Resilient urban transition
How cycling makes cities more resilient

Andrea Weninger, June 2015

Why?

Urban Development Plan Vienna 2025 ➡
Change & Change Management

„the liveable city“

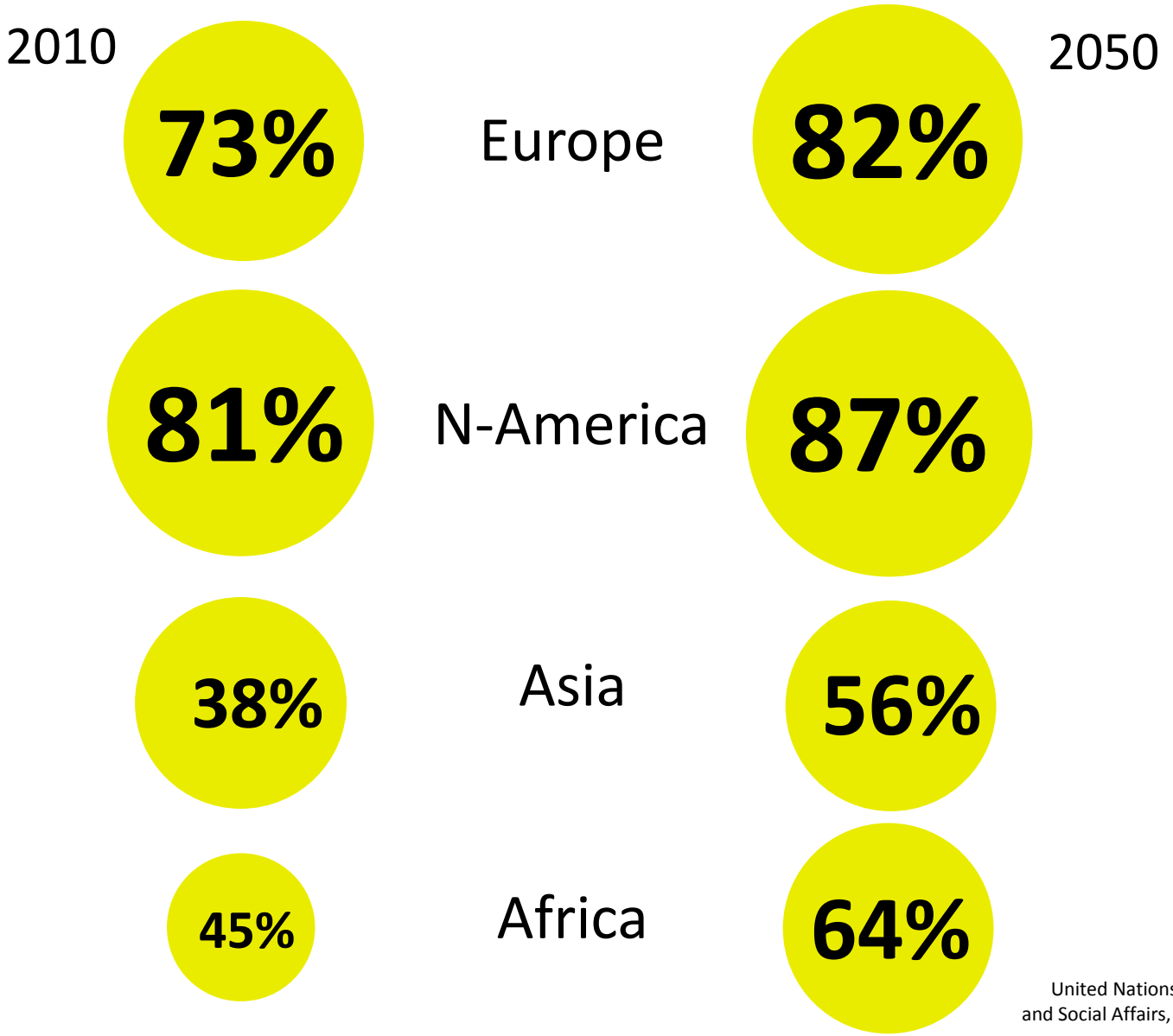
„the robust city“

„the learning city“

„the prosperous city“

Resilience & getting fit for the future

