# Measuring political commitment in statistical models for evidence-based agenda setting in non-motorized traffic

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# Research framework

- Our findings are based on ACTIV8!, a cooperative R&D project in the the ‚Mobilität der Zukunft' programme of bmvit (4th call)

- tbw research, HERRY Consult GmbH, Research & Data Competence OG, Technische Universität Wien, Fachbereich Stadt- & Regionalforschung

- Project duration from 05/15 until 10/17

# ? What is ACTIV8!

An **integrated, holistic approach** for estimating the quantitative impacts of **potential measures** on **active mobility**.

Methodological basis: aggregated statistical models (one for each active mode)
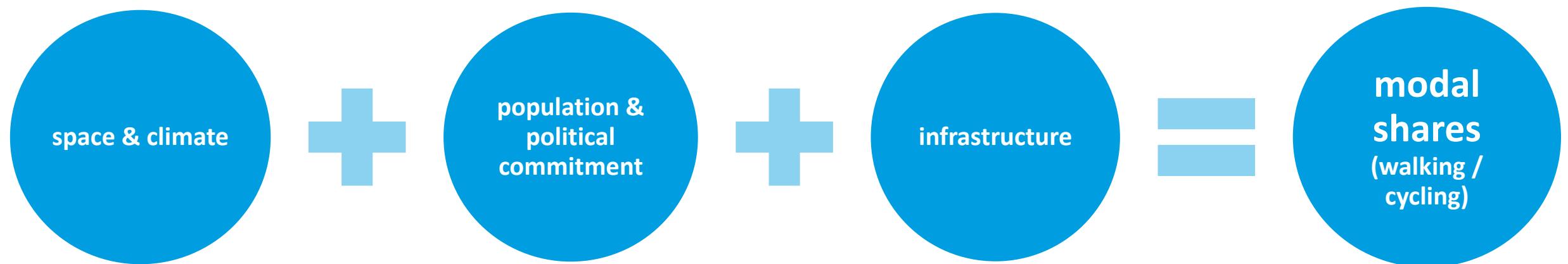
# What's our motivation for ACTIV8! ?

*„In order to be able to develop sound policies that encourage cycling, it is essential that we understand what determines bicycle use" (Heinen et al, 2010, S. 60)*

*Based on our recent experience this quote is even more true for walking (particularly in Austria).*

# What's the added value?

- **Decision support**: increasing **planning efficiency** and benefit/cost ratios of measures: *‚How can we best increase the modal share of active modes? How can we objectively prioritize a set of suggested measures to help active mobility in a community context?'*

- **systematic deduction** of **pinpoint measures** taking **local contexts** into account: *'What would be an ideal addition to communal premises for active mobility?'*

- **Simulation of measures:** *‚What's the impact of individual measures on active mobility shares in the respective environment?'*

- **→ pinpoint solutions instead of rigid panaceas**

# How does it work?

- Applying **multivariate statistical models** and conducting analyses.

- Using data on **Upper Austrian modal shares** on municipality level as the **outcome variables** (either walking or cycling) (N = 444 municipalities).

- Massive **data gathering** (currently approx. 700 variables) in order to **operationalize local attributes** related to **space, climate, population, (political commitment, infrastructure, etc.)** as (candidate) **predictor variables**. Data sources: GIP, OSM, ZAMG, OGD Upper Austria, own calculations, etc.  E.g.

  - *population share social milieu 'bourgeois middle-class'*
  - *meshing of the road network*
  - *number of days with snow cover*
  - *hilliness of the settlement area*
  - *quota of part-time employment*
  - *target-group-specific and mode-specific accessibilities of kindergartens*

# Some questions that can be answered using ACTIV8!:

- Which communities are **already making the best of their specific potentials** for active mobility and which areas are currently **underachieving**?

- What's the **impact size** of **potential measures** in **different fields of action** (e.g. infrastructure, awareness building, settlement policy, social policy, housing, etc.) on **active mobility shares**?

- **Where** to implement **which kind of measures** in order to **maximize positive impacts** on active mobility?

# Operationalizing attitudes, mind-sets and commitment

- aiming both at capturing (1) attitudinal attributes among the **population** and (2) commitment of **administrative/political decision-makers**.

- Using **available data** as much as possible, i.e. some attributes were operationalized via **proxy variables**.

- Validation of this approach by conducting a **survey among administrative staff** of Upper Austrian municipalities (*self-assessed 'stated' commitment*).

