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# Challenges and Answers: The Berlin Transport Strategy

19 June 2013 | Dr. Friedemann Kunst

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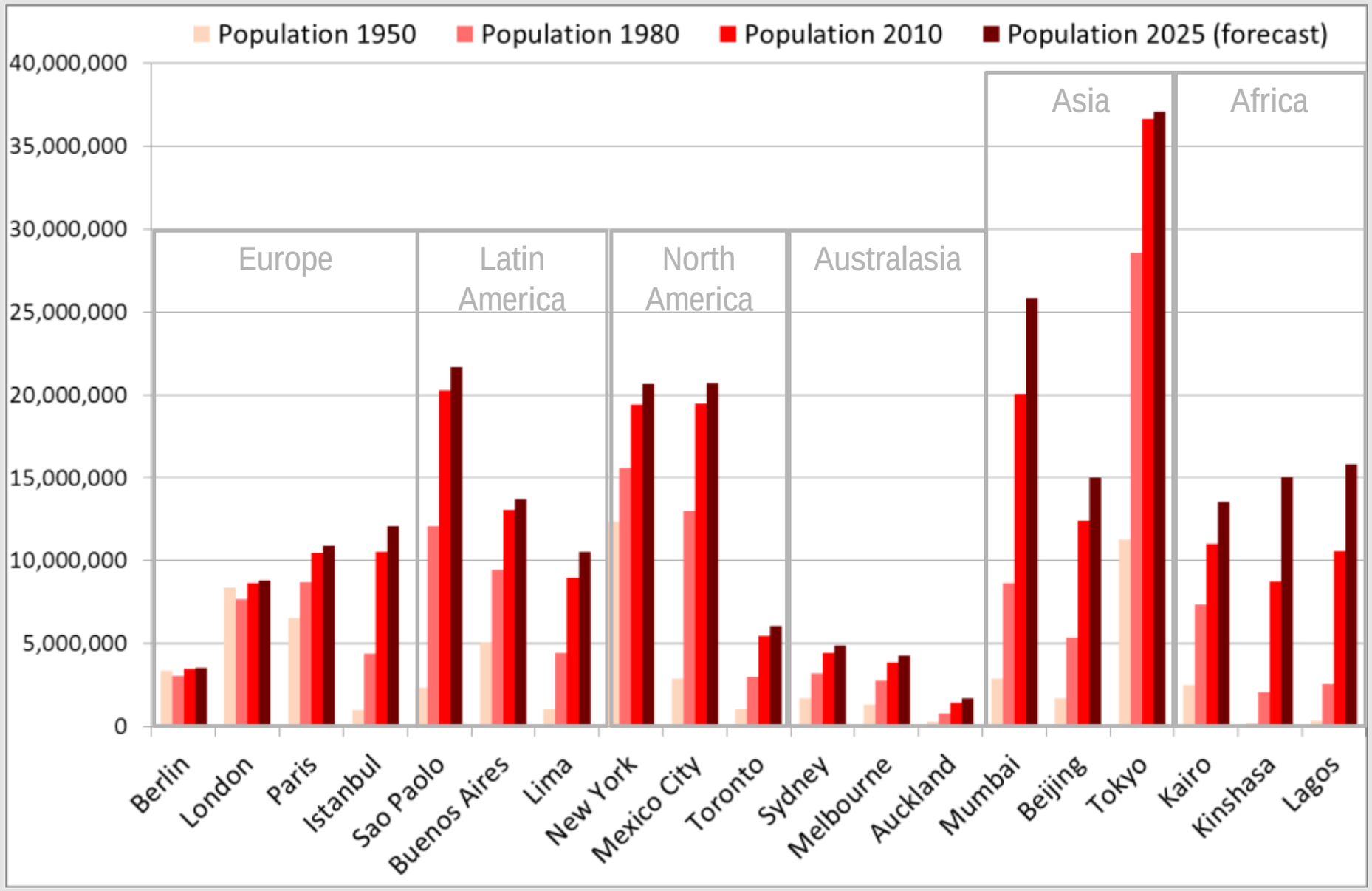
# Urban Population Growth – An Overview




Population Growth 1950 – 2010 and 2025 (forecast) in selected metropolises

Source of data: United Nations Department of Economic and Social Affairs: "World Urbanization Prospects: The 2009 Revision"

Age of Urbanisation:

Emerging megacities in Asia and Africa
'Western Cities' more consolidated than dynamic
Berlin: different scale of size and growth

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# Differences and Similarities...

| Berlin | Kinshasa |
|---|---|
| Beijing | New York |

- Different growth dynamics and expectations
- Similar needs for action
  - road traffic growth
  - traffic jams
  - decline of accessibility
  - environmental burden
  - road accidents
  - etc.

| © dpa | Skyscrapercity |
|---|---|
| AP/pbp | New York Times |

Same Picture(s) Everywhere:

- Increasing concerns about consequences of motorisation and road traffic, i.e. safety, the environment, costs ...
- Similarities in need for action

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# The „Golden Age“ of Sustainable Urban Mobility

## Urban Development follows transport development

- Residential and industrial areas developed along rail axes resulting in star-shaped structure
- Until 1920s rapid growth of the city in conjunction with the rail-bound transport systems, e.g.:
- Picture below: sign „Building lots for sale“ at Reichskanzlerplatz (today Theodor-Heuss-Platz) 1 year after underground station was opened

Photograph: Waldemar Titzenthaler (1869-1937)

The Past: Urban and transport development went hand in hand
Public transport network as a recognised precondition for industrialisation

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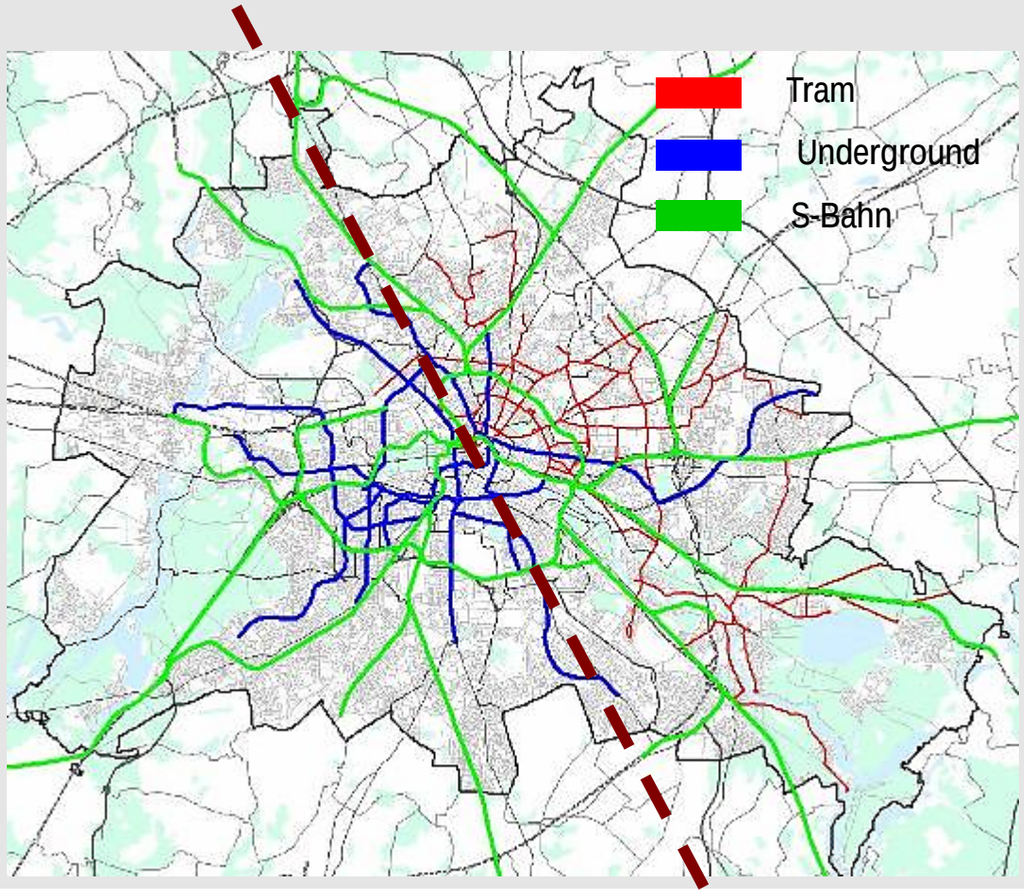
# Separation of the City 1948 - 1989: Separation of Mobility


Western Part:
- Destruction of Tram System
- Investments in underground system
- Introduction of a ring road network

Eastern Part:
- Radial roads leading into city centre east
- Tram as a backbone for public transport
- Very low motorisation

