TECHNIK
HOCHSCHULE MAINZ
UNIVERSITY OF
APPLIED SCIENCES

PLANNING FOR AGING NEIGHBORHOODS

CHALLENGES IN (RURAL) GERMANY AND SMART (GEOSPATIAL) RESPONSES

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Spatial Information Management to optimize Spatial Planning and Sustainable Development

- Will the future of humanity be decided in big cities - and is sustainable development of cities the only thing that needs to be taken care of?

- Is urbanization and migration to the cities an unstoppable trend that can never change?

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1. The century of the cities

The 21st century will be the century of the cities. Urban areas are becoming the central organizational form for almost all human societies. The global urban popula-

Source: Humanity on the Move: Unlocking the Transformative Power of Cities: Summary. (2016). Deutschland: WBGU German Advisory Council on Global Change.

WBGU
German Advisory Council on Global Change

Flagship Report

Humanity on the move:
Unlocking the transformative power of cities
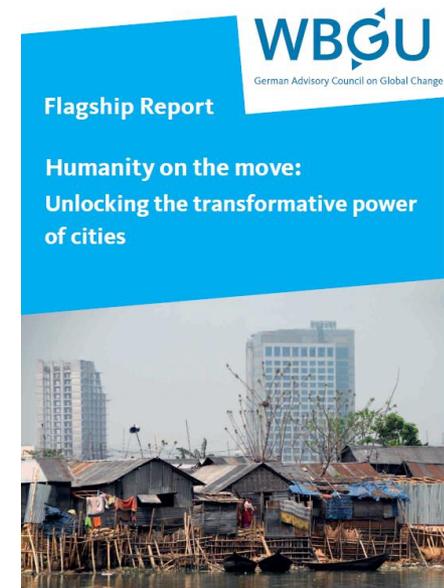
- Well, the future is not written yet, crisis can disrupt trends, we have to be prepared for game changes to become/be/stay sustainable.

- We should not forget that planning sustainable rural areas can take pressure from urbanization. Spatial planning for cities alone would miss half of the story…
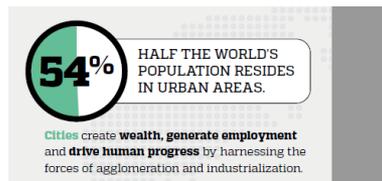
Source: UN-HABITAT. (2016). World Cities Report 2016: Urbanization and Development - Emerging Futures. USA: United Nations Fund for Population Activities.

- So let´s have a look to rural areas…

1. **Single-family housing areas in rural Germany**

2. **Geoinformation for dealing with the demographic challenge**

   Aim: Establishing a Monitoring for single family housing areas

Urban & village sprawl – typical pattern

Fürth was mentioned 773 for the first time

before 1945

after 1945

Fürth Odw. 2015,
aerial picture: google maps

Aerial photo:
Bing Maps 2017

Germany´s single family housing areas

spreading since the 1950ies all over the old Laender

~ 5800 inhabitants

Generation change & aging of residents

in single-familiy housing areas

long term vacancy?!

village´s image

drop in prices?!

retirement plans?

…on the way to a monitoring strategy
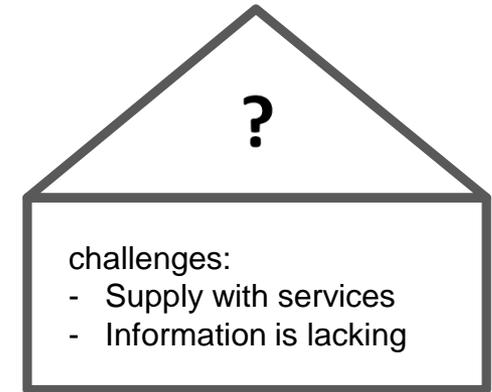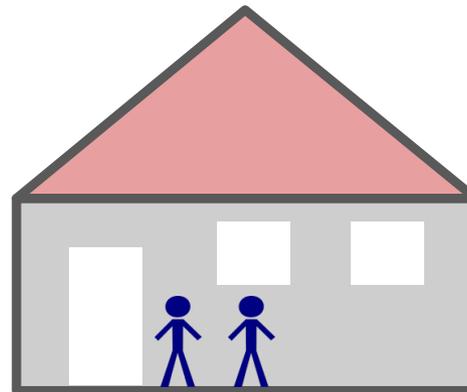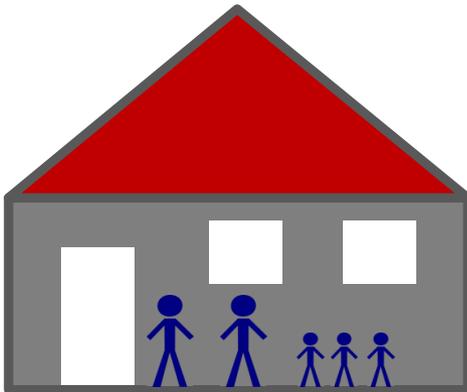
?

