SMART CITY WIEN

ASCIMER

ASSESSING SMART CITY INITIATIVES FOR THE MEDITERRANEAN REGION

FACING THE CHALLENGES OF A NEW ERA: SMART CITY PROJECTS

16th and 17th of July, 2014

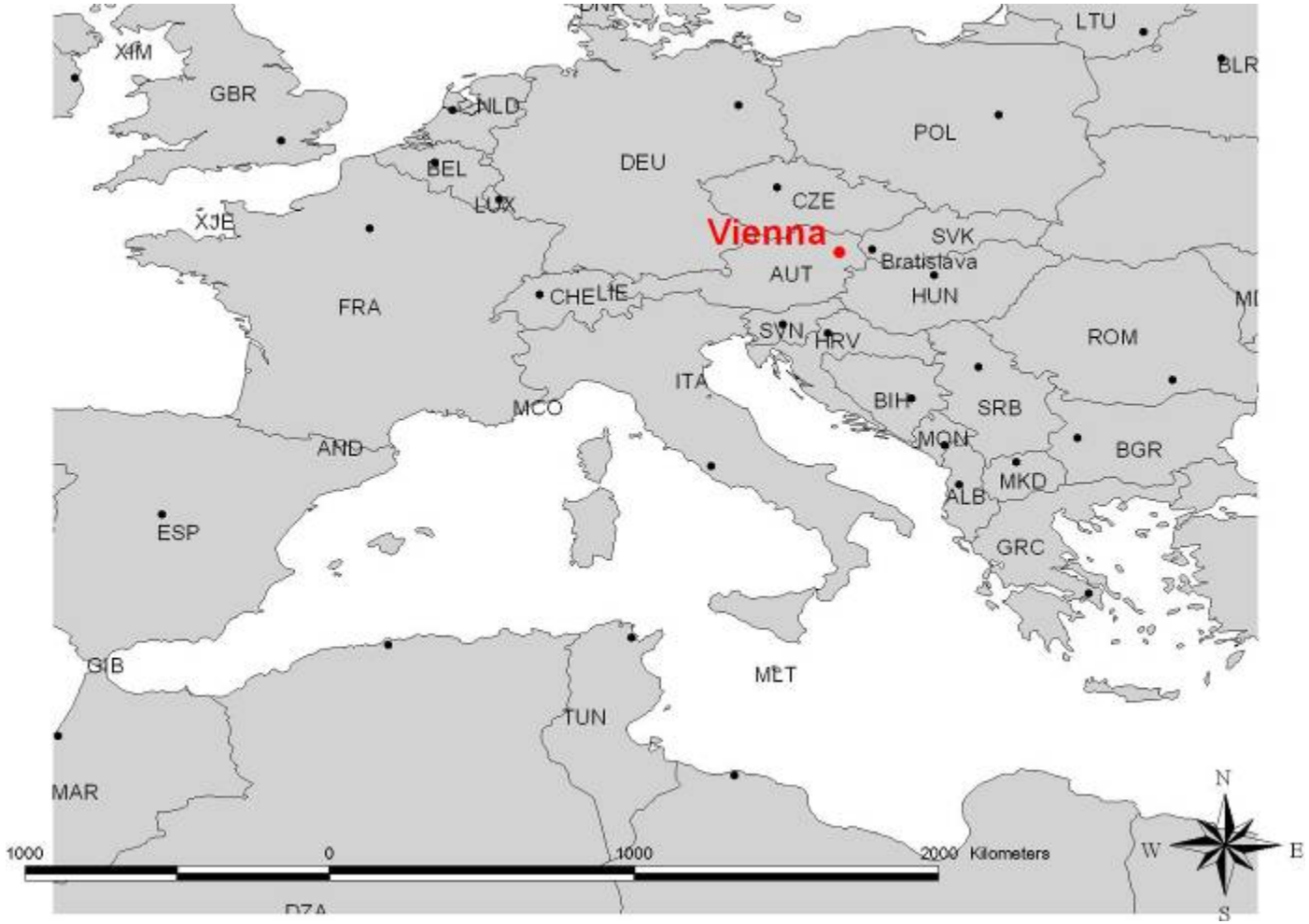
La Granja, Segovia

POLITÉCNICA

European Investment Bank · Institute

INTRODUCTION

- **Location city of Vienna**

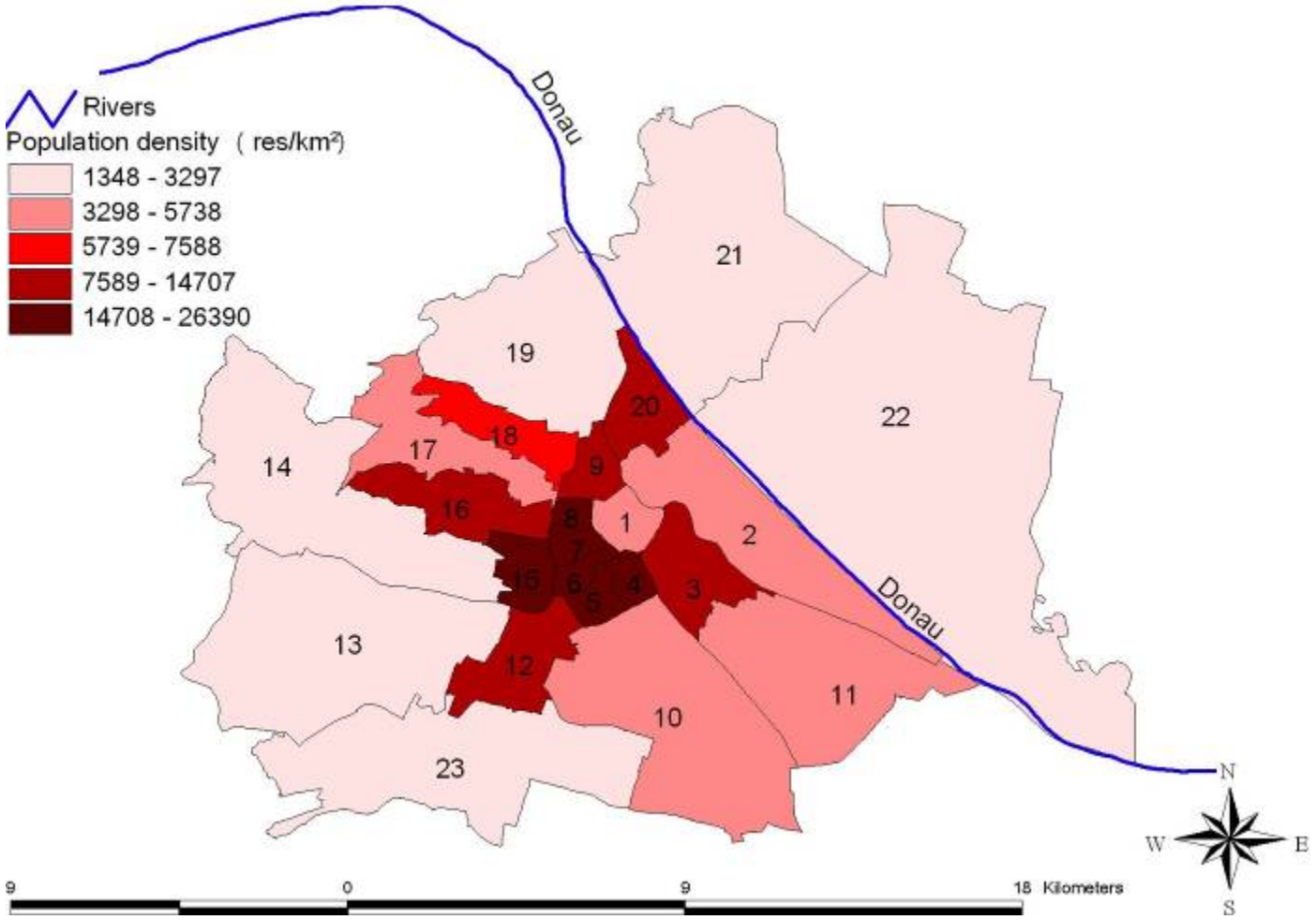


INTRODUCTION

- **Number of inhabitants (2012):** 1,741,246 persons
- **City extension:** 415 km²
- **Population density (2012):**
  - average 4,197 residents/km²
  - maximum 26,390 residents/km² district 5
  - minimum 1,348 residents/km² district 13
- **GDP per capita (2010) :** 44,300 € (Austrian average 34,100 €)
- **Employment rate (2012):** 55% (50% employed; 5% self employed)
- **Expenditure in R&D (2011):** 2,871 mio. € (Austria 8,276 mio. €)
- **Main economic activities (2010):** 82.6% tertiary sector
- **People at risk of poverty and social exclusion (2012):**
  - 31.6% (Austria 18.5%)
- **ICT baseline:**
  - Internet access household (2011): 76.8% (Austria 75.4%)
  - Mobile devices for internet access (2011): 33% smart phones, 29% mobile computers (Austria)