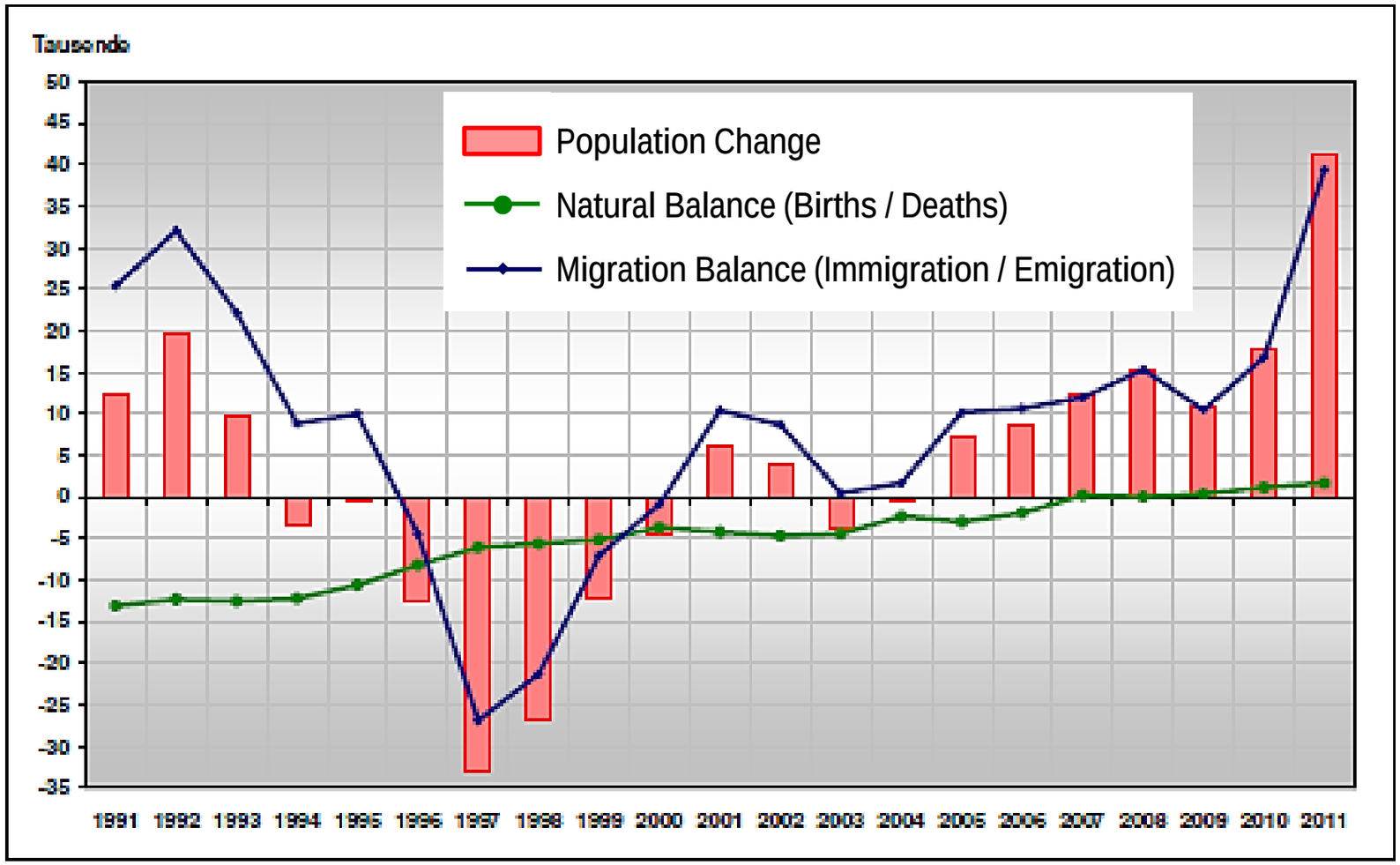
Fate of a separated city:
- Most connections between the eastern and western part of the city were cut
- Urban and transport planning politically motivated
- Development of (later) partly conflicting structures




**Berlin Divided:** Interruption of “regular” urban development for 40 years
Creation of specific conditions that affect Berlin’s mobility even today

# 1990s: Reunification and its effects

## Population Development Berlin 1991 - 2011




Early 1990s: „catch-up“ developments

- Suburbanisation for the first time in East and West Berlin - albeit to a lower degree than in other European cities
- Increasing motorisation but: people in Berlin had been used to living a car-free life – motorisation remains low compared to other cities

The United Berlin: „Catching up“ to European urban and transport trends
Population losses and motorisation increases
Turn of the century lead to transformation of trends

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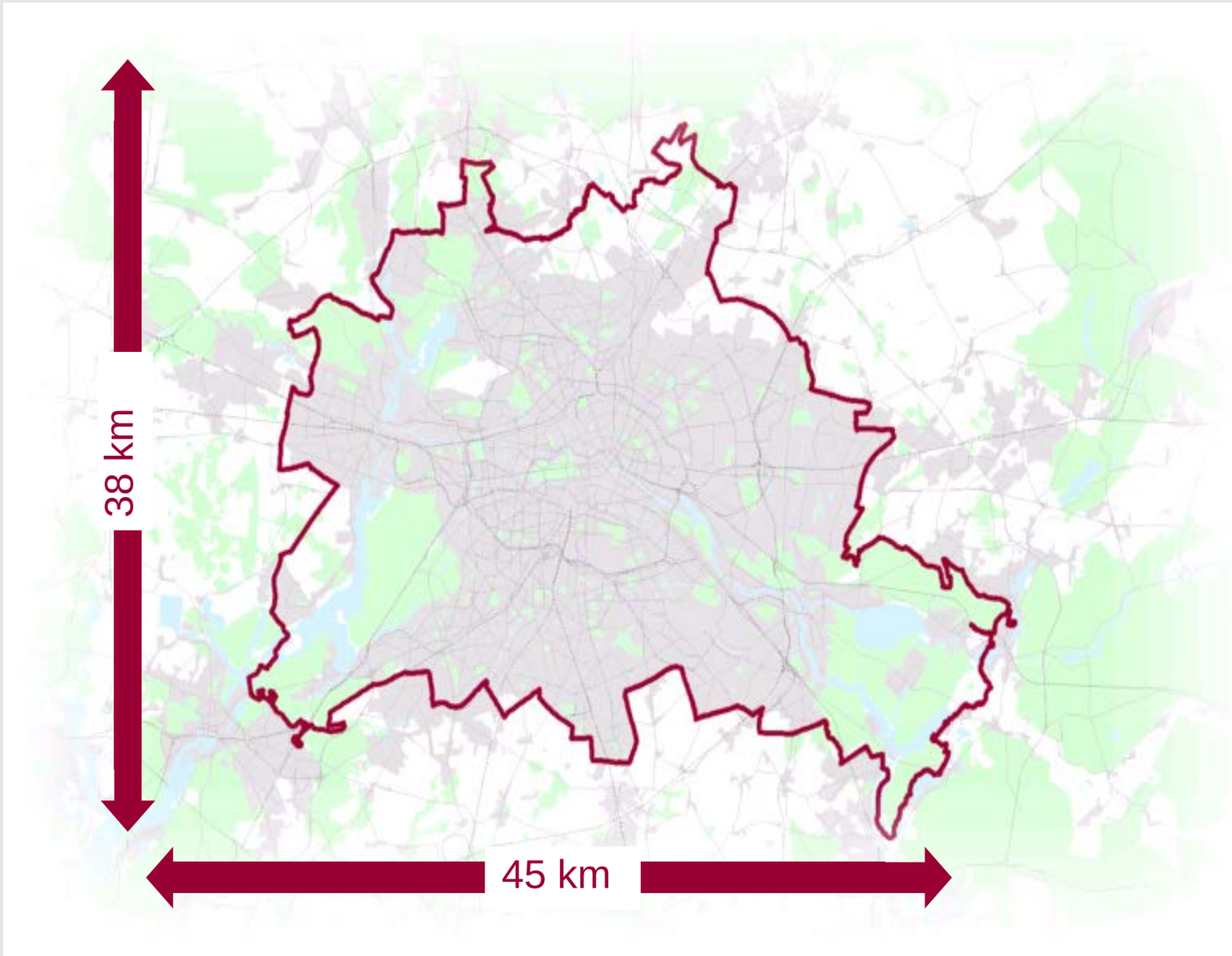
# Berlin – Structural Data




- Area: 892 km²*
- Inhabitants: 3,543,676 *
- Number Employed: 1,759,200*
- Unemployment Rate: 12.3%*
- Motorisation: 324 cars/1,000 inh. **
- 45% Carfree Households**

*Amt für Statistik Berlin-Brandenburg. Stand 2012
** SrV 2008

Metropolis Berlin:

Biggest city in Germany by far
Small, compared to other (i.e. Asian) cities
Both, city and a federal state