challenges:
- Supply with services
- Information is lacking

1970   **2020**   **2050**

Schaffert 2011

Spatial Information Management to optimize Spatial Planning and Sustainable Development?
Spatial Information that creates lacking information about single houses and demographic change!
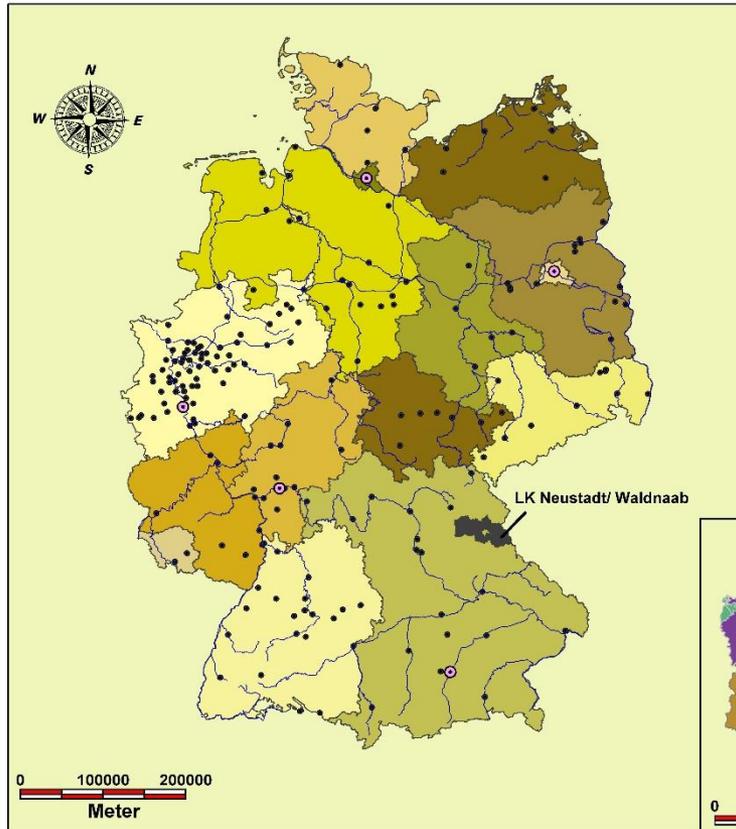
LK Neustadt/ Waldnaab

Schaffert 2011

Gemeinde
Flossenbürg
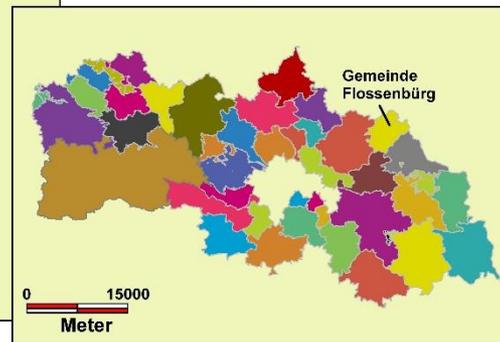
Base data: Bavarian Agency for Digitisation,
High-Speed Internet and Surveying

Case study – rural Bavaria

Flossenbürg / Bavaria

village sprawl/ housing areas

This is what official statistical agencies provide (up-to-date, free and meanwhile even georeferenced)

- ab 1990
- 1980 - 1990
- 1945 - 1980
- 1900 - 1945
- old town

Aerial photo: Bavarian Agency for Digitisation, High-Speed Internet and Surveying

number of inhabitants/year	2003	2004	2005	2006	2007	2008
	1770	1744	1729	1749	1720	1699

Case study – rural Bavaria

Census Data is a „new" additional data product (Census took place in 1986 and 2011, next Census: 2022)

Municipal population register can solve the problem

, but...