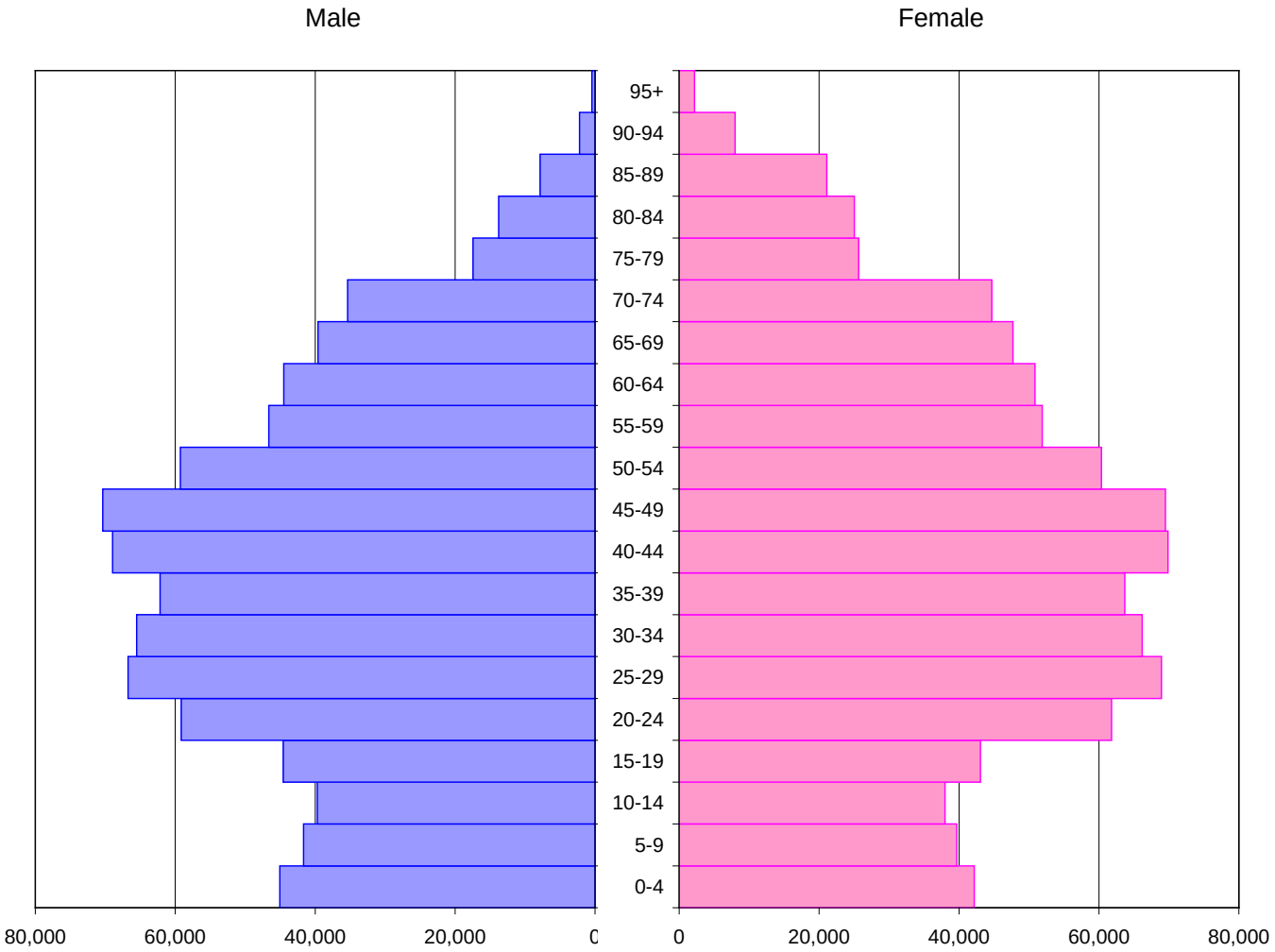
INTRODUCTION

- **Population density (2012):**



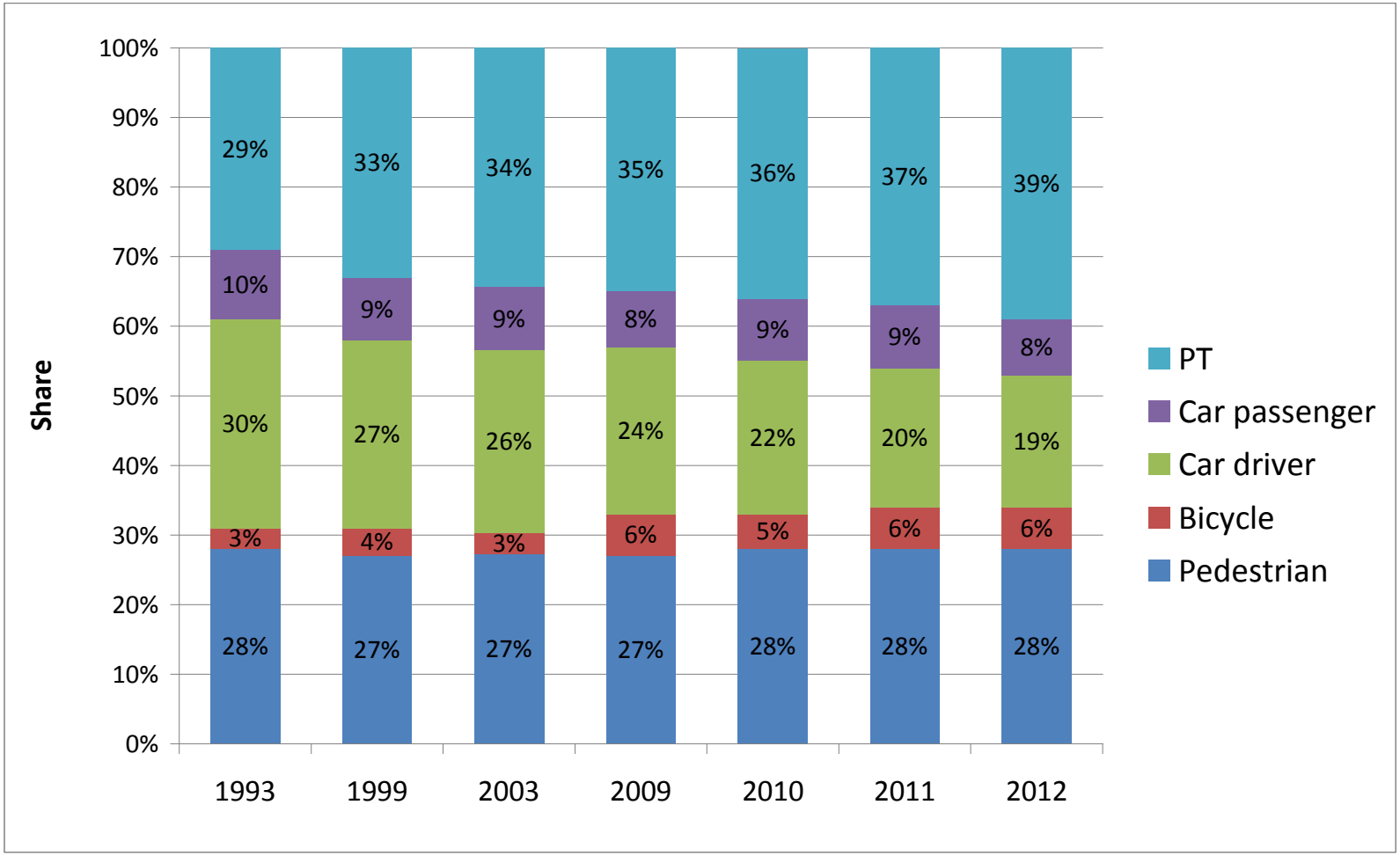
INTRODUCTION

- **Age pyramid (2011):**



INTRODUCTION

- **Transport system:**
  - Vienna defines itself as a “public transport city”.



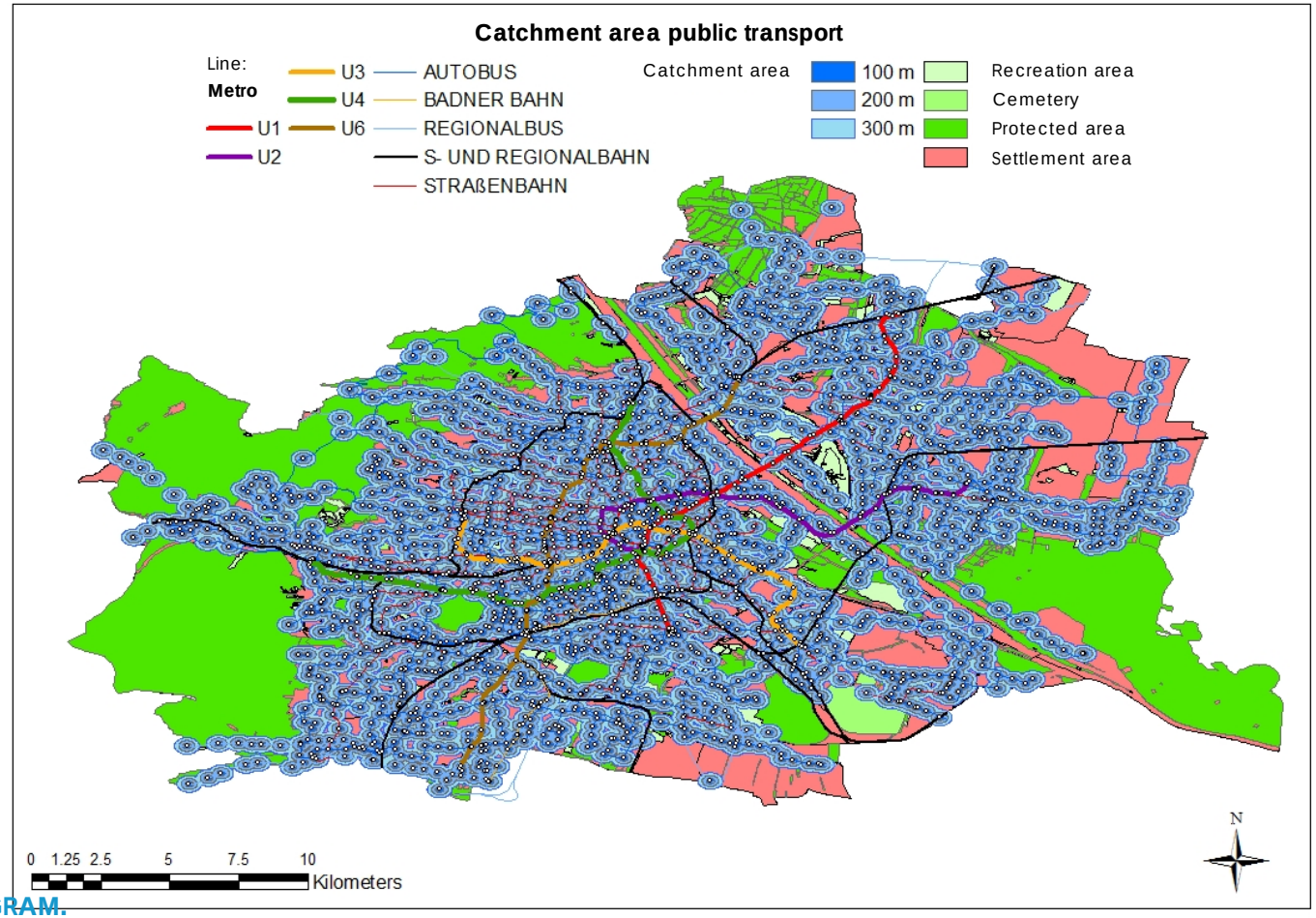
INTRODUCTION

- **Transport system:**
  - The utility company Wiener Linien operates 132 public transport lines with 4,783 stops (2012).
  - A season ticket for the whole Viennese public transport network costs 365 €/a (i.e. 1 €/d).

	Metro	Tramway	Bus
# Lines	5	29	98
# Stops	101	1,056	3,626
Length (km	74.2	221.5	717.3
10^9 place-km/a	11.8	4.1	2.4

INTRODUCTION

- **Transport system:**
  - Nearly all settlement areas in Vienna are within 300 m distance from the next public transport stop.