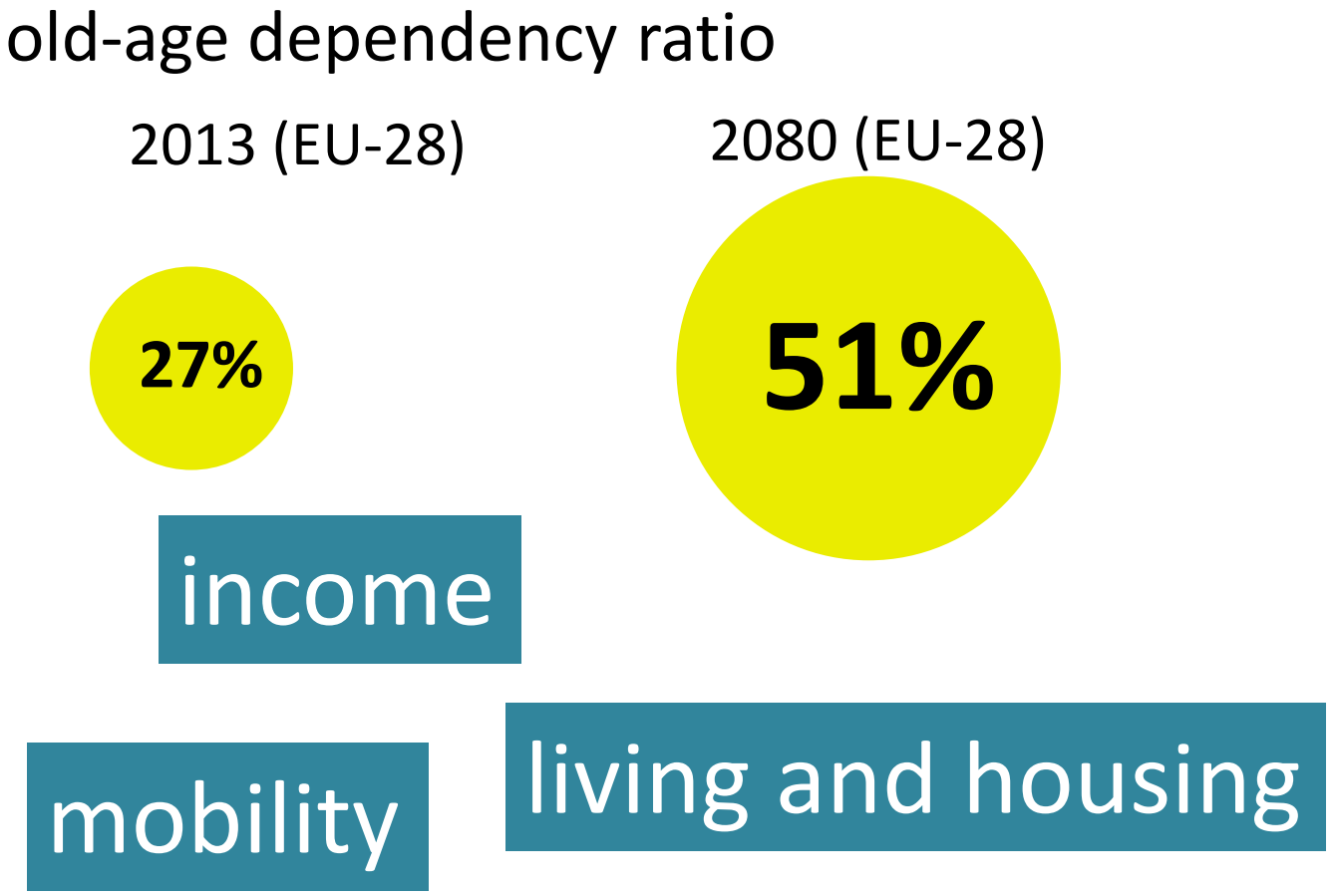
Urban Population



United Nations, Department of Economic and Social Affairs, Population Division (2014)

Demographic Ageing

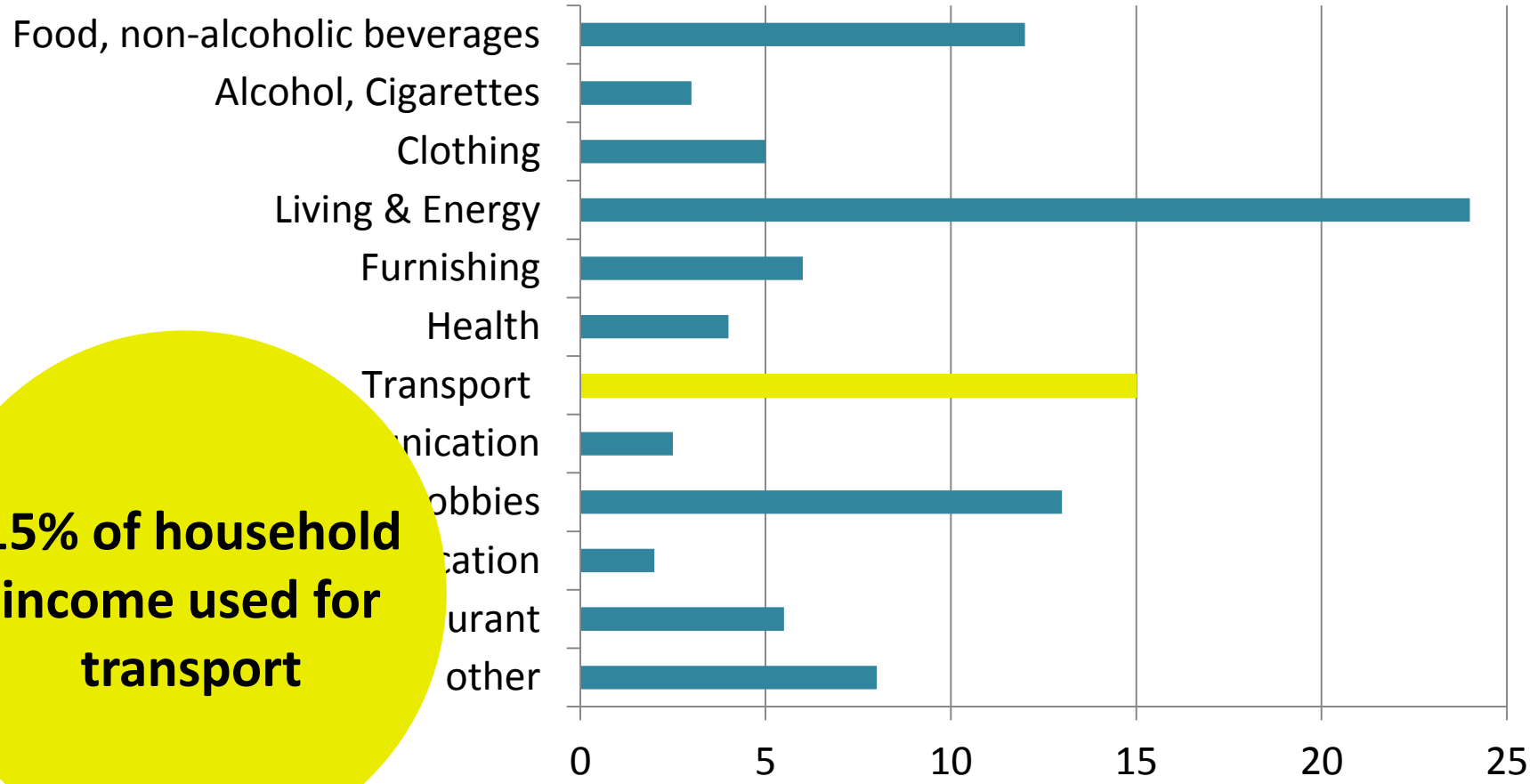
old-age dependency ratio



Old-age dependency ratio is the ratio of people older than 64 to the working-age population 15 to 64.