Demographic Information of living population (no true values shown here: privacy issues)

Geburtsdatum	Geschlecht	PLZ	Ort	Ortsteil	Strasse	Hausnummer	Zusatz	Wohnungsart
18.03.1988	w	94269			Musterstr.	3		HW
12.03.1958	w	94269			Musterstr.	3	a	NW
12.05.1995	m	94269		Stadl	Musterstr.	12		HW
12.12.1965	m	94269		Grub	Musterstr.	13		HW

Information about changes (birth, death, migration in/to/withthin)

| Änderungsart	Ereignisdatum	Geburtsdatum	Geschlecht	PLZ	Ort	Ortsteil	Strasse	Hausnummer	Zusatz	Wohnungsart
ZUZ	10.03.2008	18.03.1988	w	94269			Musterstr.	3		HW
TOD	13.04.2017	12.03.1958	w	94269			Musterstr.	23		NW
UMZ	12.05.2009	12.05.1995	m	94269			Musterstr.	12		HW
WGZ	01.12.2005	12.12.1965	w	94269			Musterstr.	2		HW
GEB	02.12.1974	02.12.1974	m	94269			Musterstr.	3		HW

Every German municipality has a population register

not georeferenced

not ready-for-planning
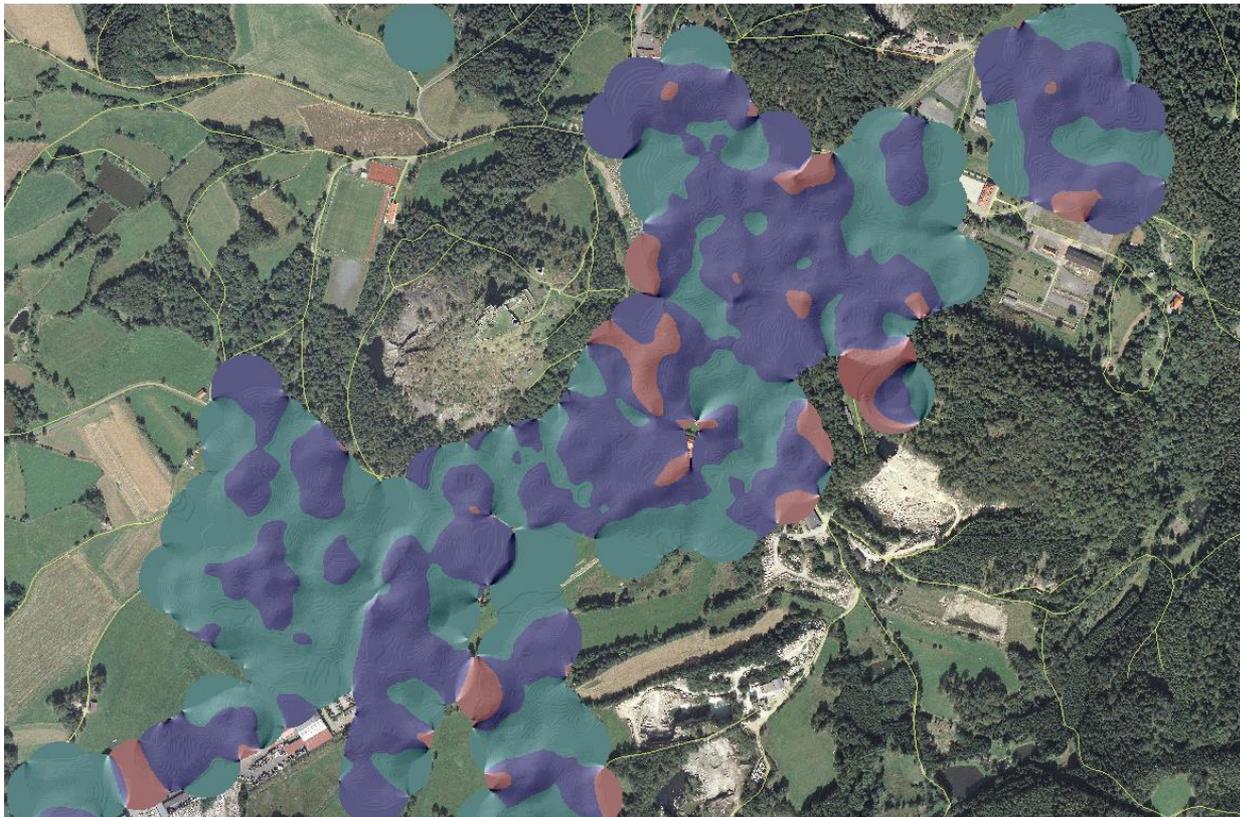
using the
<u>Flossenbürgs
population register</u>
for small scale
population analyses