MAIN CITY CHALLENGES

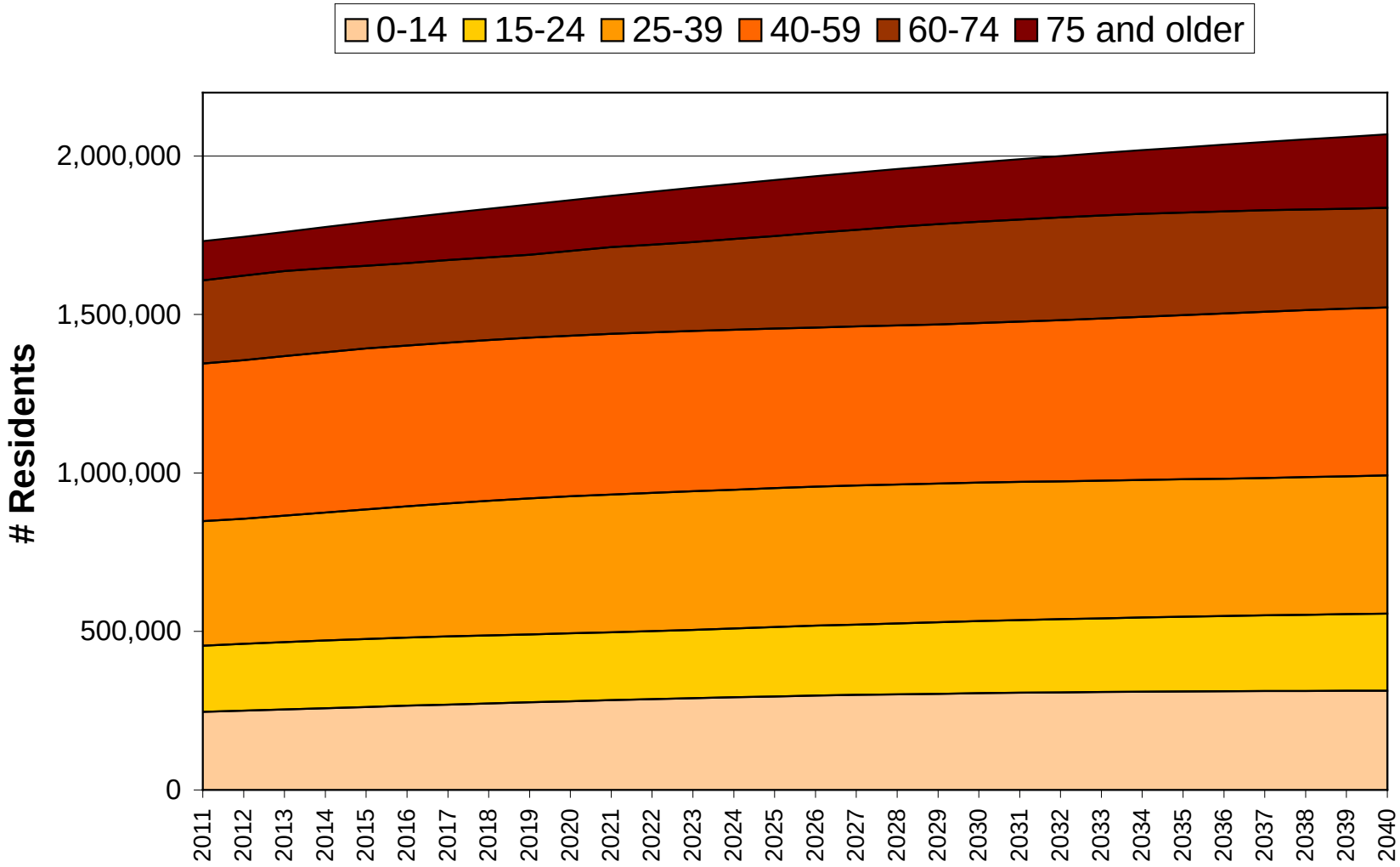
CHALLENGE	INDICATORS
Population growth	# residents, pop density
Ageing population	% of residents >74 years
Air pollution	Emissions: NO_X, PM, SO_2
GHG emissions	Emissions: CO_2
Scarcity of public space	Congestion, utilisation parking space

MAIN CITY CHALLENGES

- **Population growth and ageing population:**
  - The baseline of the official population forecasts predict that the Viennese population will grow from roughly 1.8 million residents in 2014 to about 2.1 million residents in 2040.
  - The predicted development from 2014 to 2040 corresponds to a growth of about 17% or 0.6% p.a.
  - The number of residents 75 years and older increases from about 130,000 in 2014 to about 232,000 in 2040.
  - This corresponds to a growth of about 80%.
  - The share of residents 75 years and older increases from about 7% in 2014 to about 11% in 2040.

