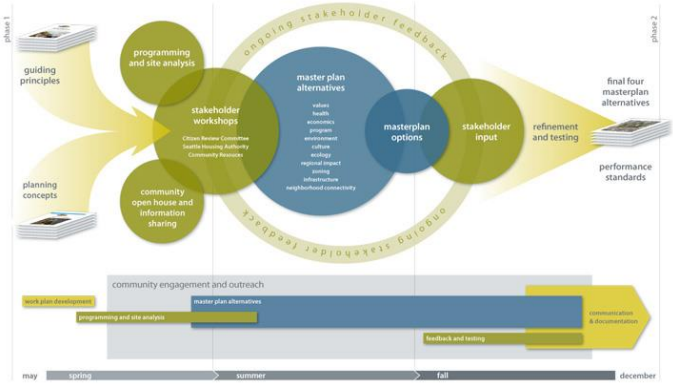
Feasibility & Implementation

- **Communication and Visualisation**
- Strategies in data representation
  - How to use information? (production, availability, dissemination)
- Presenting available data and visualising complex transformation processes
  - Abstract data (statistics)
  - Neighbourhood-related indicators
  - Multi-dimensional energetic Neighbourhood Profiles

  → Demonstration of the planning process



Source: https://elizabethkuhnke.files.wordpress.com/2011/10/communicating.png



Source: http://www.esmilne.net/pieces/illustration/01-masterplanning_process.jpg

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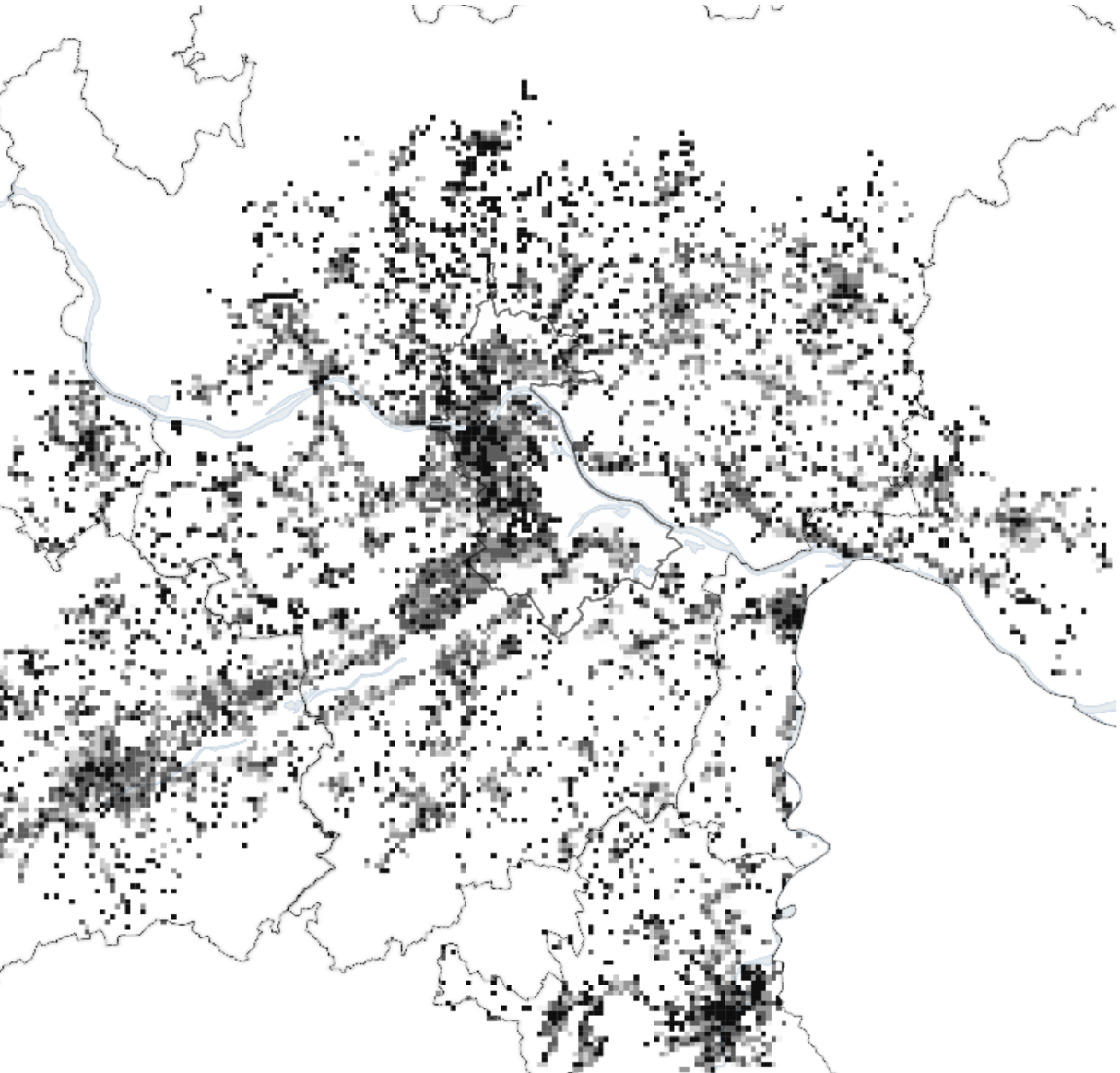
Spatial Analysis