- 65 years or older
- 45-65 years
- 45 or younger

Schaffert 2011

Aerial photo: Bavarian Agency for Digitisation,
High-Speed Internet and Surveying

houses endangered by vacancy

Schaffert 2011

Aerial photo: Bavarian Agency for Digitisation, High-Speed Internet and Surveying
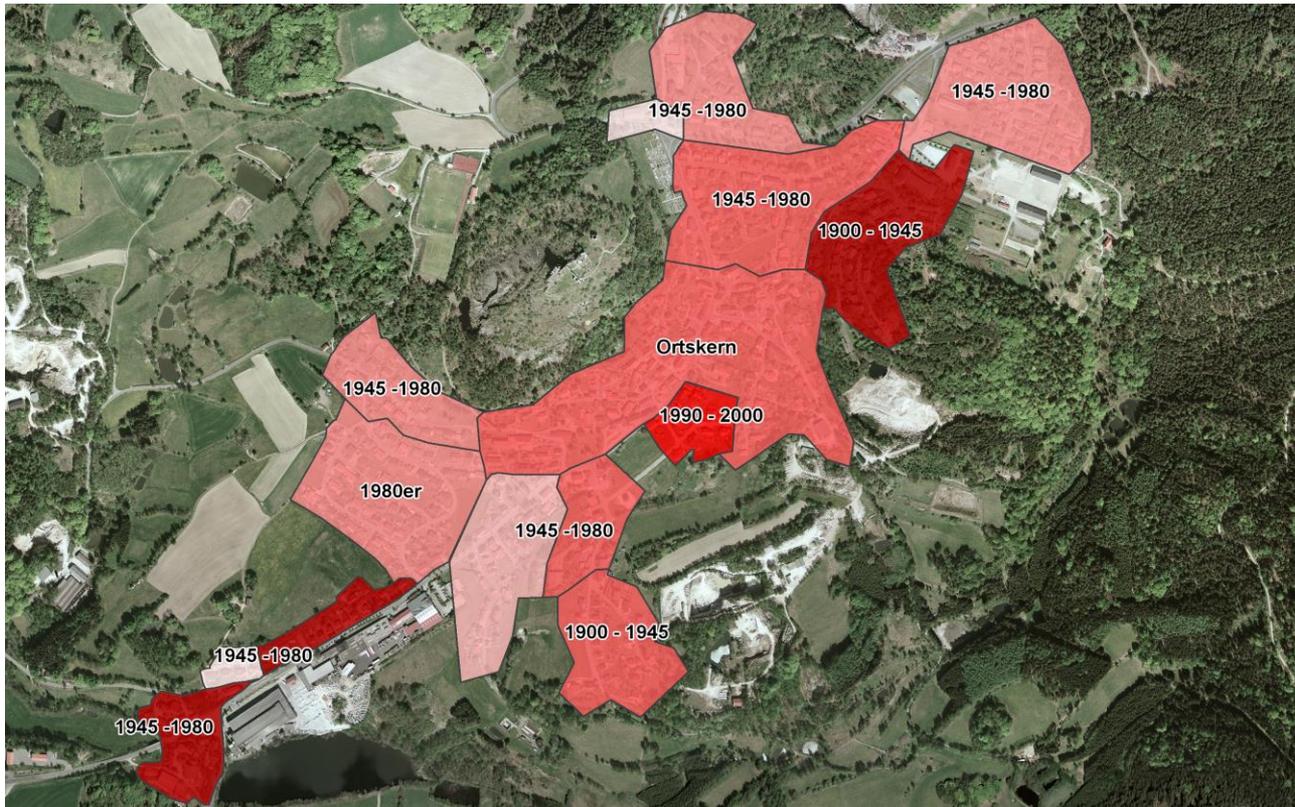
using the **Flossenbürgs population register** for small scale population analyses