# Some results

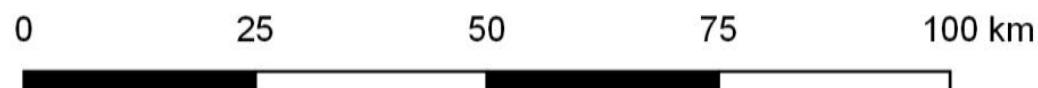# cycling modal shares in Upper Austria (municipality level)



**Legende**

**Radverkehrsanteil**

- 0% - 3%
- 3% - 5%
- 5% - 8%
- 8% - 13%
- 13% - 21%
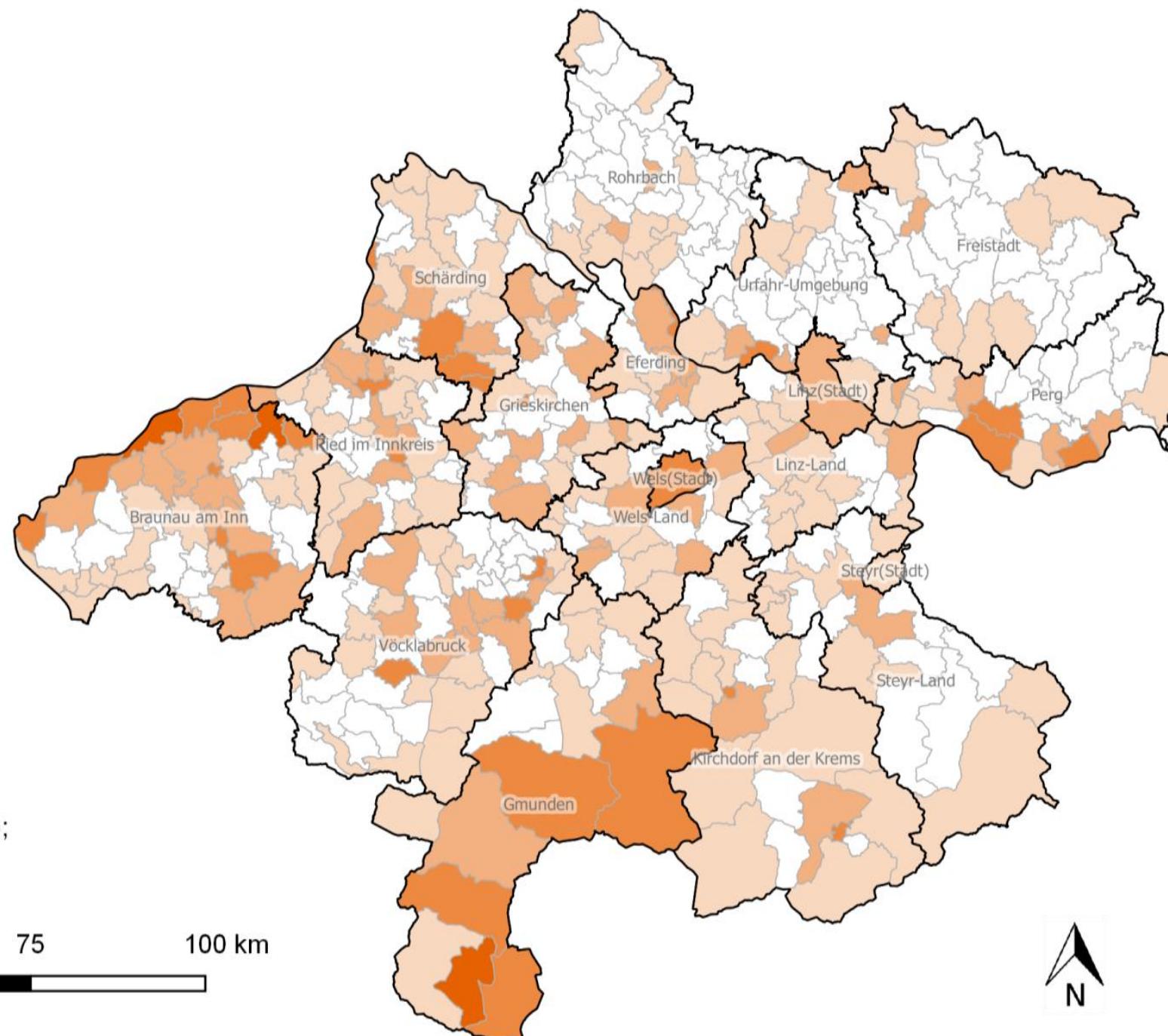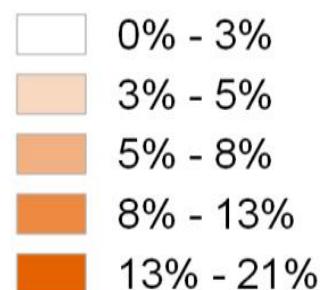
**Kartographie:**
DI Clemens Raffler