Siedlungsstruktur

Grundkarten

ENUR - HWBs KWh/m² pa (unsaniert)
Zentralraum (SW)

- bis 90
- 90 - 130
- 130 - 165
- 165 - 195
- über 195

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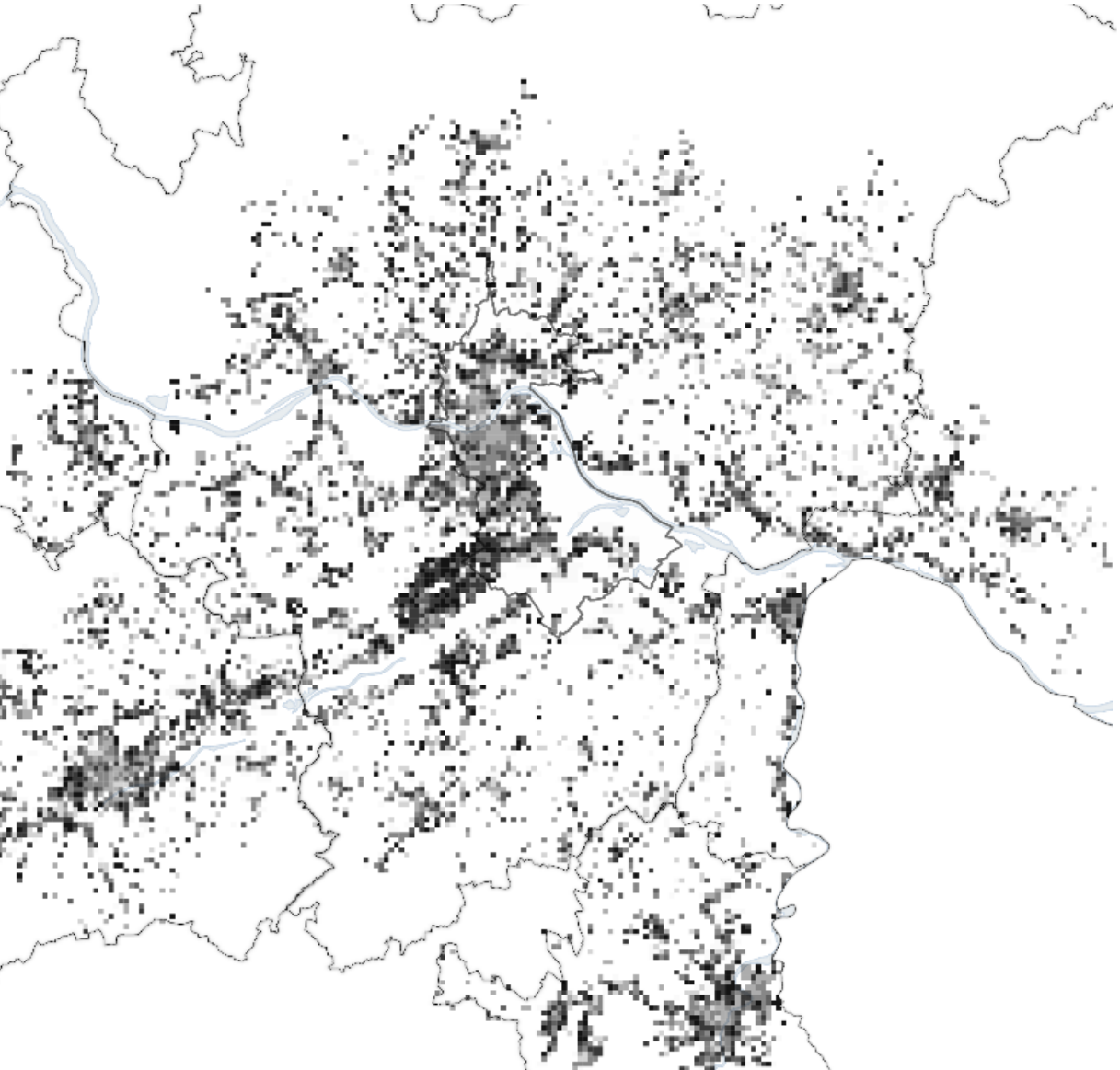
Spatial Analysis