Eurostat (2014)

Income and poverty



15% of household income used for transport

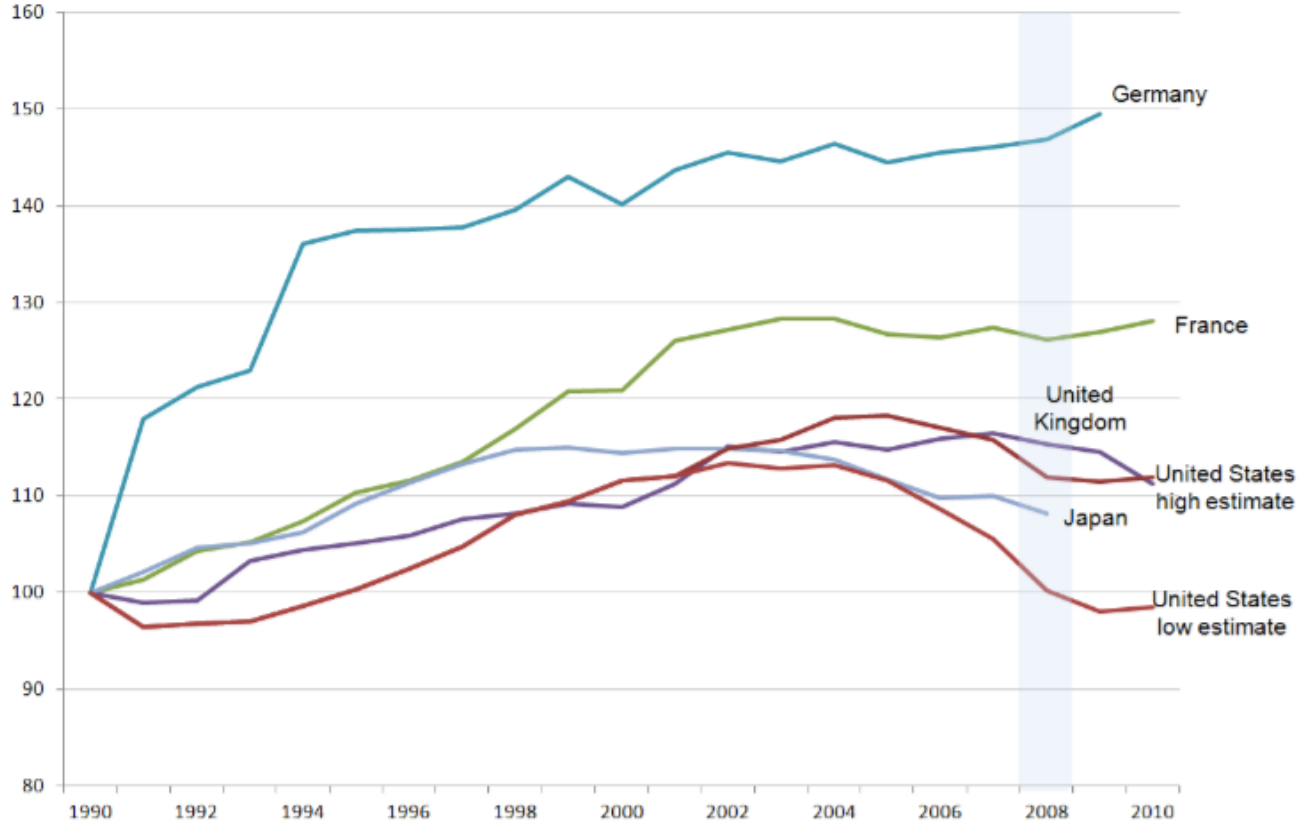
Expenses per month, private households, 2009/10, Austria
Statistik Austria (2014)

Growth and limits to growth

- low GDP growth rates
- definition of growth is changing („beyond GDP“)
- decoupling GDP from fossil resources

Transport performance

Figure 1. **Passenger-kilometres by private car and light trucks, 1990–2010**
(index 1990=100)



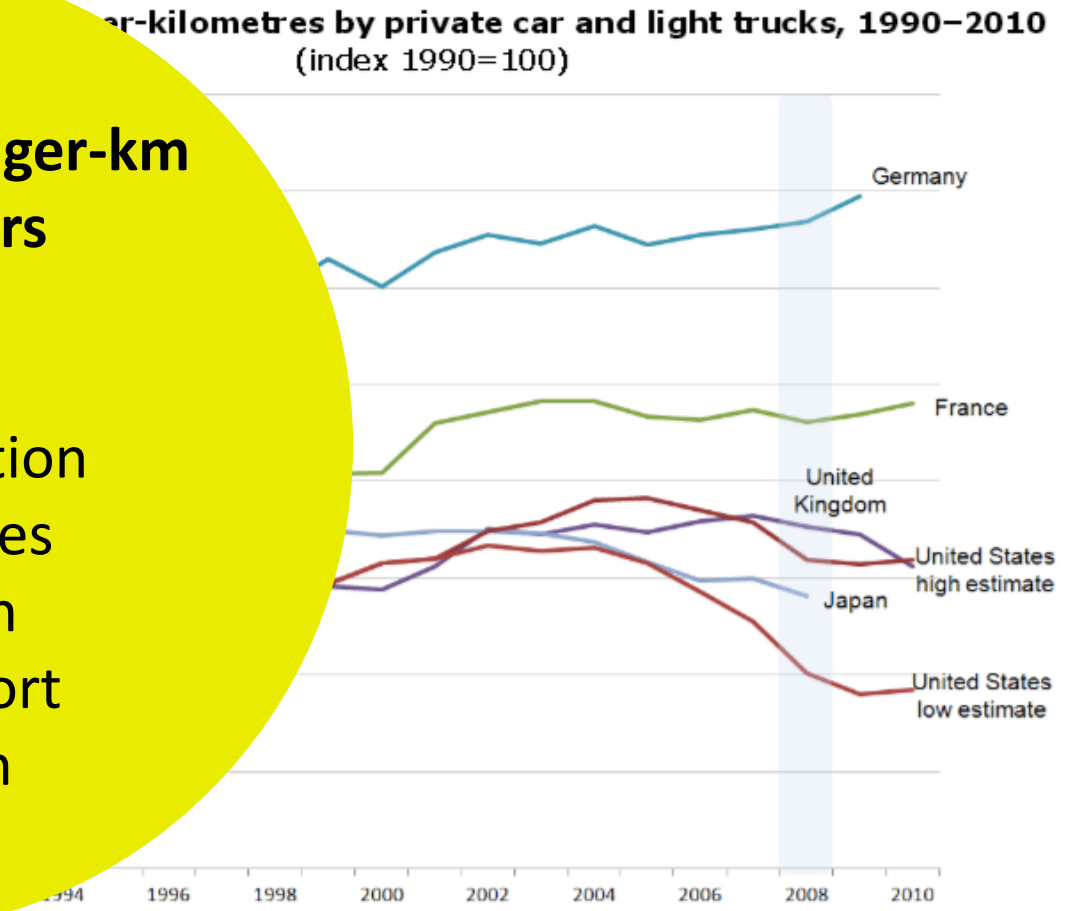
Source: ITF statistics; the high estimate for the USA assumes car occupancy rates remain at the level measured in 2001, and the low one that they decline as of 2001 to the level observed in the most recent household travel survey.