Share of houses with vacancy risk* / per neighbourhood

- 0
- 1-2
- 3-4
- 5-6
- 7-8
- 9 and more
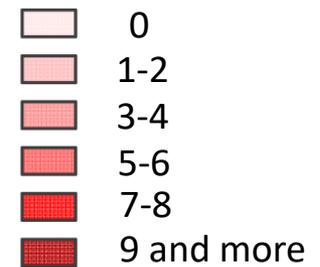
*inhabitated by 1 or 2 persons beeing 65 years or older

(intra-urban) net migration

Single family housing area 1945-1980

Old town

using the **Flossenbürgs population register** for small scale population analyses

resident loss between 1999 und 2009

- ▪ – 6 persons and more
- ▪ -1 untill – 5 persons
- ▪ +/- 0 persons
- ▪ +1 bis + 5 persons
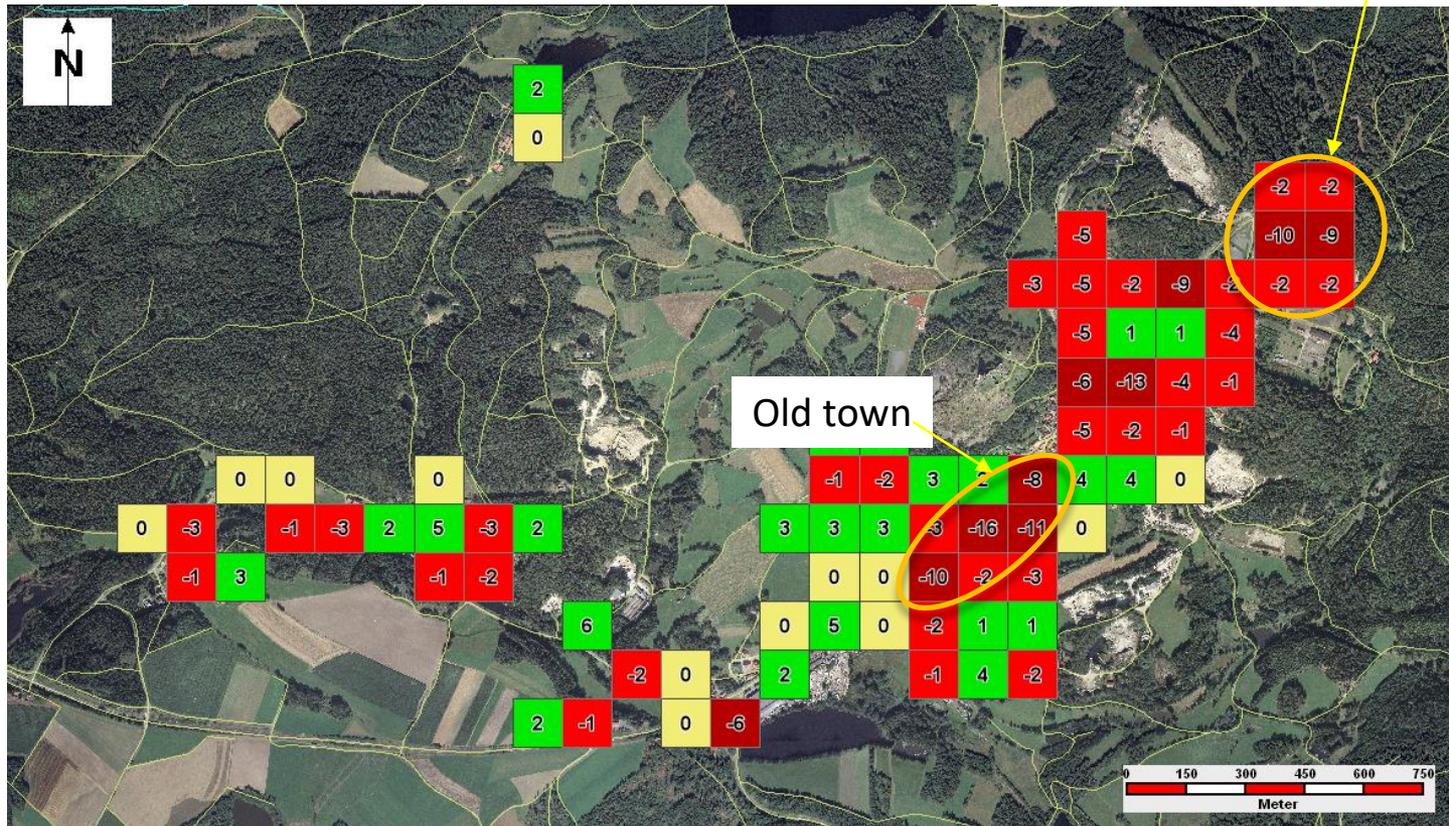
Schaffert 2011