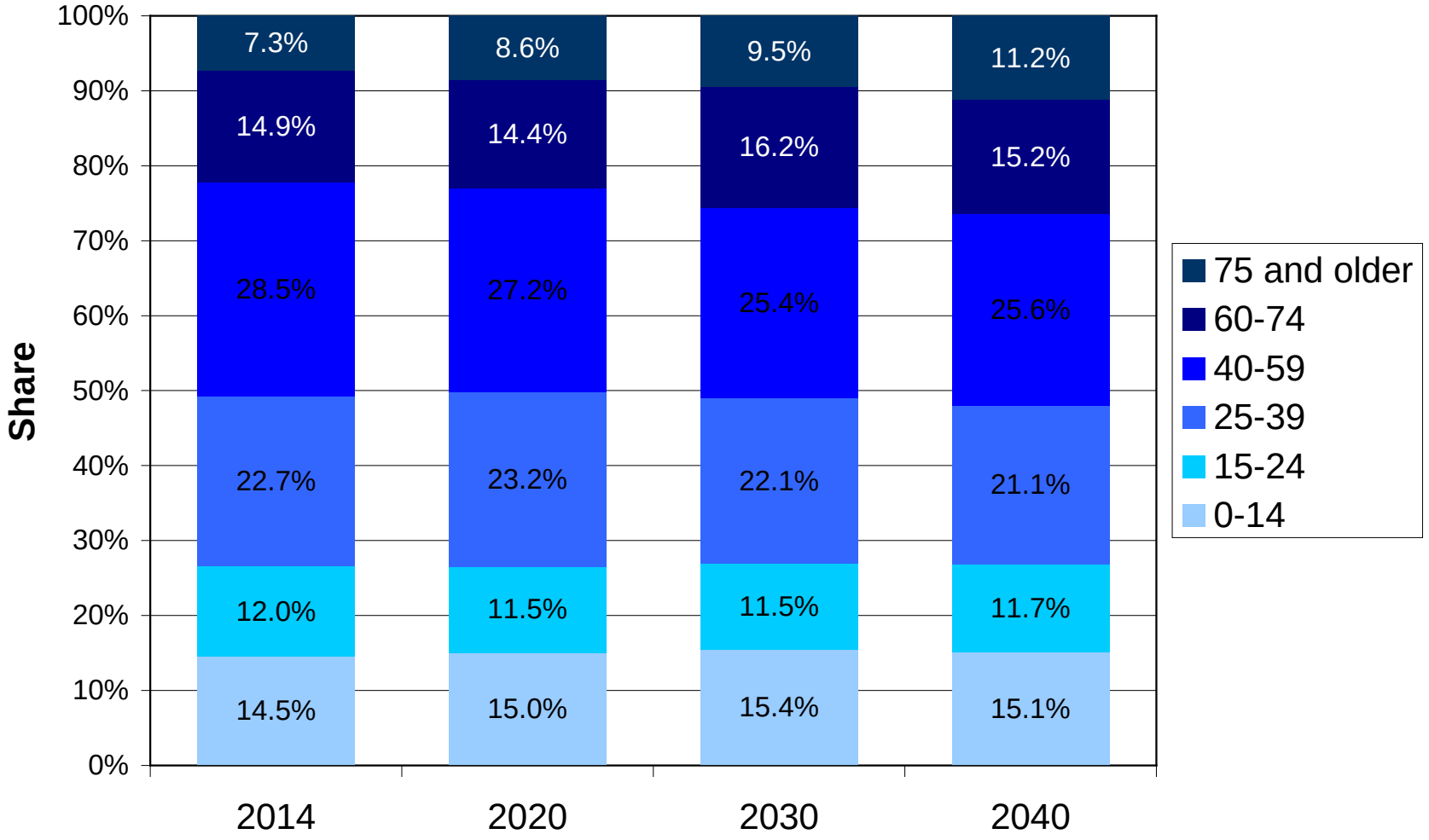
MAIN CITY CHALLENGES

- **Population growth**



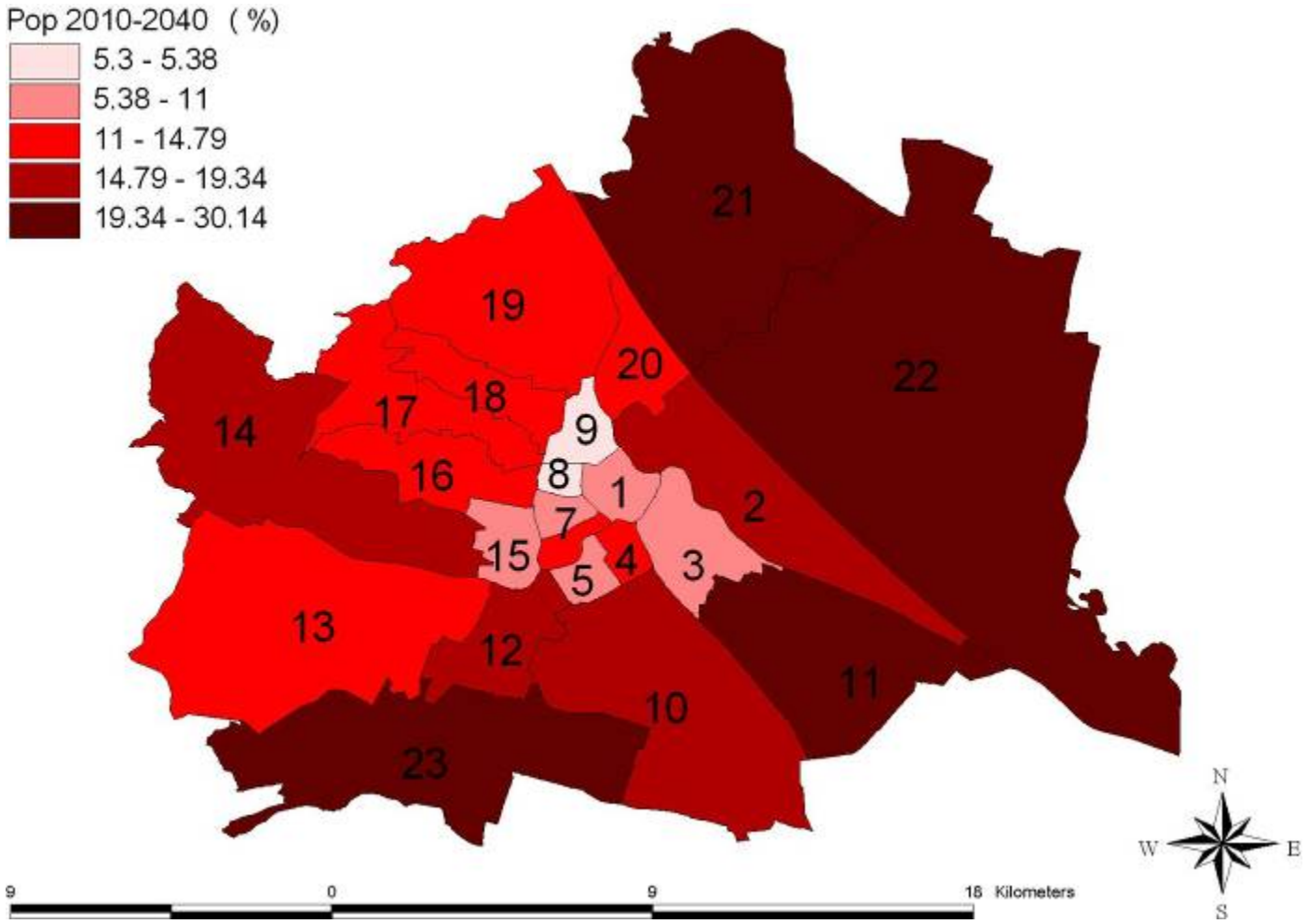
MAIN CITY CHALLENGES

- **Ageing population**



MAIN CITY CHALLENGES

- **Population growth 2010-2040:**



MAIN CITY CHALLENGES

- **Air pollution and GHG-emissions:**
  - Objectives of the city of Vienna
    - *The instances of exceeding the maximum NO_X limits at road intersections to be reduced to zero by 2020.*
      - Status 2006: 60
      - Status 2011: 7
    - *Yearly average NO_X emissions 30 µg/m³ by 2020.*
      - Status 2006: 74 µg/m³
      - Status 2011: 58 µg/m³
    - *5% reduction in traffic-caused CO2 per capita by 2010, i.e. 1.11 t/capita (Klip I).*
      - Status 2006: 1.4 t/capita
      - Status 2011: 1.3 t/capita
    - 21% reduction in all-cause CO2 per capita by 2020 relative to 1990 *(Klip II)*.

MAIN CITY CHALLENGES

- **Scarcity of public space:**
  - Like in any other (European) city space is a scarce resource in Vienna.
  - The preference of many people for the least space efficient mode of transport results in congestion and overcrowded public parking spaces.

SMART CITY PROJECTS

- **Smart City Wien:**
  - In 2011 the initiative “Smart City Wien – The City for Life” was launched by the Viennese city government.
  - The initiative is a follow up of a project with the same name funded by the Austrian Climate and Energy Fund as part of the “Smart Energy Demo – FIT for SET”.
  - Information about the initiative could be found at https://smartcity.wien.at/site/en/.