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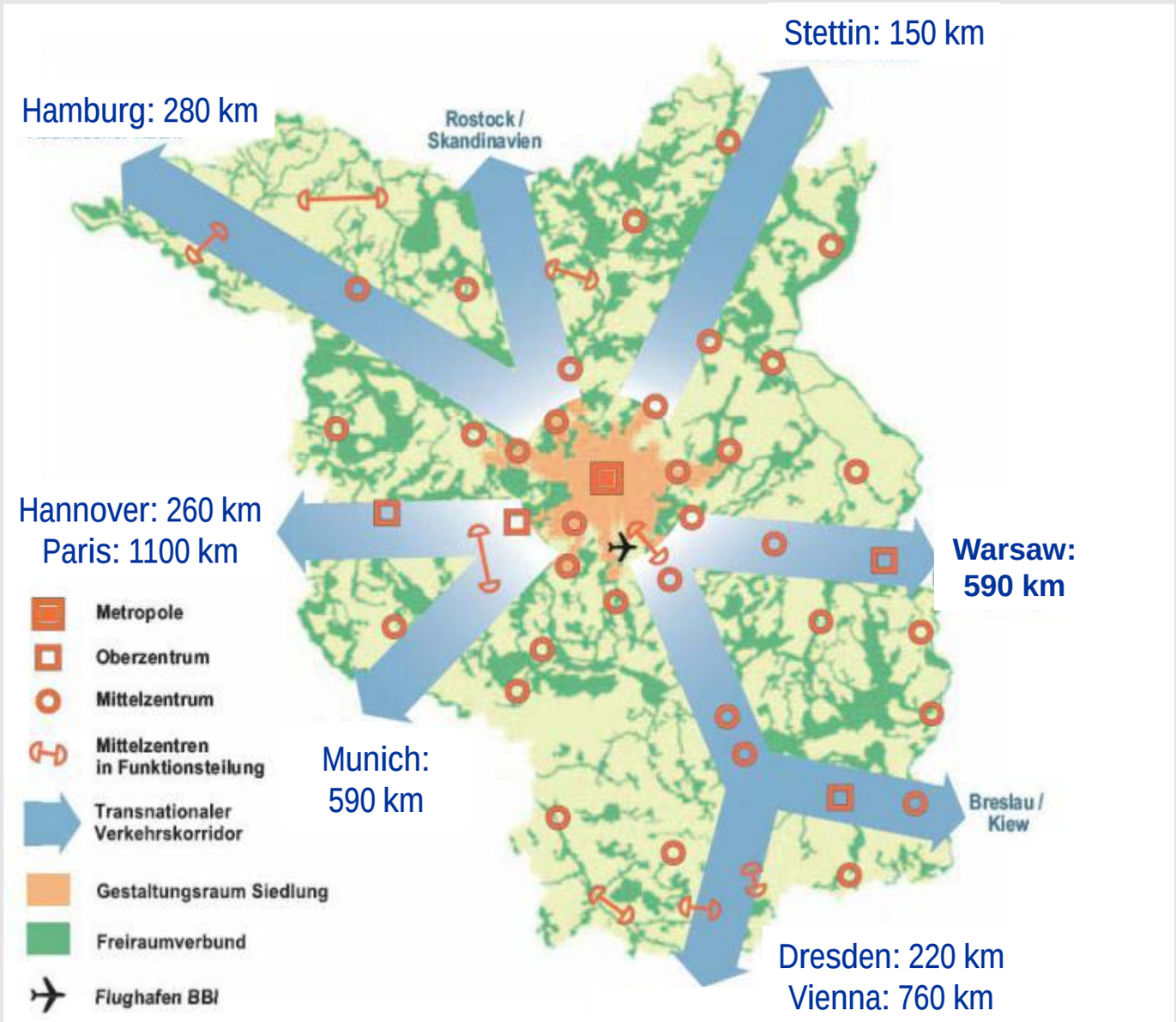
# A Solitaire in the Region




- Berlin is located in the middle of Europe, but somewhat detached from other agglomerations
- Closest big city is in a different country (Stettin in Poland)
- Need to build up strategic co-operations and make use of location potentials

International Links: Berlin is well embedded in transnational corridors
Direct (rail) links to neighbouring country Poland still need improvement

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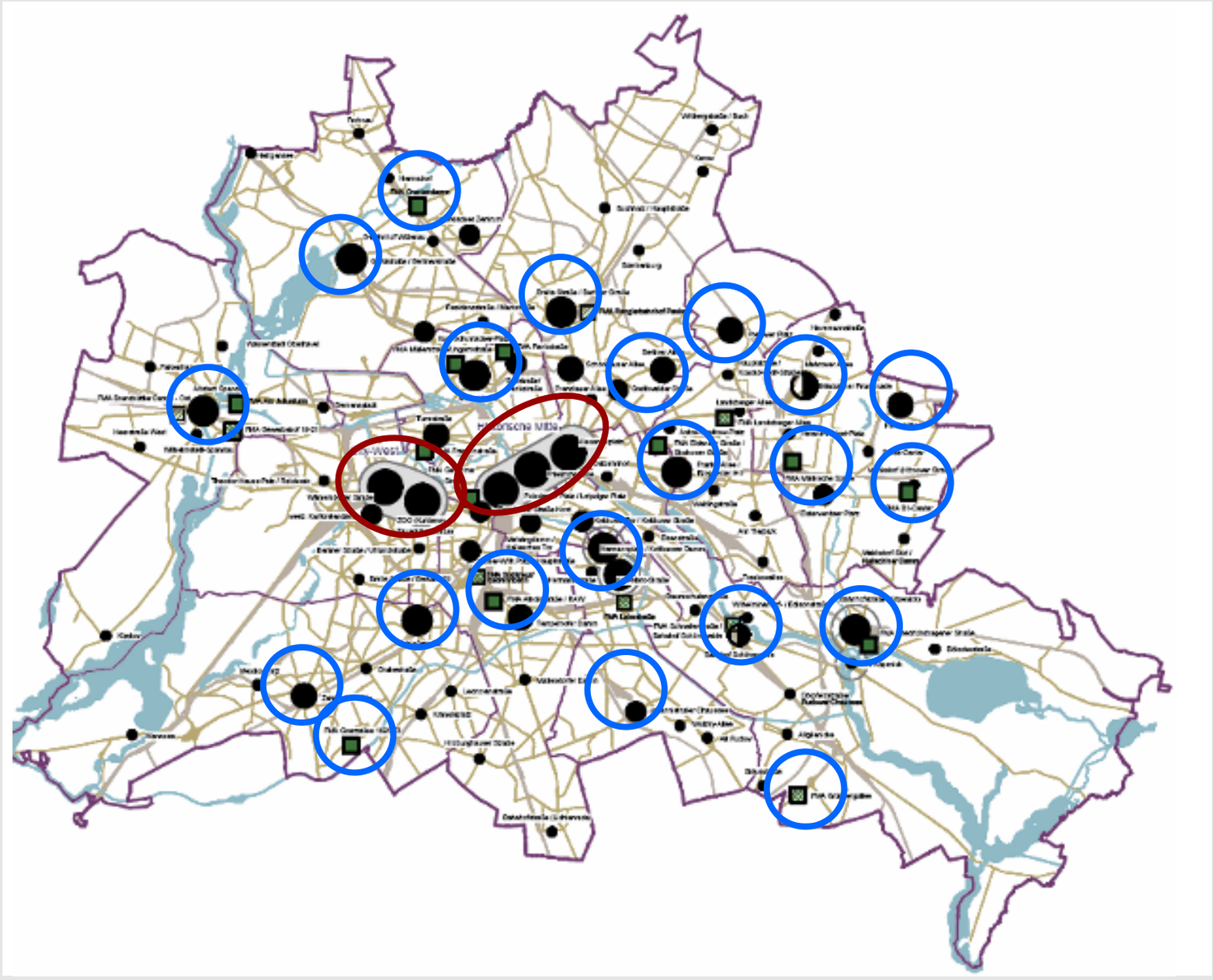
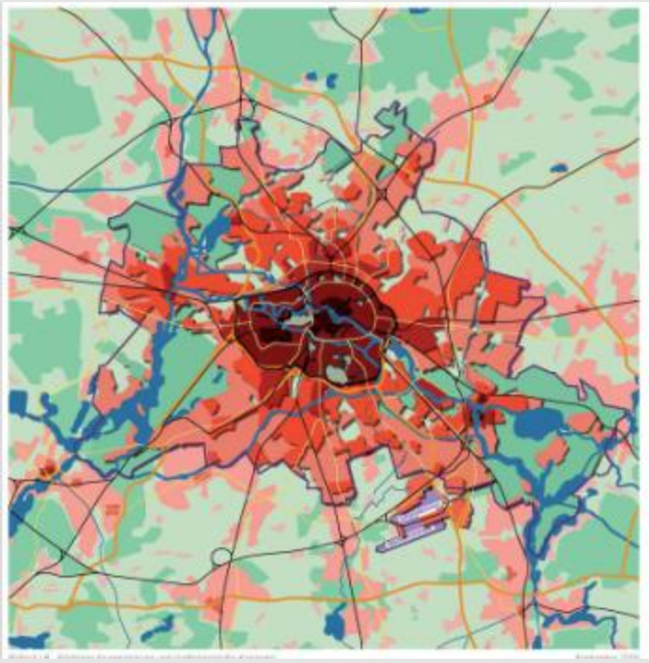
# Berlin – Spatial Structure



## Star-Shaped Polycentric City

Main Centres: City West and Historical Centre (East)

Numerous local and district centres



Favourable Conditions:

Urban diversity and mix of functions
Short trips and no car dependency
Easy use of public transport, cycling, walking