Aerial photo: Bavarian Agency for Digitisation, High-Speed Internet and Surveying

Monitoring SFH. Factors of Influence

level of negotiation:

regional differentiated /
segmented housing markets
and -vacancies

direct factors of influence:

- residents/owner-features
- ownership-features
- house-/appartment-features
- place

indirect factors of influence:

- demographic change
- social development
- politics/planning/management
- economic development
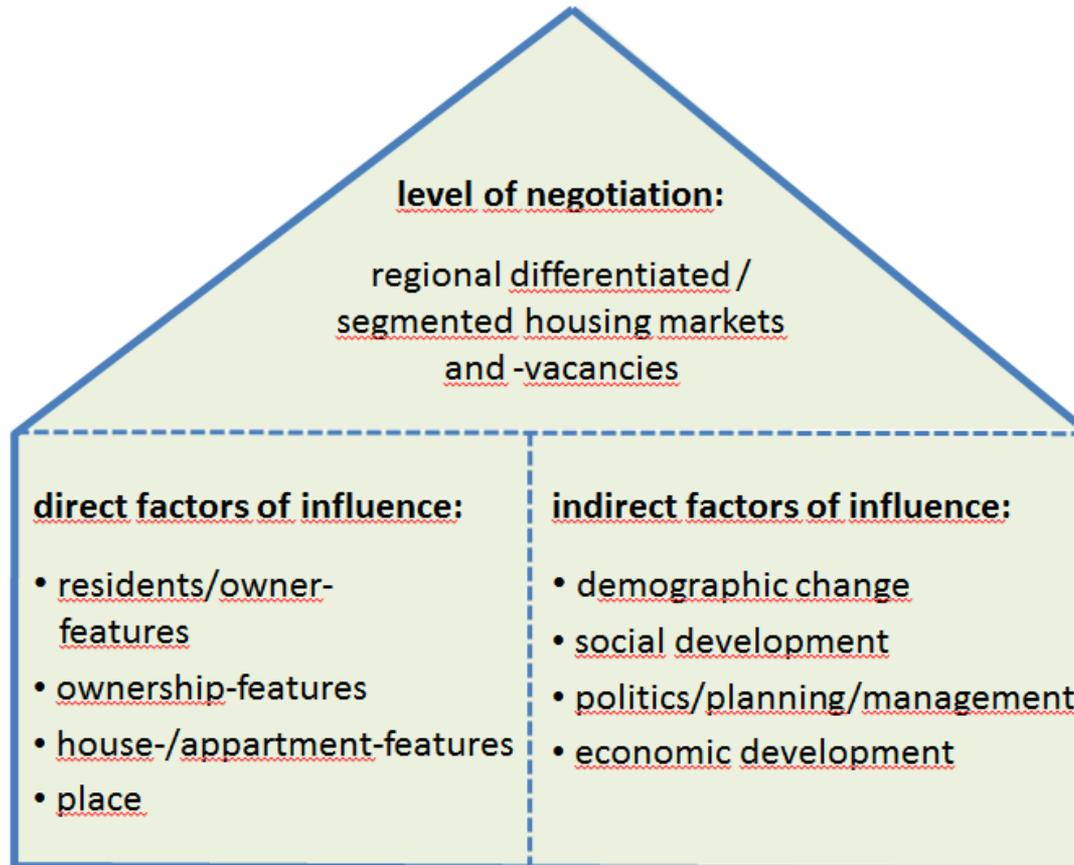
Schaffert 2011