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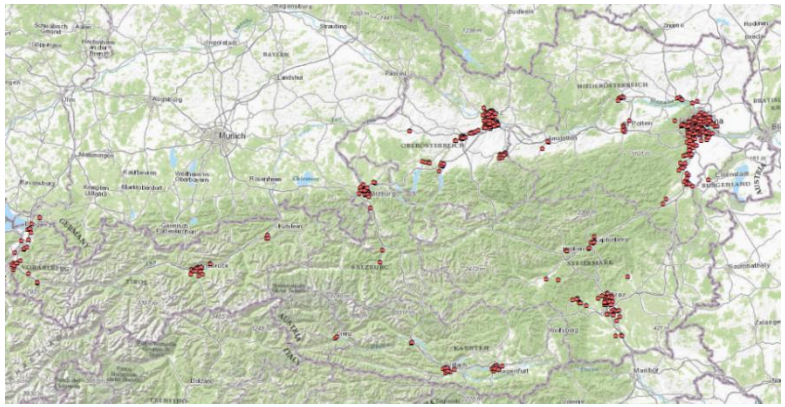
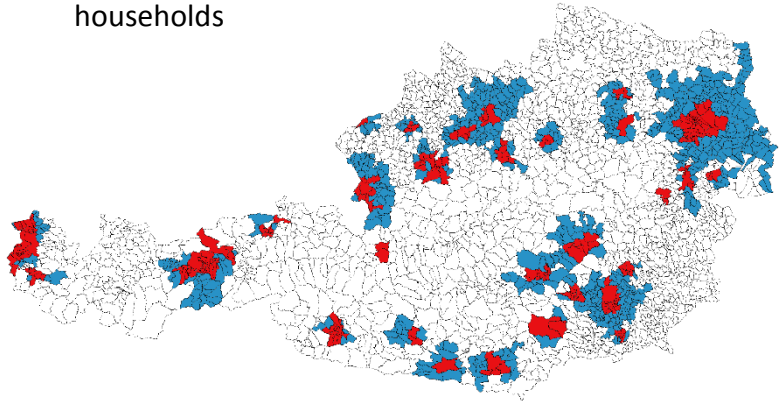
Household Survey

- Knowledge on (energy-related) socio-economic conditions still unsatisfactory
- → Household survey E_PROFIL
  Including experiences and attitudes towards energetic neighbourhood transformation

- Representative for
  - Urban regions (*Statistik Austria*)
  - Urban region Linz
- 1.026 valid interviews
- ~ 50/50 women/men
- Average age ~ 44 years