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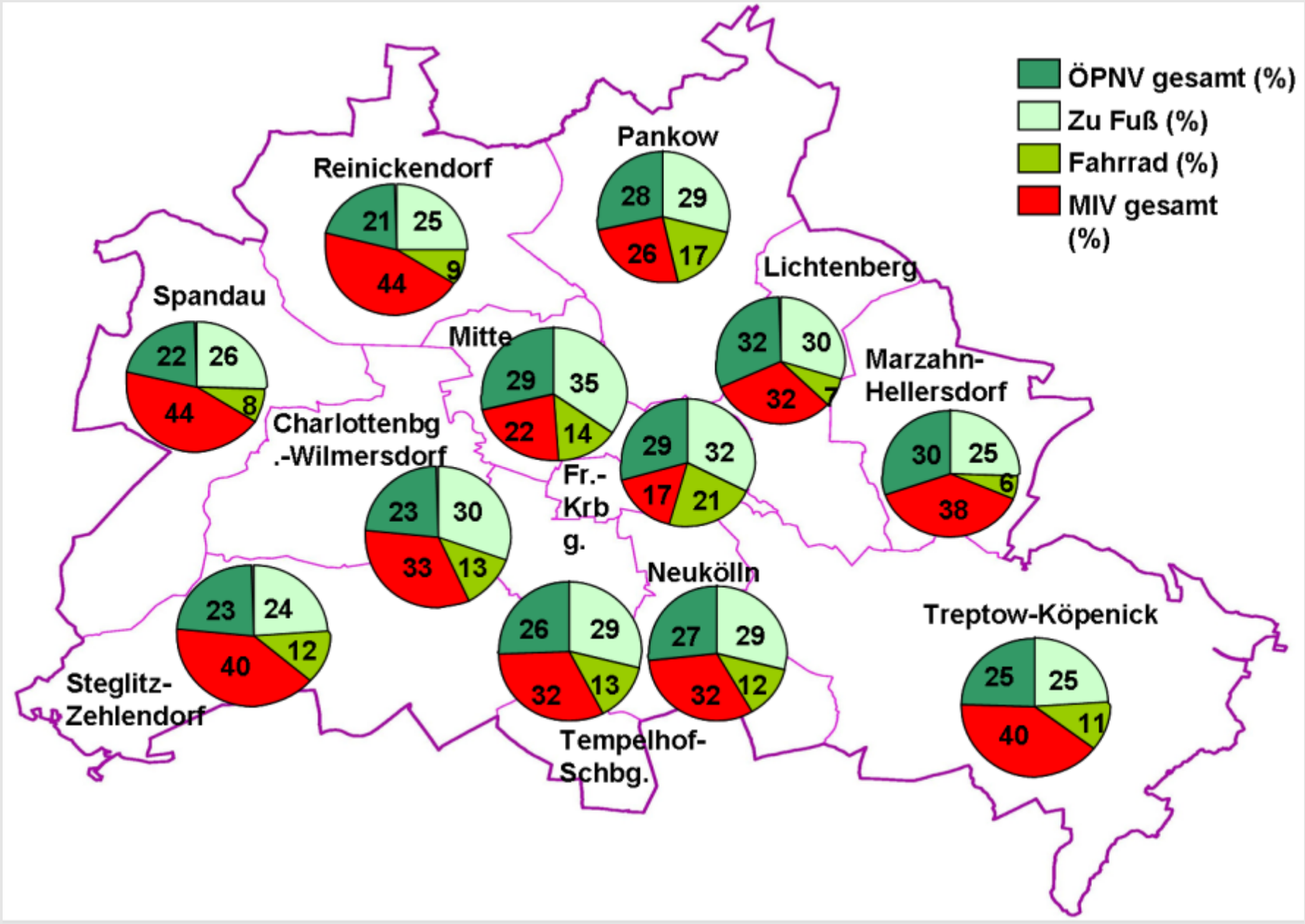
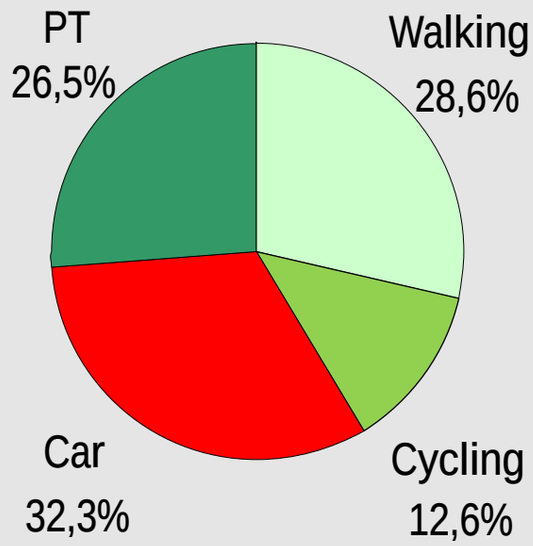
# Metropolitan Mobility




## Modal Split




- 1/4 of daily trips by publictransport
- 2/3 of daily trips by „environmental alliance“ (PT, Bike, Pedestrians)

Source of Data: SrV 2008

Mobility Patterns: “Environmental Alliance” first choice for most daily trips in Berlin
Notable distinctions between districts

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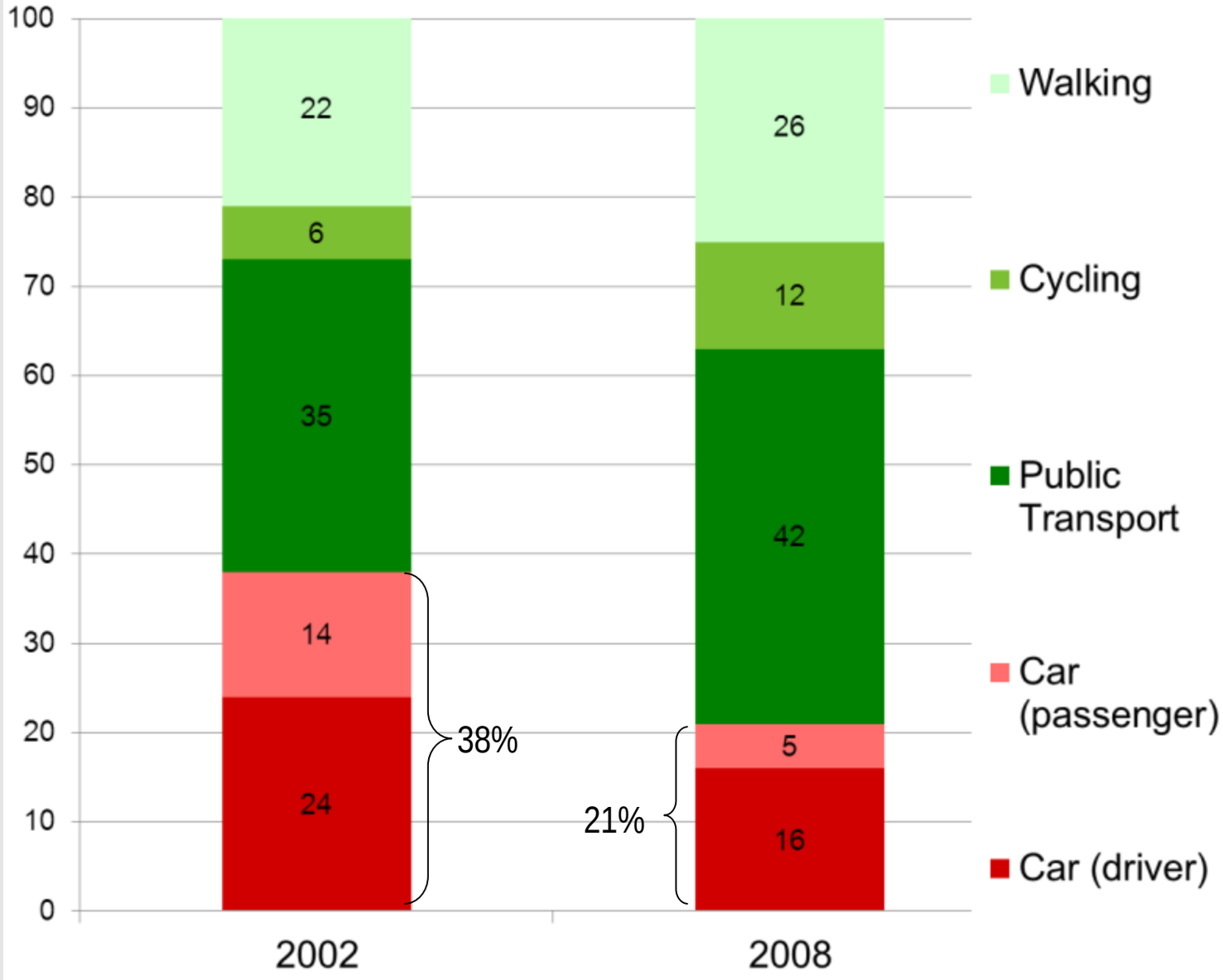
# Sustainable Mobility = Mobility of the Future




## Modal Split of Young Berliners (age 18 – 24 years) in 2002 and 2008 (percentage)

- Younger people prefer walking, cycling and public transport over car use
- Car ownership rates of young people decline in all German cities
- Reasons:
  - Improvement of public transport and walking/cycling conditions
  - Economic reasons
  - Car lost significance as a status symbol

Source of Data: MiD 2008

## Mobility Trends:

## Turnaround in modal shift presents both:
## - result of successful transport planning
## - feature of a modern urban society