International Transport Forum (2012)

Transport performance

Decreasing passenger-km by private cars

fuel prices
ageing population
drivers licences
urbanization
public transport
immigration



Source: ITF statistics; the high estimate for the USA assumes car occupancy rates remain at the level measured in 2001, and the low one that they decline as of 2001 to the level observed in the most recent household travel survey.

International Transport Forum (2012)

Central Questions

- How can active mobility support the cities' adaption strategies in the light of this future development?
- Are there perspectives and possible solutions?
- Are there resilient urban structures?
- Is bicycle urbanism related to urban resilience?

Definition of Resilience

[…] Resilience […] is a measure of the persistence of systems and of their ability to absorb change and disturbance […].” (Holling, 1973) ➡ *use this ability for change and further development*

psychology

ecology

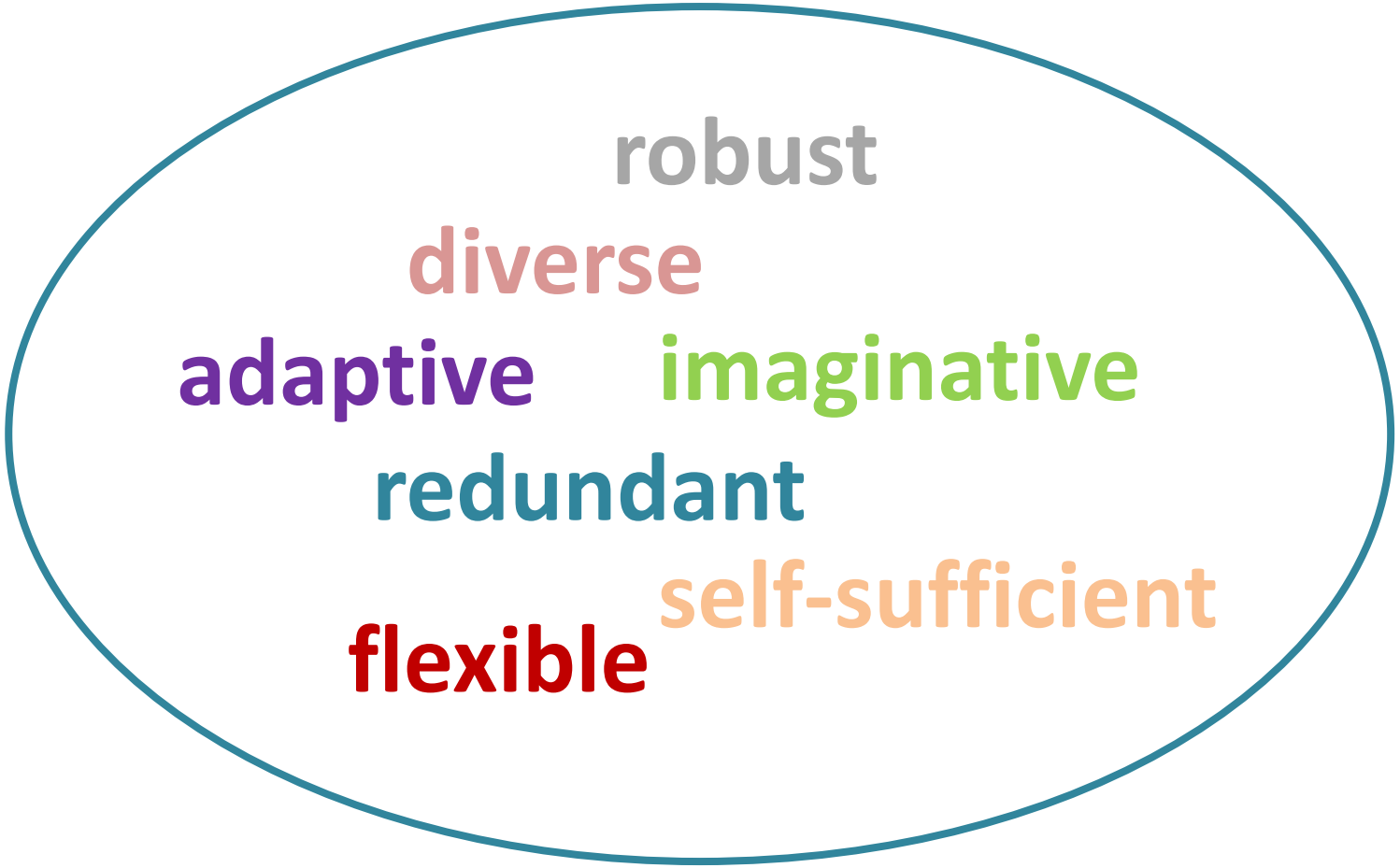
economy

- change of growth perception
- growth vs. fossile resources

Urban Development

- Climate change / Climate mitigation
- Critical infrastructures
- Mobility? Urban Fabric?
- Social relations?