Locations of surveyed households

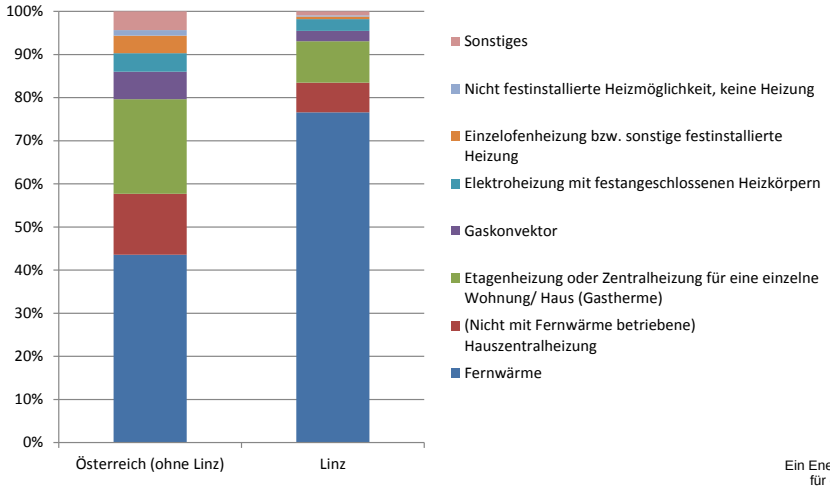


Urban regions by *Statistik Austria*

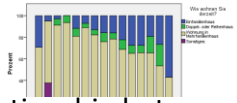
Household Survey

- Socio-economic basic information
  - Persons, household situations
  - Income, education
- Information on constructional and energy-technological conditions of buildings
  - Age, heating system, retrofitting, measures, heated storeys, etc.
  - Energy costs
- Attitudes towards climate-friendly energy projects
  - Risk behaviour, investment types, participation types, etc.
  - Identification with own neighbourhood
- Knowledge of
  - Neighbourhood scale energy projects
  - Funding opportunities (e.g. for renewables)

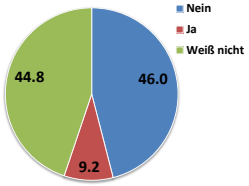
Survey: First Results



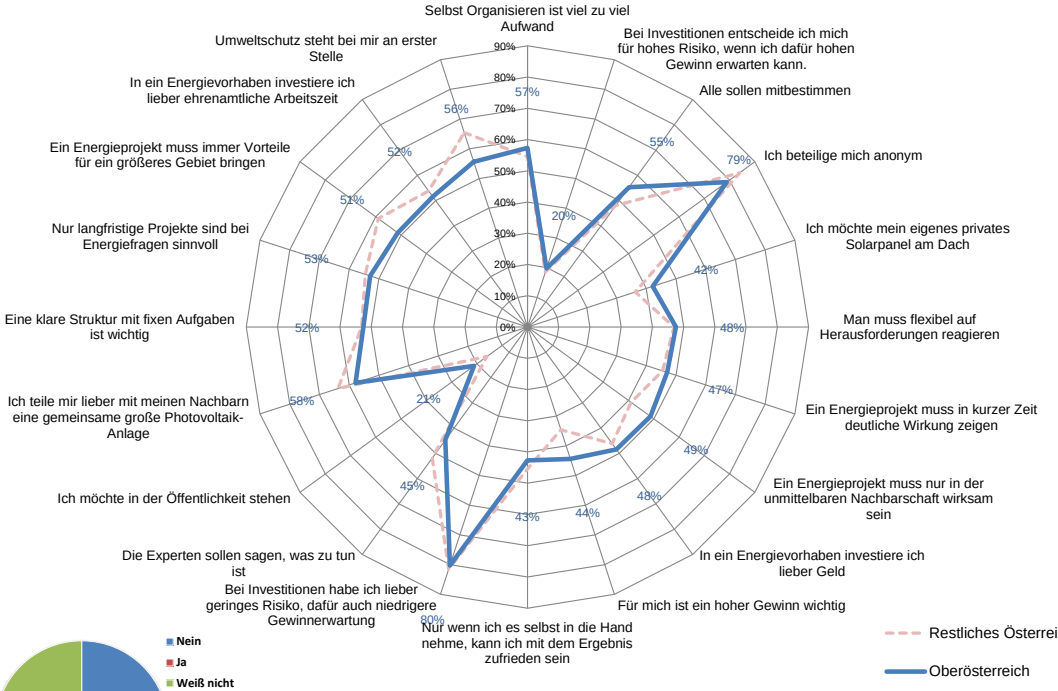
Heating systems used



Relationship between net income and building type



Energy projects in the neighbourhood



Attitudes and expectations of respondents

Lessons Learnt So Far

- Omnipresent topic: data
  - Lack of data
  - Difficulties in organisation of data / data privacy
  - Time consuming
  - Statistical fuzziness

  → Open data insufficient, (geo-) databases needed

  → Positive example: Zurich
- Successful survey
  - Willingness to participate and experience of households in energy topics
  - Willingness regarding geo-tagging
- Complexity of transformation processes
  - Integration of different information types and modelling efforts
  - Heterogeneous stakeholders (contradictory interests: especially cost-benefit paradigm)
  - Accurate communication strategy necessary

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Thank you for your attention!

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