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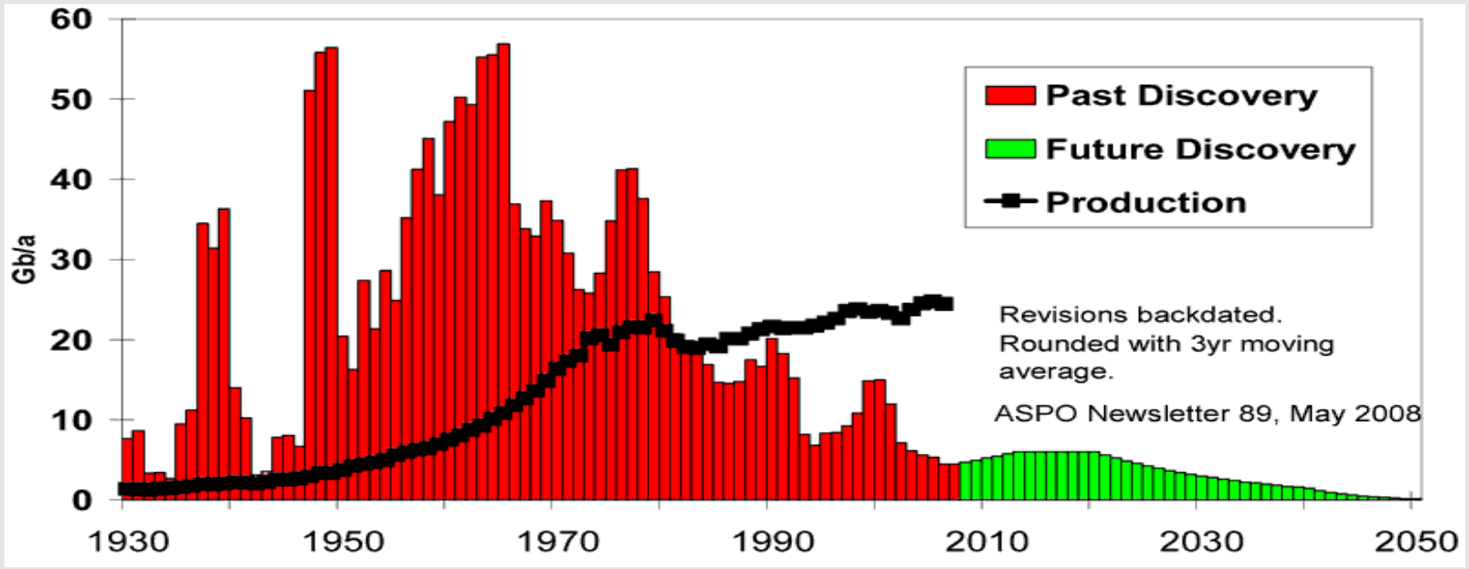
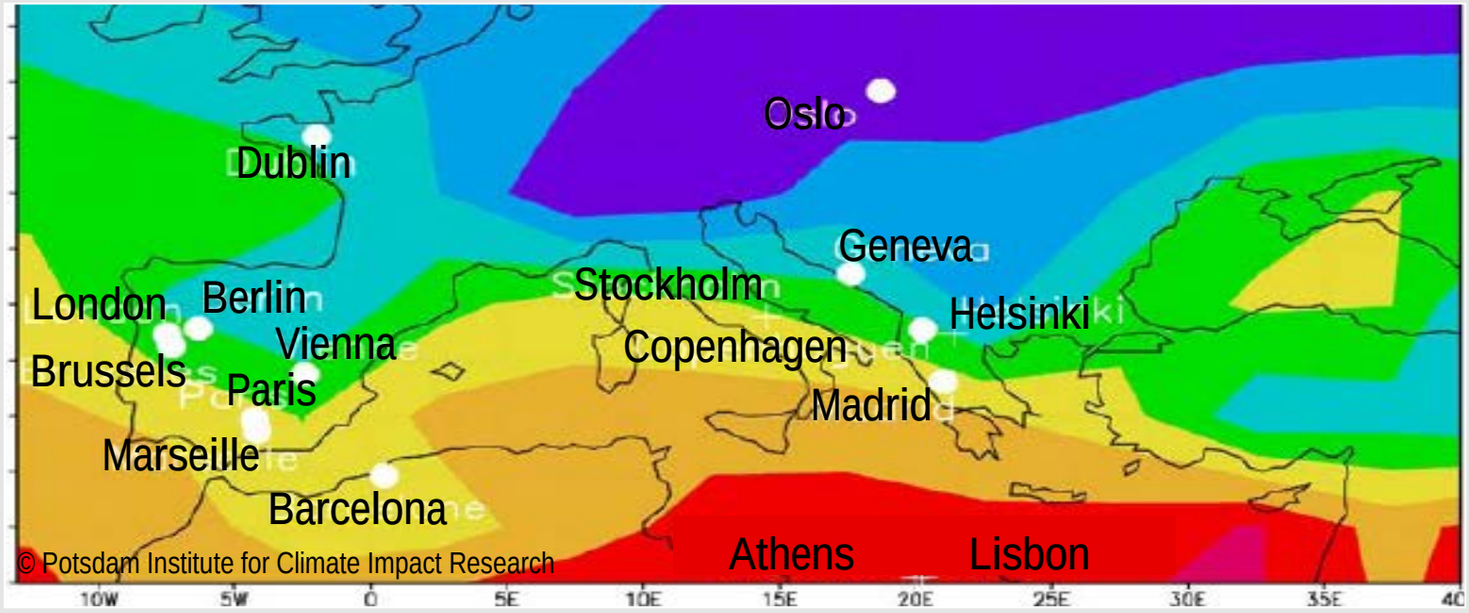
# Global Challenges – Local Need for Action




The Growing Gap
Regular Conventional Oil

The number of oil discoveries is already in decline. New production technologies allow for more efficient oil excavation, but the fact remains: the oil age is about to end.




The Growing Heat
Location of European Cities in (Today's) Climate Zones in 2100

As a result of climate change, cities will "shift" to different climate zones.
In 2100: Berlin will be in Spain (temperature-wise).

„Post-fossil Mobility":

Substituting for crude oil and fossil fuels
Contributing to the tackling of climate change
Protecting of the environment and liveability of cities

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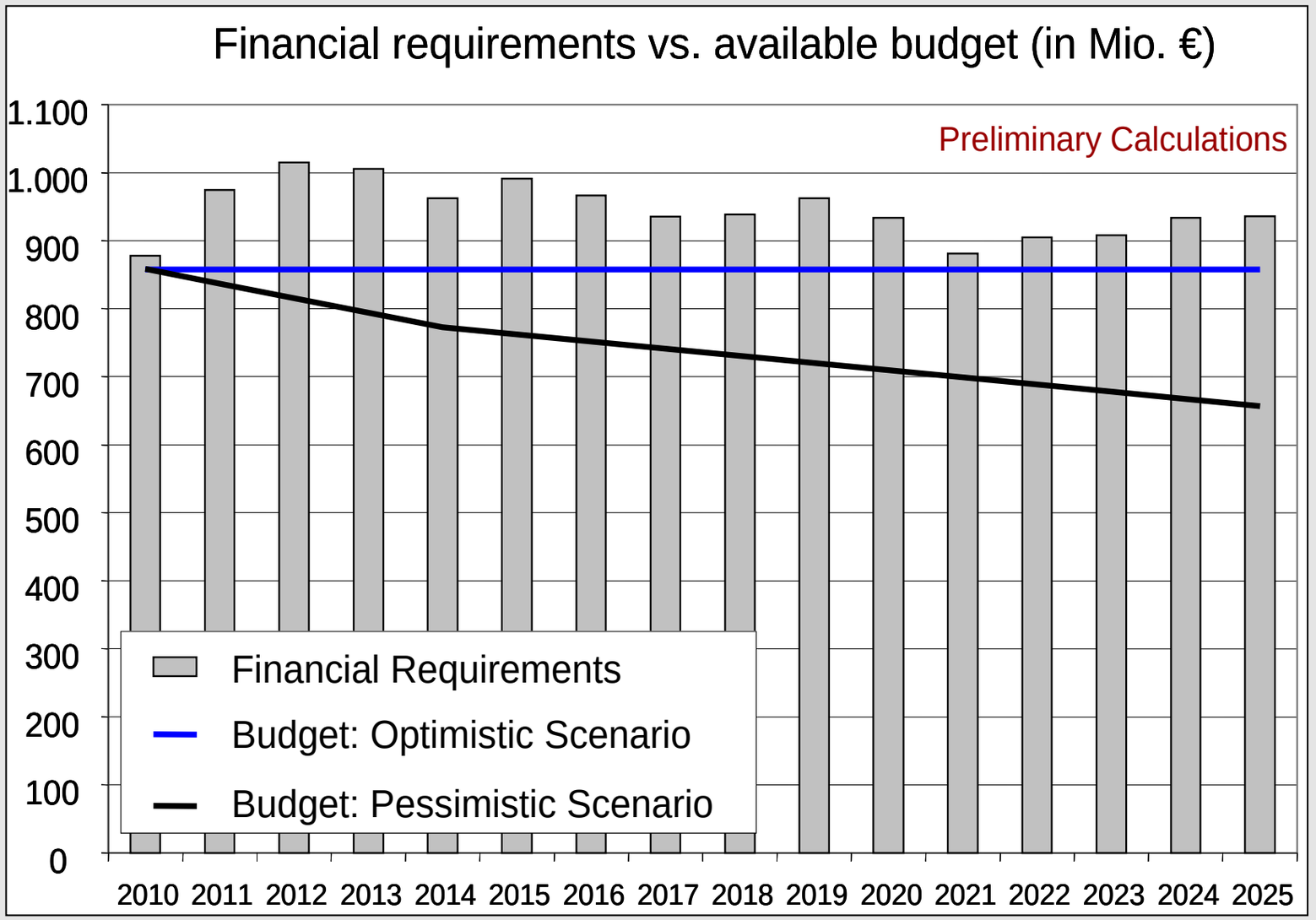
# Financial Issues – Economic Interests and Social Justice