**Erstellungsdatum:**
10.05.2017

**Datenquellen:**
Land Oberösterreich - data.ooe.gv.at, 2016;
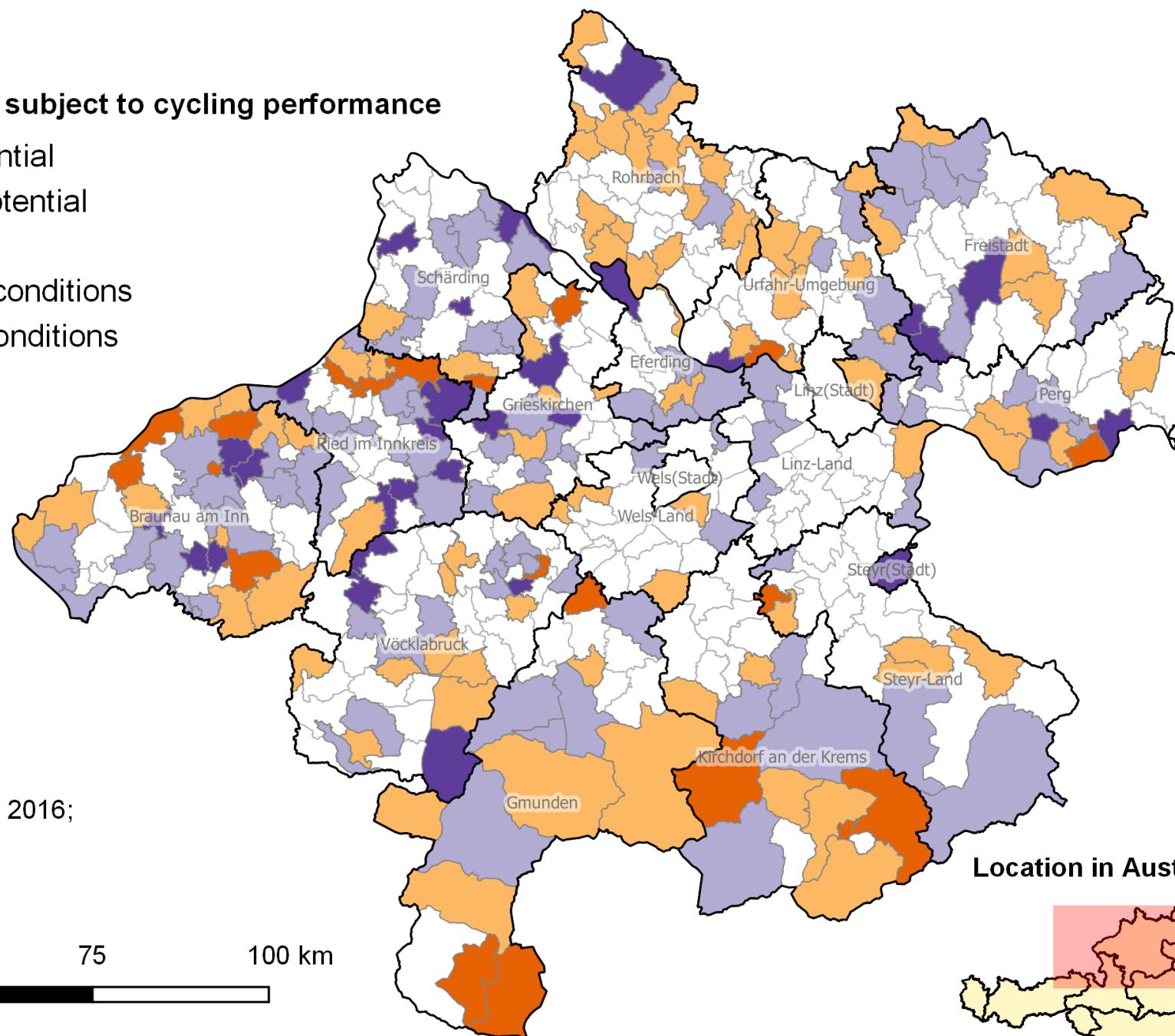© BEV, 2016;
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0    25    50    75    100 km