SMART CITY PROJECTS

- **Mission:**
  - *Smart City Vienna is a long-term initiative by the city of Vienna to improve the design, development and perception of the federal capital. Smart City Vienna looks at a cross-section of the city, covering all areas of life, work and leisure activities in equal measure, and includes everything from infrastructure, energy and mobility to all aspects of urban development.*
  - *Smart City Vienna has set itself the task of consistently and continuously modernising the city in order to reduce energy consumption and emissions significantly without having to forego any aspects of consumption or mobility. Smart City Vienna stands for the "intelligent city", intelligent and innovative solutions, responsible and sustainable use of resources.*
  - *Smart City Vienna brings together the issues of the future for the city of Vienna, provides them with a common context and offers all of the protagonists a shared platform – to this extent, Smart City Vienna is THE big issue for the future of the city of Vienna.*

Source: https://smartcity.wien.at/site/en/

SMART CITY PROJECTS

- **Objectives (1):**
  - *Significantly reducing emissions (CO2, greenhouse gases,…) and, as a result, achieving EU climate protection targets. Long-term objective: a zero emission city, zero emission buildings as standard*
  - *Significantly reducing energy consumption. Long-term objective: reaching close-to-zero energy standards in new and existing buildings by 2020*
  - *Significantly increasing the use of renewable sources of energy (e.g. in public buildings)*
  - *Raising awareness in the wider public about responsible use of resources (energy, water)*

Source: https://smartcity.wien.at/site/en/

- **Objectives (2):**
  - *Giving citizens (from consumers to prosumers) an active role by providing opportunities for actively controlling additional areas of daily life*
  - *Promoting multi-modal transport systems by improving the public transport network, enhancing networking between individual transport carriers, and significantly reducing individual motorised transport*
  - *Positioning Vienna as a model European environmental city and as a leading European centre for research and technological development at an international level*

Source: https://smartcity.wien.at/site/en/

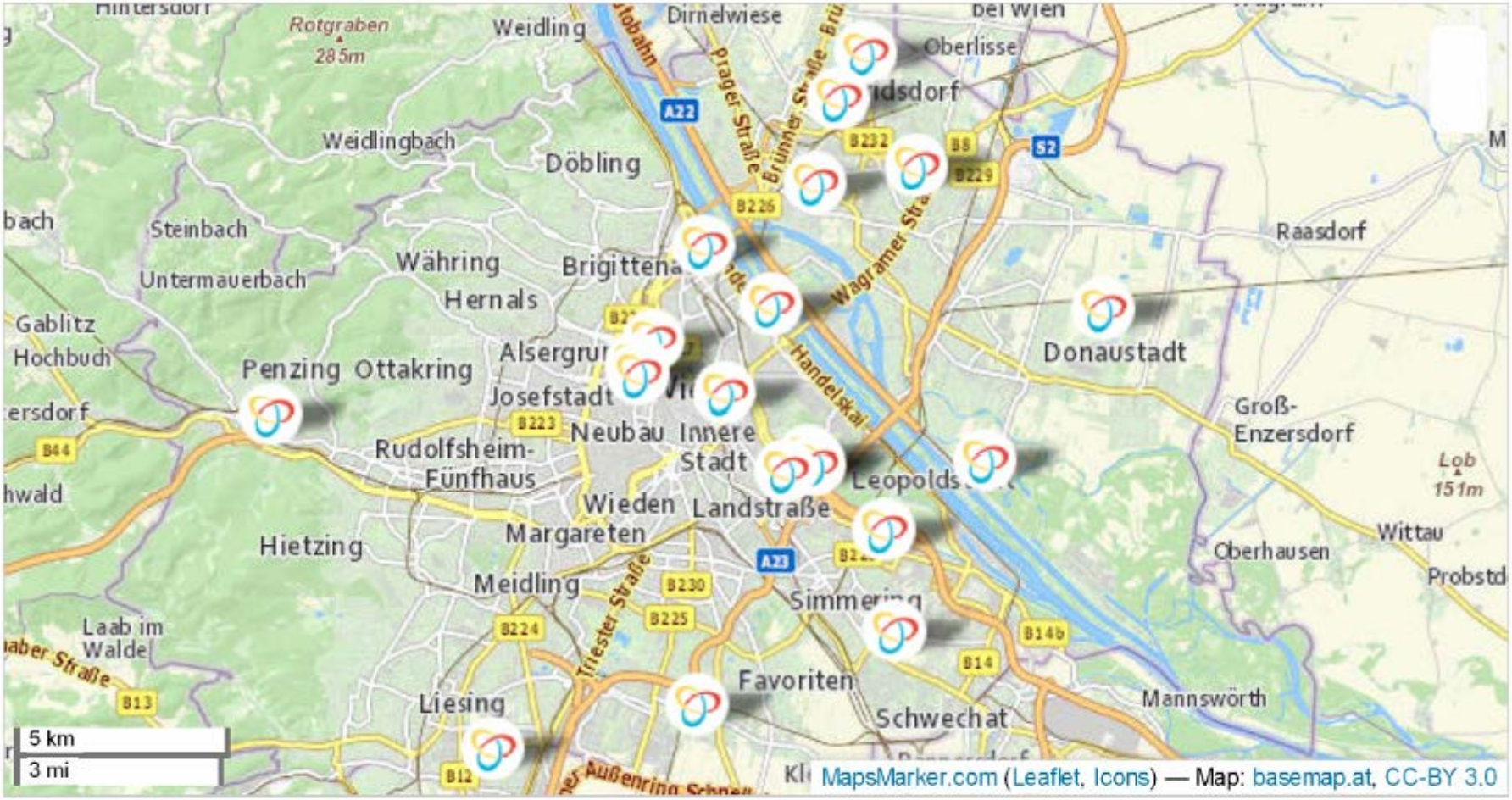
SMART CITY PROJECTS

- **Strategy:**
  - *Specifically Smart City Vienna describes the development of a city based on:*
    - *radical protection of resources*
    - *holistic perspectives*
    - *a high, socially fair quality of life*
    - *productive use of innovations/new technology*
  - At the moment 14 projects in 6 domains:
    - Education & Research
    - Building Activity & Living
    - Transportation & Urban Planning
    - Environment & Climate Protection
    - People & Society
    - Politics & Administration/ ICT

Source: https://smartcity.wien.at/site/en/

SMART CITY PROJECTS

- **Projects overview:**



SMART CITY PROJECTS

- **Projects (1):**
  - Education & Research:
    - Marxbox: Austria's First "Green" Laboratory Building; www.neumarx.at/
    - CLUE (Climate Neutral Urban Districts in Europe): project of the INTERREG IV C programme; www.clue-project.eu/
    - TRANSFORM (TRANSFORMation Agenda for Low Carbon Cities): EU project; http://urbantransform.eu/
      - TRANSFORM+: national project, concrete pilot projects; www.transform-plus.at
  - Building Activity & Living:
    - aspern Vienna's Urban Lakeside: largest urban extension project in Vienna; www.aspern-seestadt.at/
    - Marxbox: Austria's First "Green" Laboratory Building
    - Car-free Living: pilot project car free housing in Floridsdorf
    - Bike City: development project focusing on bicycle infrastructure

Source: https://smartcity.wien.at/site/en/

SMART CITY PROJECTS

- **Projects (2):**
  - Transportation & Urban Planning:
    - Energy-saving Tram: trial of a prototype for energy-saving trams
    - aspern Vienna's Urban Lakeside: largest urban extension project in Vienna; www.aspern-seestadt.at/
    - Urban Development Plan 2025 (STEP): www.wien.gv.at/stadtentwicklung/strategien/step/step2025/
    - SMILE (Smart Mobility Info and Ticketing System Leading the Way for Effective E-Mobility Services): national project, prototype of a multi-modal mobility platform; http://smile-einfachmobil.at/
    - e-mobility on demand: Viennese e-mobility model region, funded by the Austrian Climate Fund; www.wienermodellregion.at/