Public Budgets

- Demands for public transport financing exceeds allocated public budge
- Need to economise
- Obligation to put a brake on depts

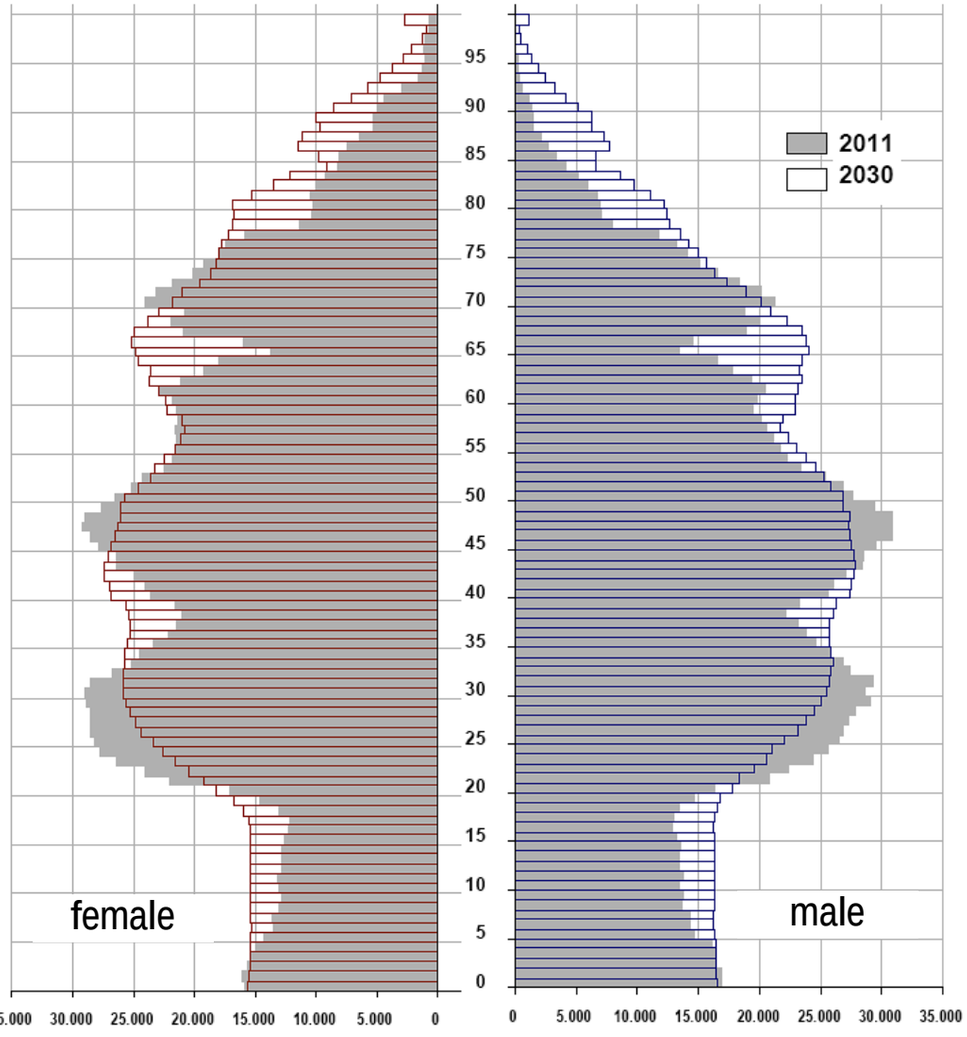
Private Budgets

- Comparatively low incomes in Berlin as opposed to increasing costs of living
- Mobility budgets become increasingly limited
- Affordability as an issue of social justice

Finding Funding: Exploring new financing instruments
Safeguarding mobility especially for price-sensitive groups
Balancing out economic and social interests

# Demography and Democracy

## Age “Pyramid”: Population in Berlin 2011 and 2030






Societal Changes: Ageing of the population – Shifting mobility needs
Transport policy as controversial policy field
*… “Whose transport system is it?”…*

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# Framework Conditions Cause Shifting Planning Paradigms

Transforming challenging framework conditions into ambitious aims

- Post-fossil mobility: zero-fuel / zero-carbon mobility package
  - walking and cycling
  - new technologies / alternative fuels

- Finding funding: Allocation of cost and benefits
  - pricing external benefits / external costs of transportation
  - fair pricing for users

- Societal changes
  - For whom are we planning?
  - With whom are we planning?

| | |
|---|---|
| ‘Troika’ of Requirements: | Integrated strategy regarding contents and process<br>Long-term vision, met by short-/medium-term actions<br>Continuous evaluation and flexibility |

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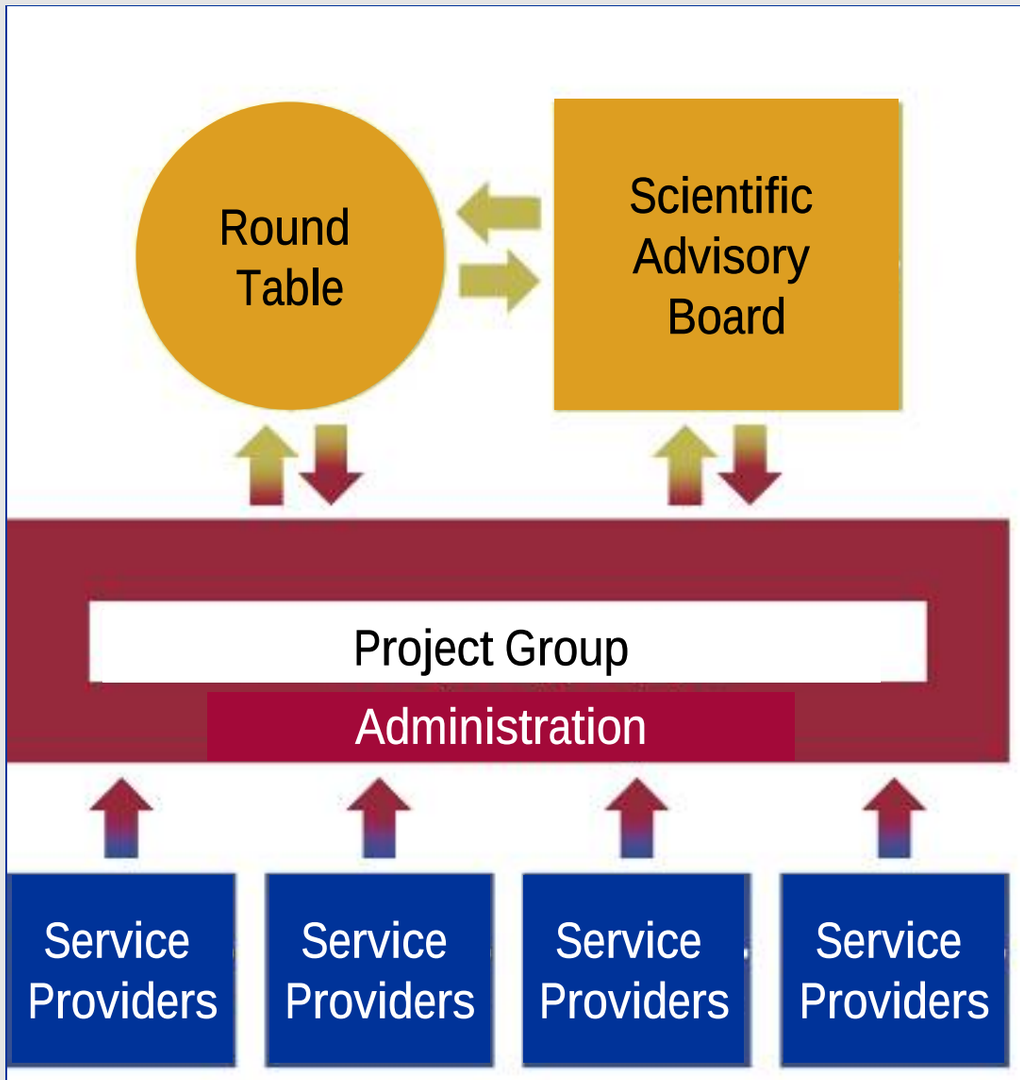
# Participatory Planning Process




Round Table:

- Administration (Project Group)
- Scientific Advisory Board
- Parliamentary Fractions
- Districts (Building Departments)
- Transport Providers
- Alliances (environment, Agenda 21, bicycle, car lobbyists…)
- Associations (Industry, Trade, Unions, etc.)
- Special Interests (urban development, children, parents, etc.)