Definition of Resilience



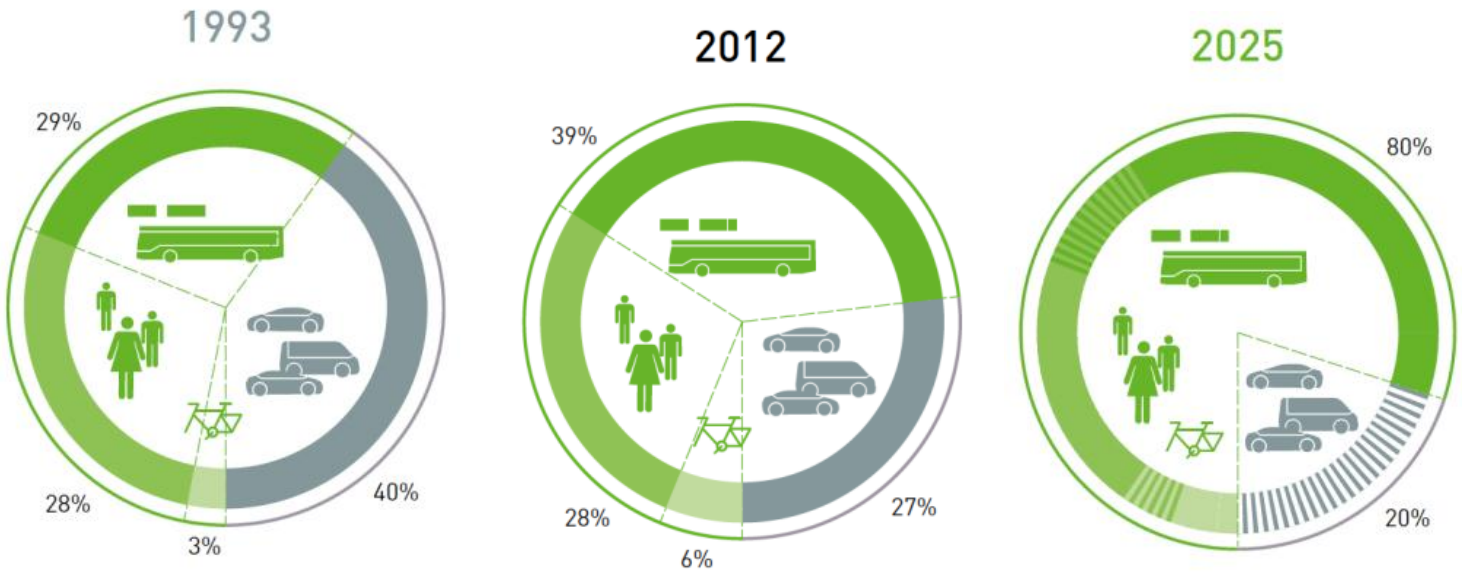
Definition of Resilience

	definition	example
robust	to overcome shocks , disturbance and longlastig stress; to be reststant against negative external influences	accidents, traumatic experience → to get back to a physical and psychological initial condition
Self-sufficient, autarkic	to be independent of external influences	electricty from 100% wind and solar energy
redundant	to have safety resources; to be equipped well	hospitals with emergcharacteristic ency power supply
imaginative	to have knowledge and creativity	brownfield → culture and recreation park
diverse	to have alternatives; to be equipped variously	roads for car-traffic as well as infrastructure for public transport, cycling, walking
adaptive	to learn the lesson from crisis and from disturbances; to anticipate external and internal incentives	flood → warning systems, dykes, Hochwasserabwehrpläne, prohibition on buildings
flexible	to be able to tread different paths ; to adapt to different frameworks	lose a job→ to go into business for oneself

Own compilation on the basis of the definitions of resilience (Jakubowski, 2013; Kegler, 2014; Zolli/Healy, 2012; Sieverts, 2013; Stiftung Neue Verantwortung, 2013; Initiative für Raum und Resilienz, 2013)

Case Study Vienna

- Mode Share Vienna



- reduction of car passenger km in the (dense) city
- one new major road and motorway extension
- new subway lines and extension of public transport
- + 260.000 inhabitants (!) until 2035