Source: https://smartcity.wien.at/site/en/

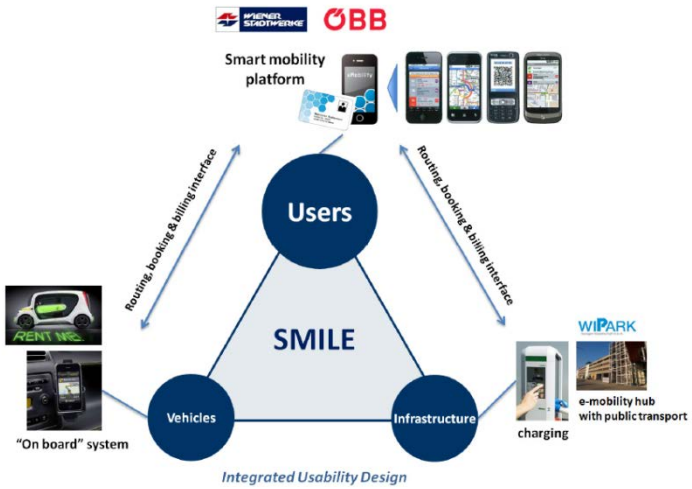
SMART CITY PROJECTS

- **Projects (3):**
  - Environment & Climate Protection:
    - EcoBuy Vienna (ÖkoBusinessPlan Wien): making procurement activities in Vienna and its affiliated enterprises more ecologically sustainable
    - Citizens' Solar Power Plants: community-funded solar power plants
    - INNOSPIRIT (Enabling and Capitalising of Urban Technologies): EU European Regional Development Fund
  - People & Society:
    - Citizens' Solar Power Plants: community-funded solar power plants
  - Politics & Administration/ ICT:
    - Open Government Data

Source: https://smartcity.wien.at/site/en/

SMART CITY PROJECTS

- **SMILE (Smart Mobility Info and Ticketing System Leading the Way for Effective E-Mobility Services):**
  - develop and test a prototype of an integrated, multi-modal information, booking and payment system, linking individual e-mobility services with those of public transport;
  - uniform usability and with a consistent guidance system - virtual and on-site
  - standardized interfaces will allow and facilitate other mobility provider access to the system (car sharing, e-bike, parking lots, charging stations etc.)
  - testing with pilot users in the e-mobility model region Vienna

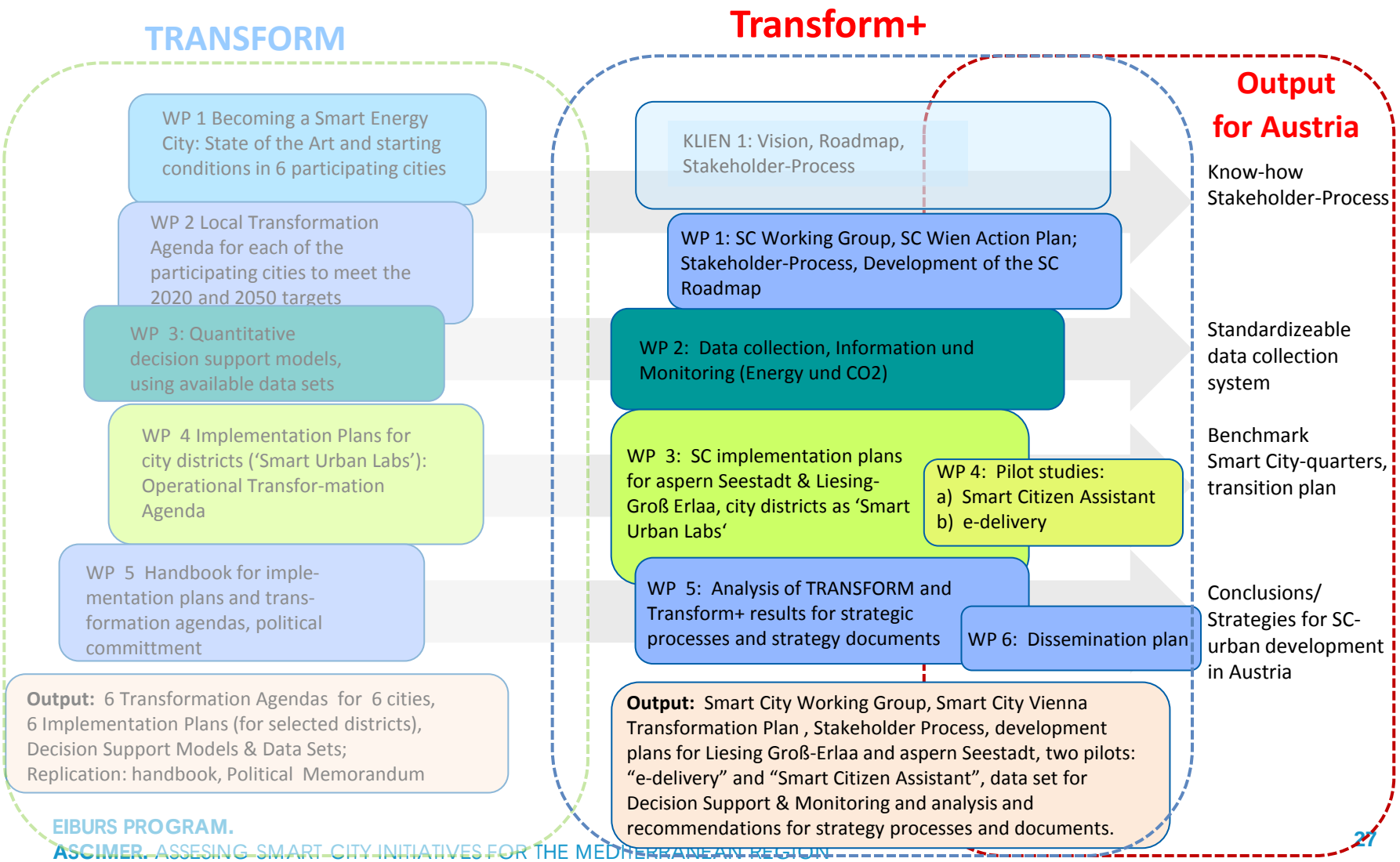


SMART CITY PROJECTS

- **TRANSFORM+:**
  - The project is funded by the Austrian Climate and Energy Fund (Klima- und Energiefonds) within its program „Smart Cities - FIT for SET“.
  - Project partners include the whole spectrum from different departments of the Viennese city administration, technology companies, industry, private and public research organisations, etc.
  - The objective of TRANSFORM+ is to develop a concrete and comprehensive smart city transition concept.
  - Project results are:
    - a Smart City Working Group within the city administration,
    - a Smart City Wien Transformation Plan and a Stakeholder Process,
    - development plans for Liesing Groß-Erlaa and aspern Seestadt,
    - two pilots: “e-delivery” and “Smart Citizen Assistant”,
    - a data set for Decision Support & Monitoring and
    - analysis and recommendations for strategy processes and documents.