Direct Factors of Influence

Kartenthema "Remanenzgebäude*"

Anteil am Gebäudebestand je Baugebiet (%)

* Gebäude mit einem Besatz von zwei oder weniger Bewohnern, die 60 Jahre oder älter sind

Kartenthema Gebäudebestand und Lärmbelastung

Legende
Gebaeude im 25m-Korridor um Durchgangsstrasse
Durchgangsstrasse
25m-Korridor um Durchgangsstrasse
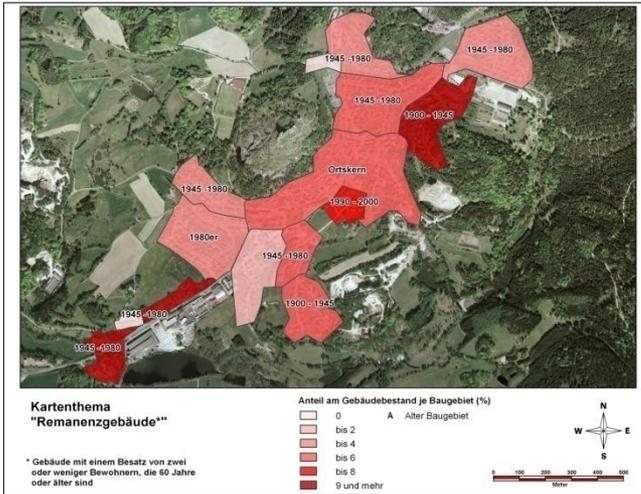
level of negotiation:

regional differentiated / segmented housing markets and -vacancies

... influence:

...er-

...tures

...ment-features

indirect factors of influence:

• demographic ...
• social develop ...
• politics/plann ...
• economic dev ...

Hauszustände in den Gemeinden Floss und Flossenbürg

sehr gut
gut
sanierungsbedürftig
Ausreisser: sanierungsbedürftig

Datengrundlage: Anonymisierte Melderegister der Gemeinden Floss und Flossenbürg

Schaffert 2011

Base data: Bavarian Agency for Digitisation, High-Speed Internet and Surveying

Direct Factors of Influence


Flossenbürg/Opf.

Steigungen der begehbaren
Wege - nach Abschnitten
(basierend auf 5m Raster)
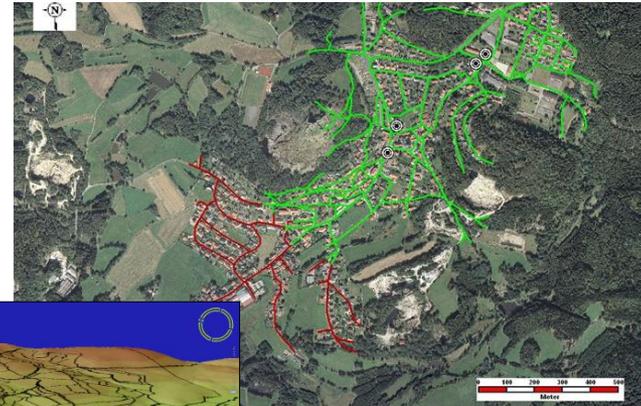
Flossenbürg/Opf.