City of Vienna, Urban Development Plan STEP 2025, 2014

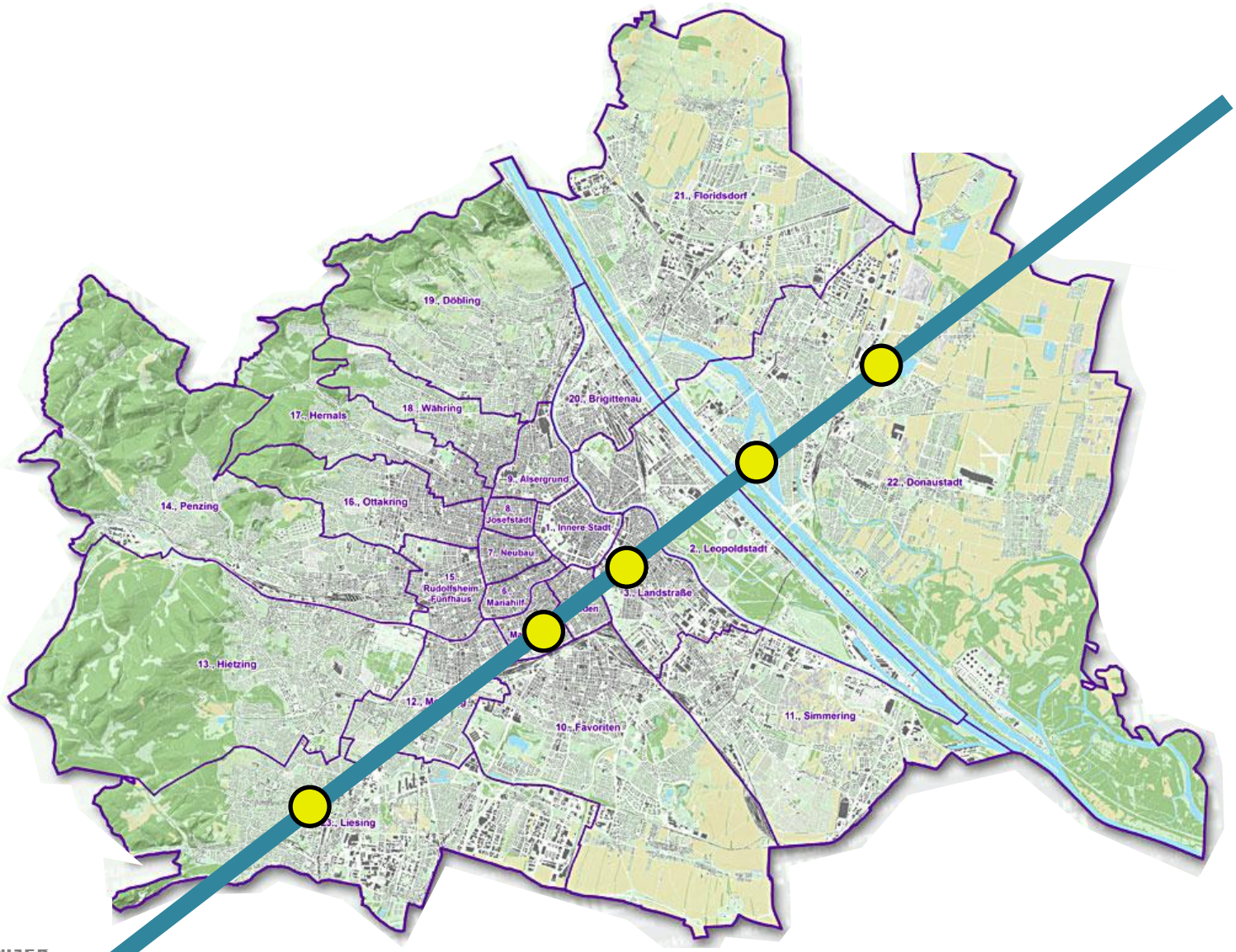
Case Study Vienna

Methods

- Field research
  - traffic volumes
  - space allocation
  - urban fabric

- Criteria and indicators (resilience, urban development & transport)

Case Study Vienna



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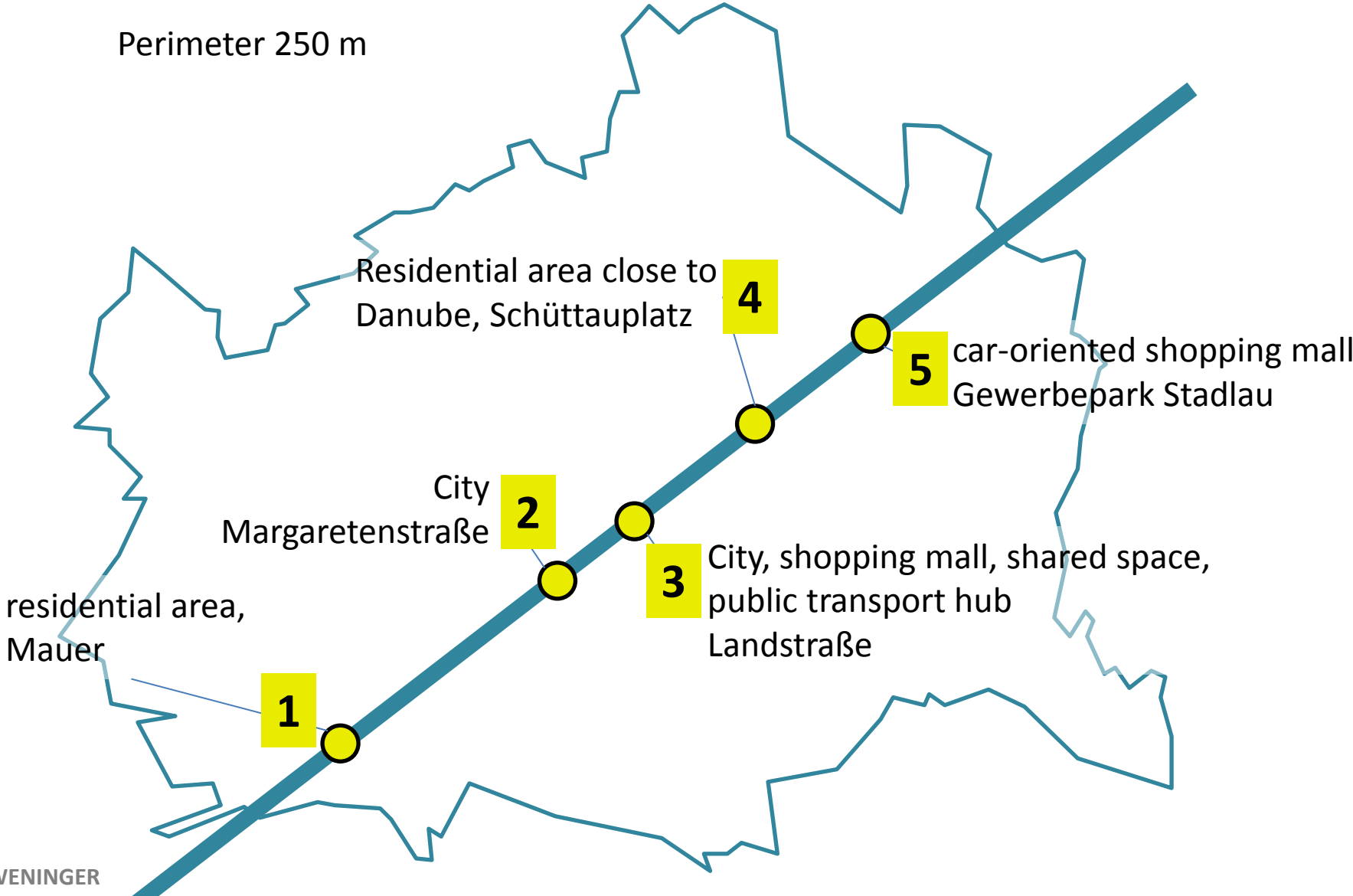