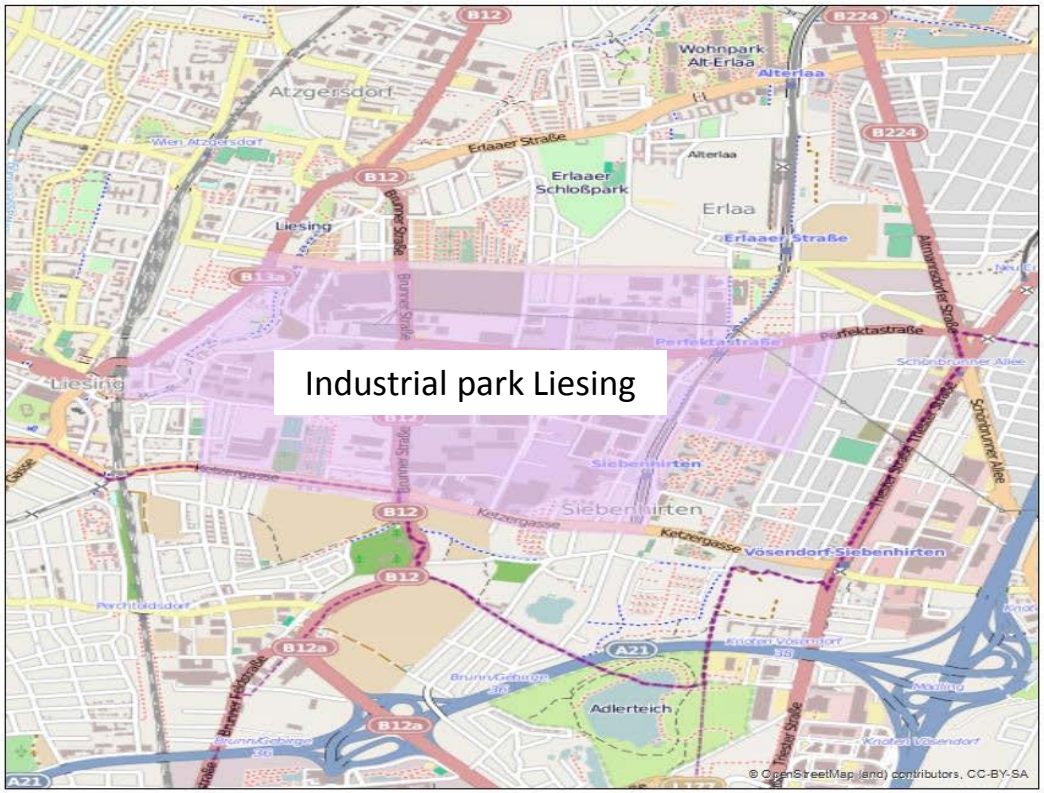
SMART CITY PROJECTS

- **TRANSFORM+:**



SMART CITY PROJECTS

- **TRANSFORM+ pilot study "e-delivery industrial park Liesing"**
  - The objective is to organise a trial operation of an e-delivery system based on the shared use of commercial e-vehicles.



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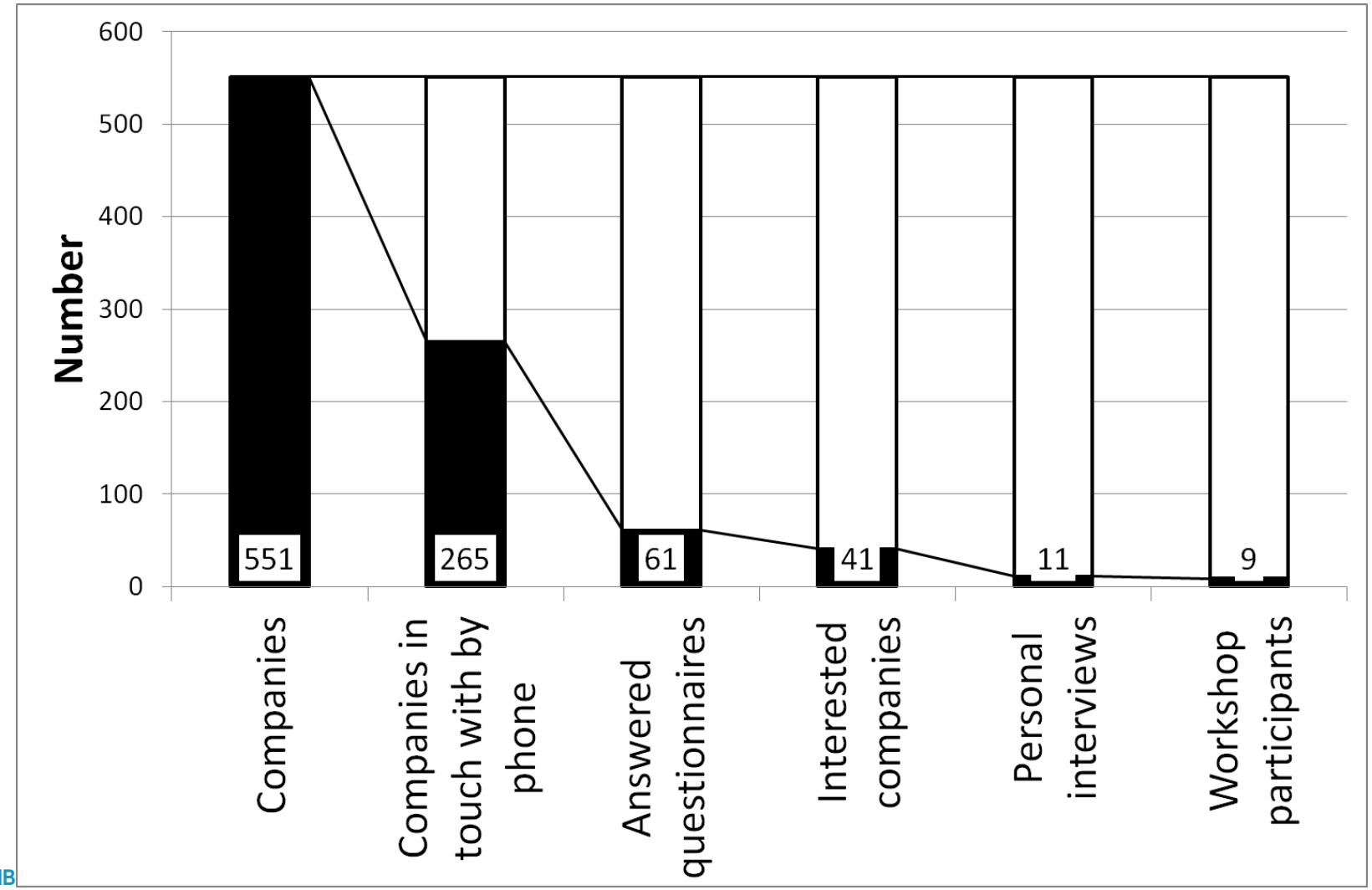

- **TRANSFORM+ pilot study "e-delivery industrial park Liesing"**
  - One logistic company is interested to set up an e-courier service.
  - The company is in principle willing to provide its future e-cars for a shared use by other companies at the industrial park Liesing.
  - There exists a platform for organising car clubs which might be feasible for or organising the shared use:
    - CARUSO: https://carusocarsharing.com/

e-vehicle supplier	potential e-vehicle users	Internal shared use of e-vehicles
1	6	3