# ACTIV8! cycling performance

tbw RESEARCH

## Legend

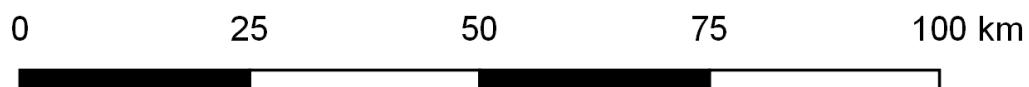**Classification of municipalities subject to cycling performance**

- Large unused cycling potential
- Medium unused cycling potential
- Neutral
- Good use of local cycling conditions
- Best use of local cycling conditions

**Cartography:**
DI Clemens Raffler

**Date:** 06.06.2017

**Datasources:**
Land Oberösterreich - data.ooe.gv.at, 2016;
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0    25    50    75    100 km

**Location in Austria**

*Map labels:* Rohrbach, Schärding, Eferding, Urfahr-Umgebung, Freistadt, Grieskirchen, Linz(Stadt), Perg, Ried im Innkreis, Wels(Stadt), Linz-Land, Braunau am Inn, Wels-Land, Steyr(Stadt), Vöcklabruck, Steyr-Land, Kirchdorf an der Krems, Gmunden
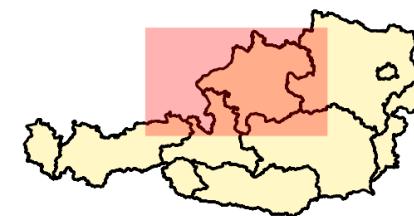
# modal split and political commitment - some findings on individual impacts:

*Cycling shares in Upper Austrian municipalities ranges between **0 % and 21%** (average municipality. **approx. 3.5%**, mean value for Upper Austria **approx. 5.1%**)*

- Controlling for the effects of all other considered determinants we estimate the **isolated incremental effect** of the Upper Austrian **fahrradberatung.at** funding program to be **0.11% increase** in cycling modal share **per year** since first enrollment.

- That means that a community will increase modal shares in cycling **by 1% after approx. 9 years** after enrolling to the program.

# some findings (cont'd)

- **Klimabündnis:** cycling modal share is higher by **0.22%** if the community is a **member of Klimabündnis** (Austrian initiative to promote climate protection).

- **social milieus: group-specific impacts** on cycling modal share: **('Established' positive** (+0.28%), **'Modern performers' negative** (-0.60% per 1% share in total population).

# some findings (cont'd)

- crosstab: **affinity towards cycling** (objective attributes and self-assessment) vs. **enrollment in Fahradberatung.at** (either NO or YES)

| BEV_dummy_fahradberatung01 * INDEX_fahrradaffin_4KAT Crosstabulation | | | | | | |
|---|---|---|---|---|---|
| | INDEX_fahrradaffin_4KAT | | | | | **Total** |
| | not affine | somewhat affine | rather affine | very affine | | |
| Enrollment Fahradberatung Upper Austria=NO | 95,5% | 91,4% | 71,6% | 18,5% | | **74,9%** |
| Enrollment Fahradberatung Upper Austria=YES | 4,5% | 8,6% | 28,4% | 81,5% | | **25,1%** |
| % within INDEX_fahrradaffin_4KAT | **100,0%** | **100,0%** | **100,0%** | **100,0%** | | **100,0%** |

# some findings (cont'd)

- correlations: **cycling affinity** vs. cycling **modal shares** and various proxy variables on **political commitment** towards cycling.

| Correlations | | affinity to cycling |
|---|---|---|
| cycling modal share | Pearson Correlation | ,448[**] |
| | Sig. (2-tailed) | 0,000 |
| no of klima aktiv proj / area | Pearson Correlation | ,408[**] |
| | Sig. (2-tailed) | 0,000 |
| years since 1st enrollment in fahradberatung | Pearson Correlation | ,384[**] |
| | Sig. (2-tailed) | 0,000 |
| years since 1st enrollment in klimabuendnis | Pearson Correlation | ,537[**] |
| | Sig. (2-tailed) | 0,000 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | |

# Conclusions

- ACTIV8! has laid the **basis for a comprehensive model for planning support** by evidence-based methods.

- it is possible to include variables on **'soft' factors such as attitudes and mind-sets** of population and decision makers into the statistical models.

- both group of variables prove to be **significant** when **quantitatively explaining modal shares**.

- there is a **clear correspondence between the objective evaluation** of political / administrative commitment and the **(subjective) self-assessment** of the decision makers.

## KONTAKT

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# Thank you!

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