Erreichbarkeit
der Grundversorger
(Bäcker Metzger,
Supermark)

— </= 500 m Entfernung
— > 500 m Entfernung

⊙ Versorgungs-
    einrichtung
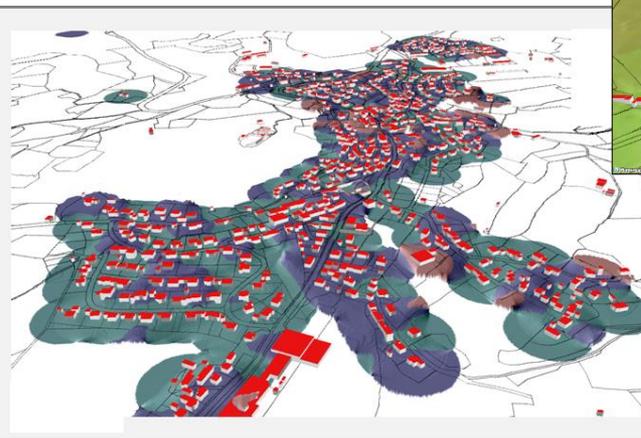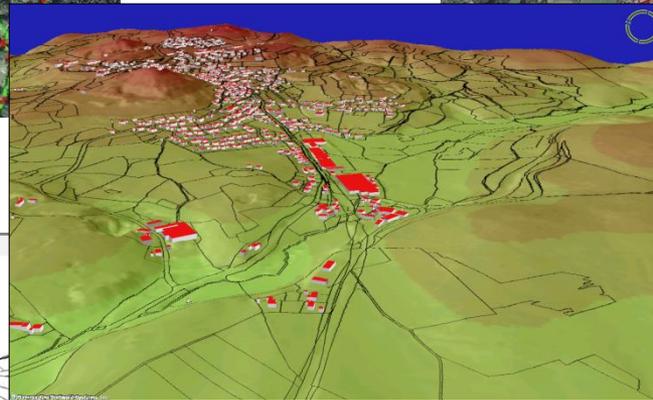
– „Altersgebirge" mit
Flurstücken und Gebäuden

(Stand 01.08.2009)

■ über 80 Jahre
■ 65 bis 80 Jahre
■ 46 bis 65 Jahre
■ unter 45 Jahre
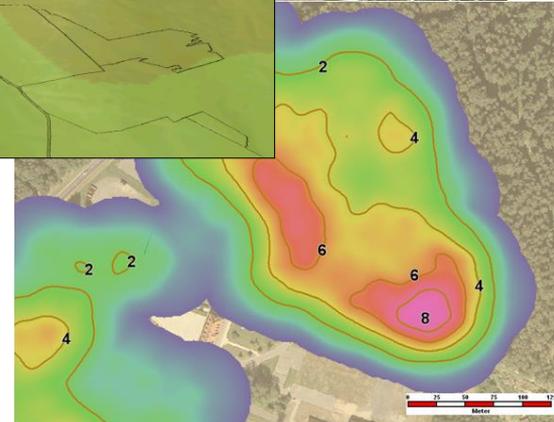
Flossenbürg/Opf.

Gebäude in einem
Umkreis von 25 m²
um die jeweils betrachtete
Rasterzelle (Auslösung 1 m)

2
4
6
8

⌢ Linie gleicher
    Bebauungsdichte

Schaffert 2011

Base data: Bavarian Agency for Digitisation,
High-Speed Internet and Surveying

Future Work: → monitoring of Single-Family-Housing-Areas in an intra and supra-communal setting (e.g. county-wide, with regards to generational change and an areas resilience)

- Weighting of indicators (and their spatial differences) and combining them according to the weighting

- Providing this information in a supra-communal/ regional spatial data infrastructure

- Future work will be done in the project RAFVINIERT

RAFVINIERT
Raumintelligenz für die integrierte Versorgung von Seniorinnen und Senioren in ländlichen Quartieren

Funded by Carl-Zeiss-Stiftung

1.4.2021 – 31.3.2024

References

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- WBGU (2016). Humanity on the Move: Unlocking the Transformative Power of Cities. Deutschland: WBGU German Advisory Council on Global Change.

- UN-HABITAT. (2016). World Cities Report 2016: Urbanization and Development - Emerging Futures. USA: United Nations Fund for Population Activities.

Progess of the project RAFVINIERT can be tracked here:

https://www.researchgate.net/project/Raumintelligenz-fuer-die-integrierte-Versorgung-von-Senioren-in-laendlichen-Quartieren-RAFVINIERT