Müllsammel
Straßendienstfzge.
Rosa


EIS
Bortolotti Andrea

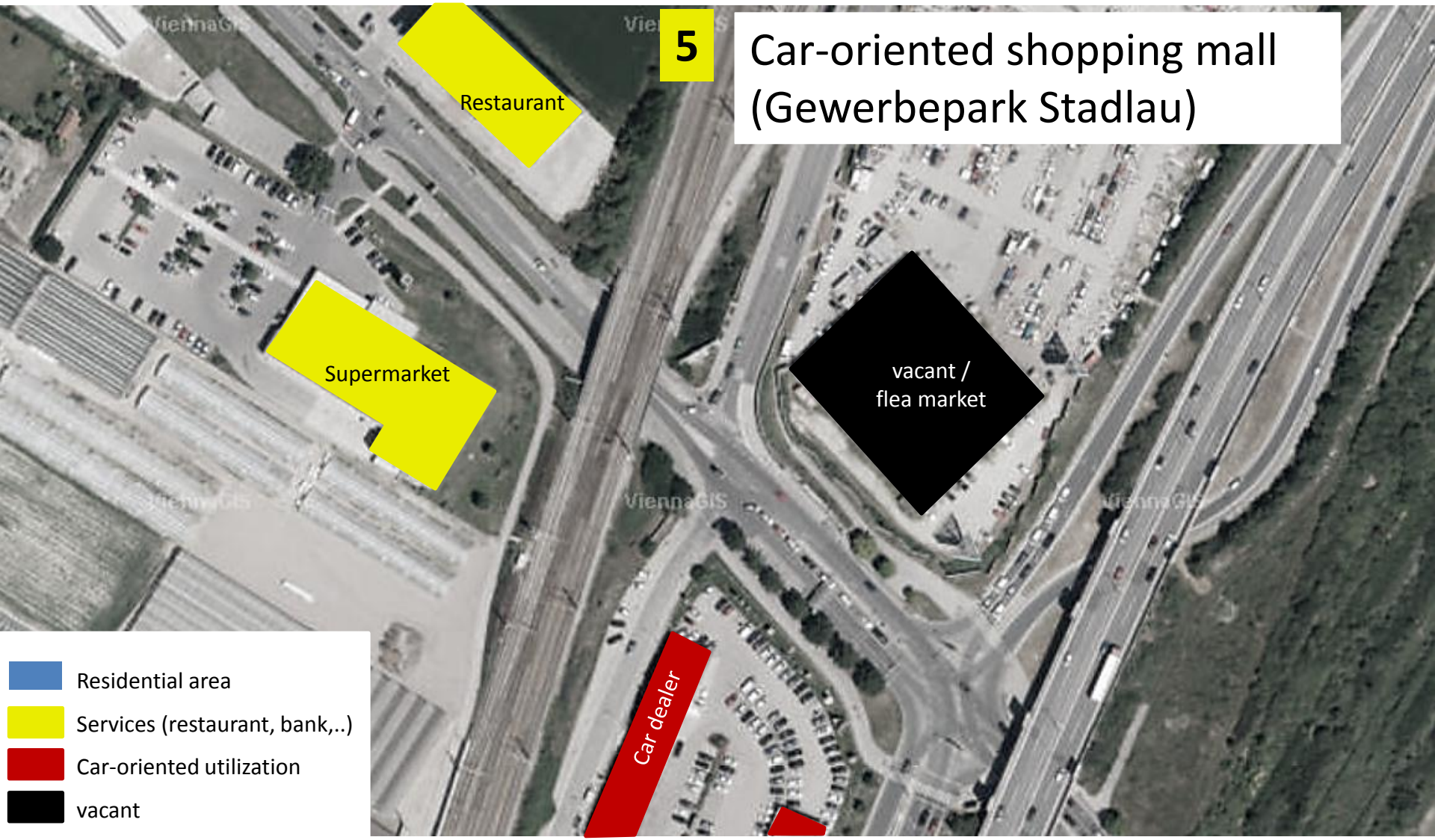

ÖBB
INFRA


GEWERBEPARK STADLAU


APOTHEKE
EIS


Royal

Case Study Vienna



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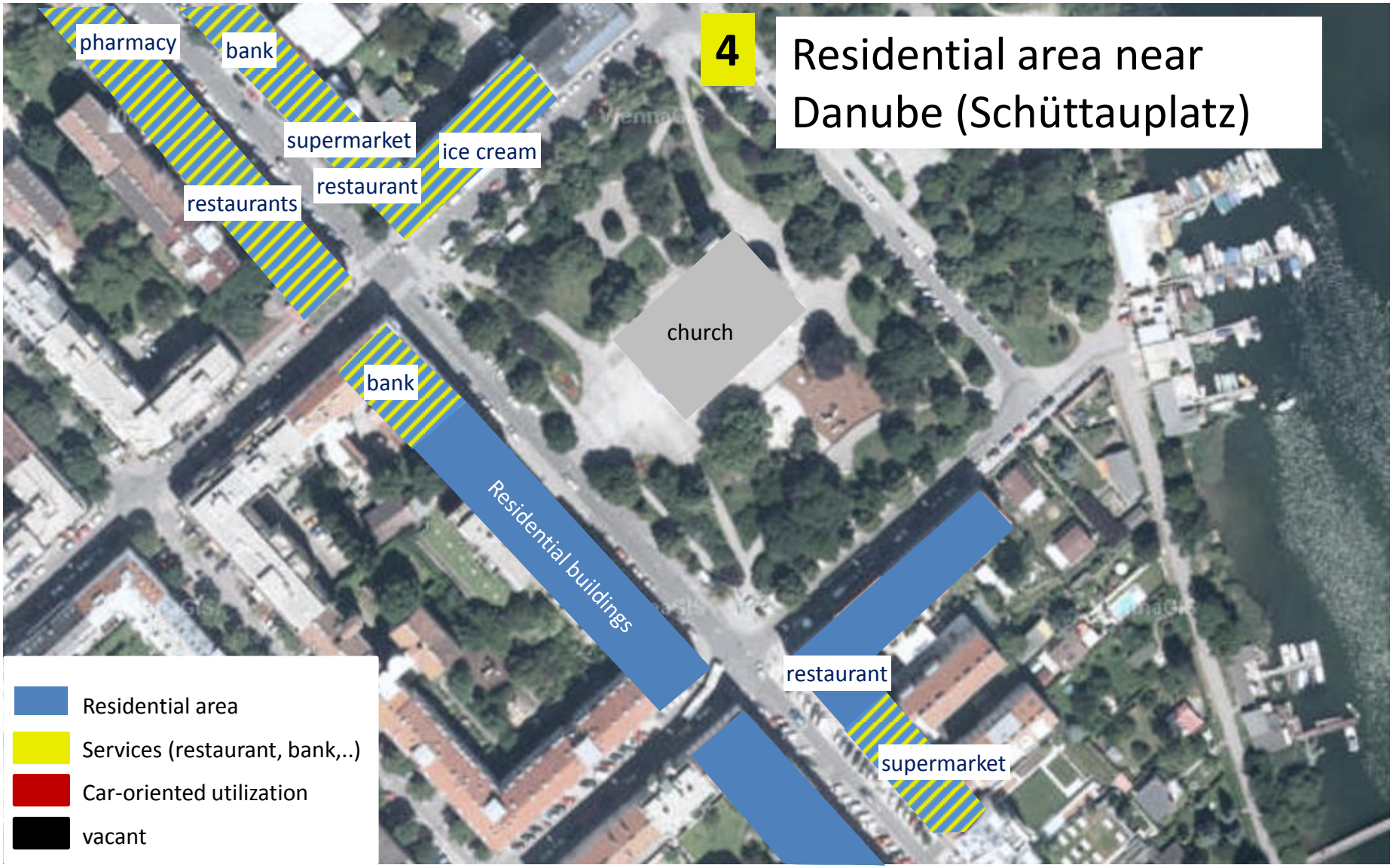
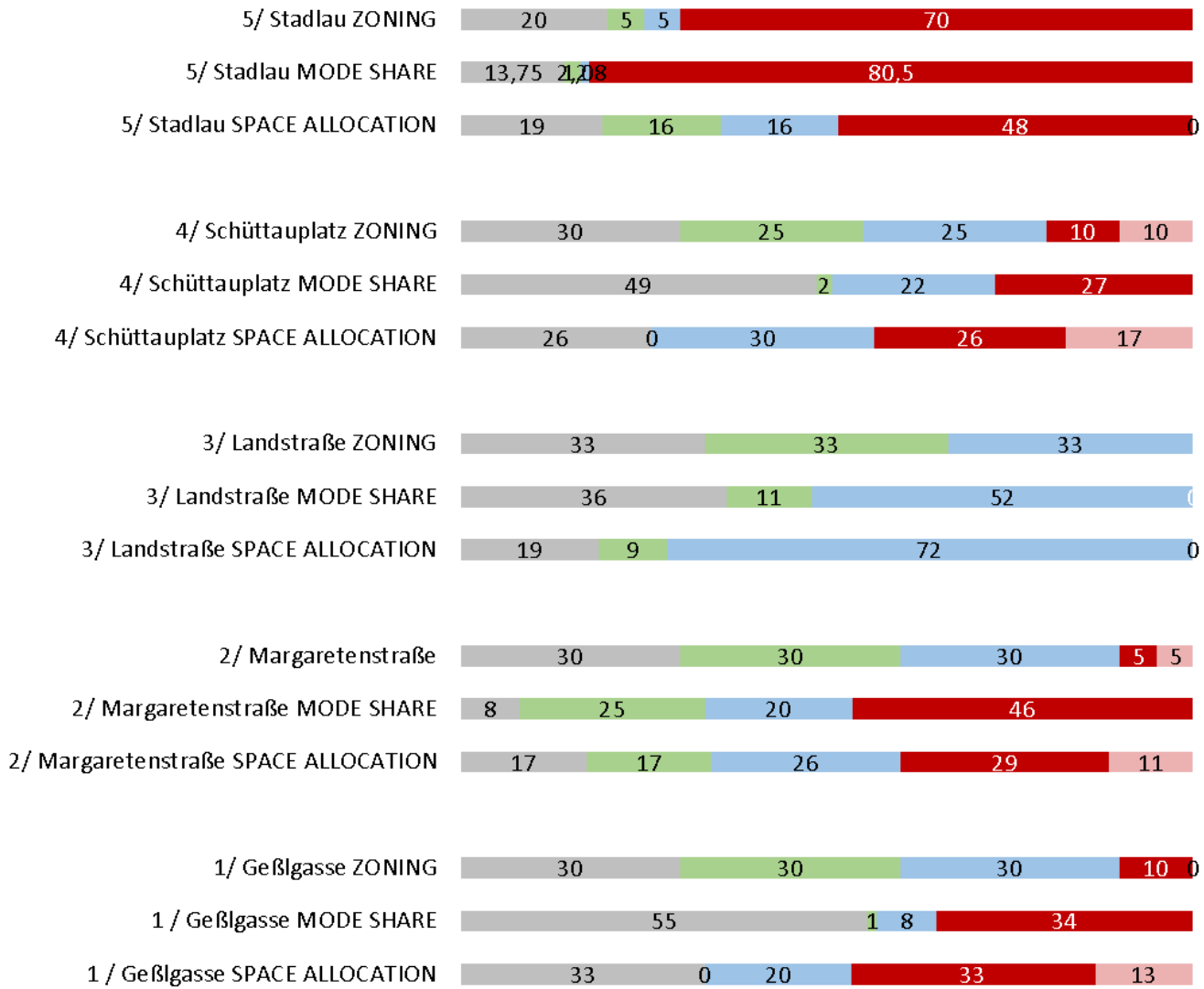


Case Study Vienna



>50%

Case Study Vienna

Indicators of resilient urban development (in process)

theme	indicator	1	2	3	4	5
Road/Street Mode Share	Cycling > 15%		X			
	Walking > 20%					
	Public Transport > 20%					
	Total >50%					
Road/Street Space Allocation	Cycling >15%		X			
	Walking >20%					
	Public transport > 20%					
	Total >50%					
Urban Fabric	Density > 100 inhabitants /ha		X			
	Mixed use		X			
transport infrastr.	Redundant, diverse		X	X	X	X
Green infrastructure					X	X

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Indicators of resilient urban development (in process)

theme	indicator	1	2	3	4	5
Bike Parking	No of bike parking spaces		X	X		
Car Parking	Number of car parking spaces					X
Social interaction	People interaction on street		X	X		
Social infrastructure	kindergarden, schools, pharmacy, health facilities		X			

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What is going on at the moment?

- Building code Vienna: reduction of mandatory car parking spaces (1 car parking space per 100 m² living space);

  -30% car paring for new living areas, minus 1/5 car parking for office/commercial areas
- Reduction of car parking spaces for new urban development areas (minus 90% permitted)
- Bike parking (1 per 30 m² living space recommended)
- Zoning category for subsidised housing

Case Study Vienna

What is going on at the moment?

- New urban development areas with collective garages
- Pop up stores, temporarily used buildings & spaces
- Cargo bikes & Street food , street kitchens

Case study Vienna

the liveable city

the robust city

the learning city

the prosperous city

Seestadt Aspern Slim House by PPAG Architects, der Standard.at (2015)