+ External Moderator

Rationale: Planning process remains within administration
Scientific advice for technical and methodological questions
Early feedback from representatives of urban society

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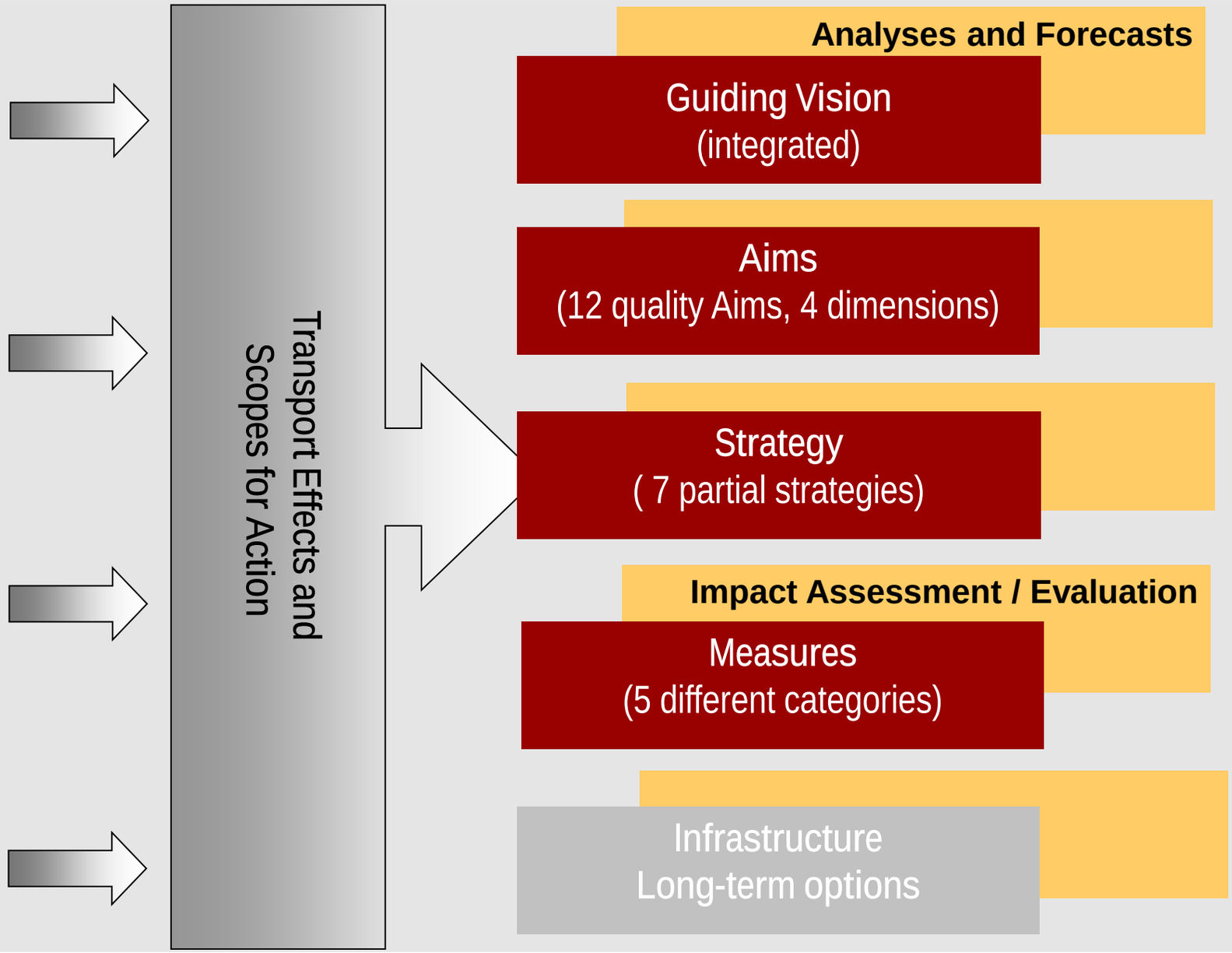
# Structure and Contents

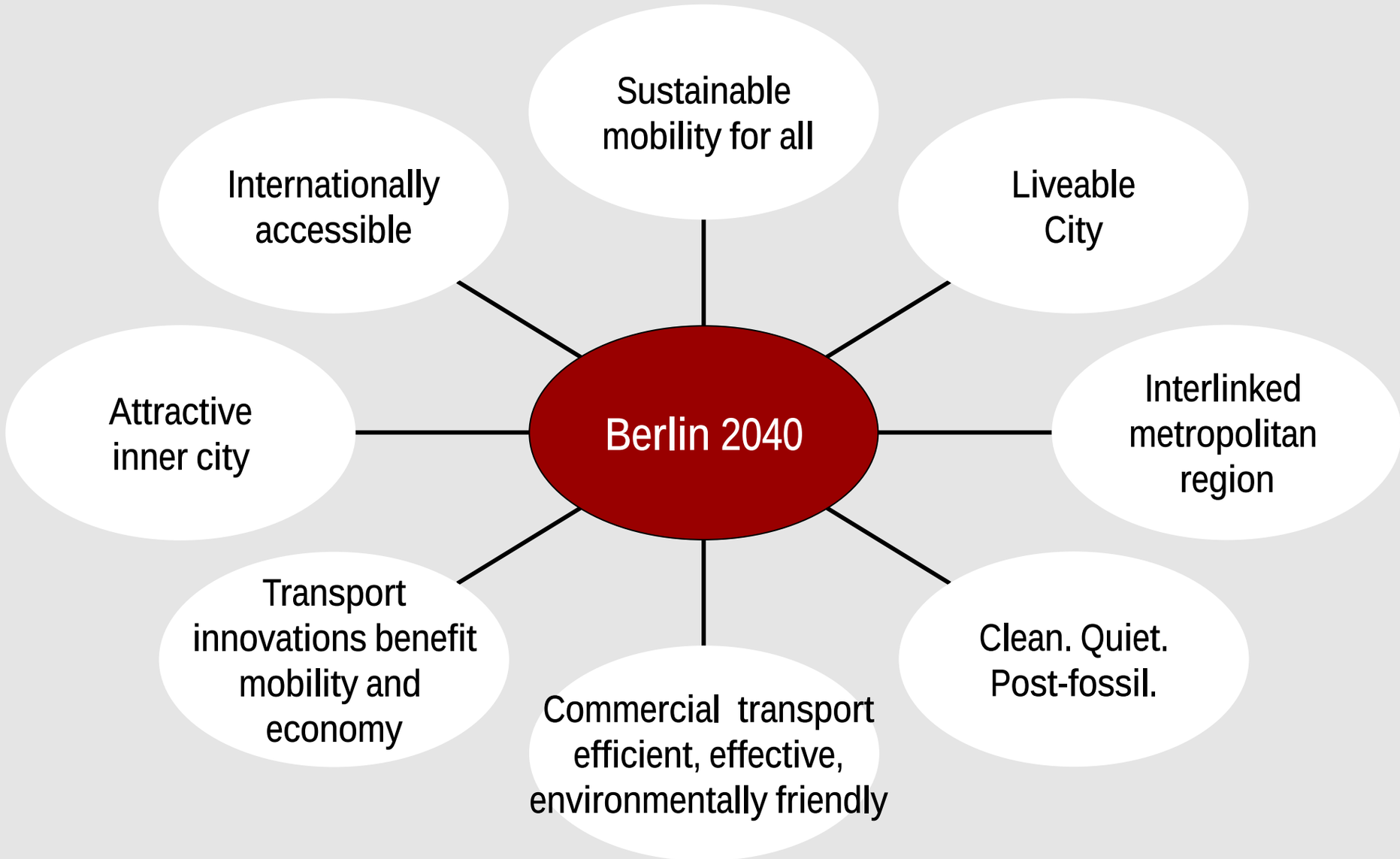
- Results and experiences of previous strategy
- Long-term overarching objectives, e.g.
  - Energy
  - Climate Protection
  - Safeguarding Mobility
- Guidelines of related policy field
  - Urban Development
  - Environment
  - Economy
- Framework Conditions
  - Population
  - Spatial Structure
  - Finances




Complex Structure:

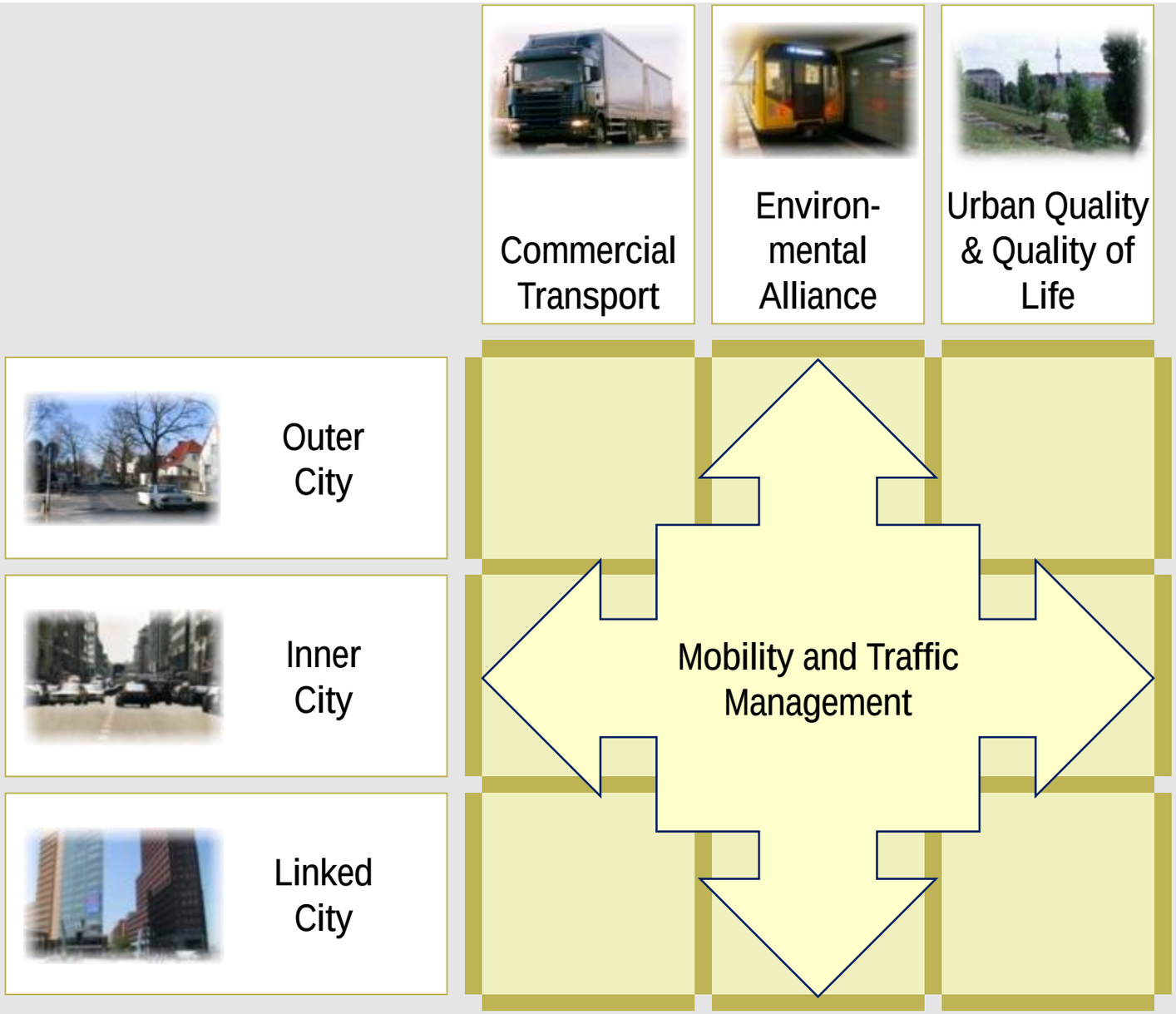
Approaching different aspects individually
Combining measures in integrated strategic packages
Integrated impact assessment to identify missing topics

# Guiding Vision




Integrated Vision: Eight motives of equal importance
Shared vision of the actors participating in the process
Basis for formulation of aims and strategic measures

# Integrated Strategy: Overlap of Partial Strategies




- Seven partial strategies form the integrated strategy of the transport master plan
- Each strategy combines a bundle of measures including:
  - Urban Space and Structure
  - Organisational aspects
  - Pricing policies / regulative measures
  - Improvement of information / motivation
  - Infrastructure

Wider Scope: Not just related to transportation as such
Addresses framework for travel, transport means, external affects
Formulates links to and requirements from other fields of policy

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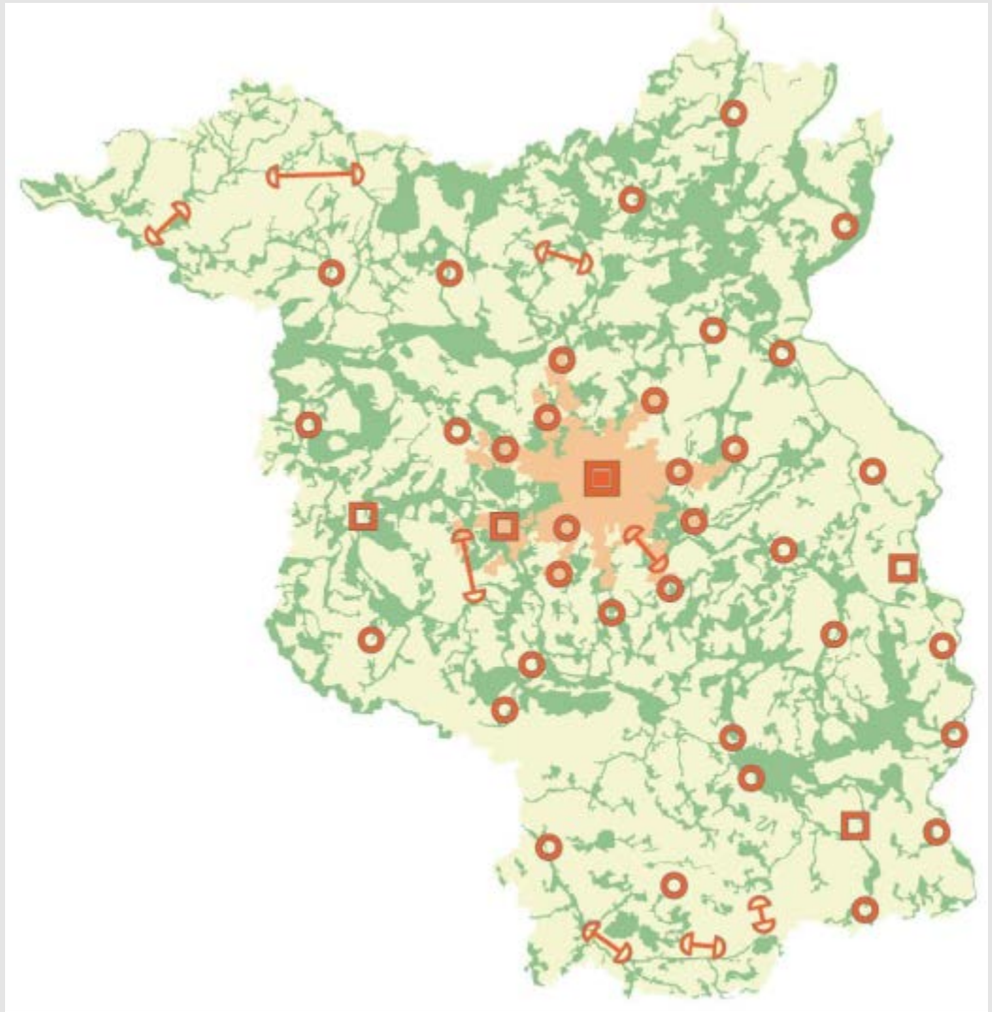
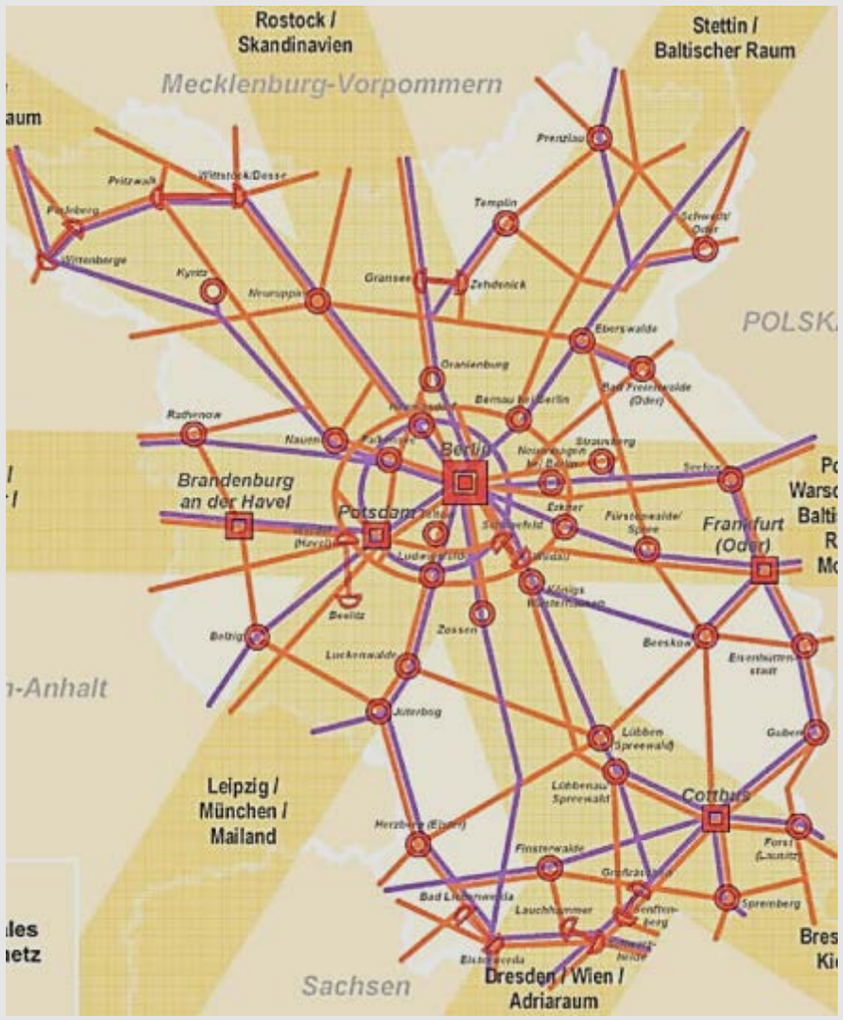
# (1) Combining Spatial and Transport Planning



Structure of the Region

Central places in Berlin and Brandenburg




Transport Network

Core Network and international corridors

Corner Stones: Priority to inner development over development on outskirts
Development along rail corridors / axis
Joint planning framework: State Development Plan (LEP B-B)

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# (2) Strengthening the Backbone of Urban Transport



| | |
|---|---|
| Public Transport Measures: | Network extensions and network qualification |
| | Priority to public over motorised transport |
| | Increasing attractiveness |

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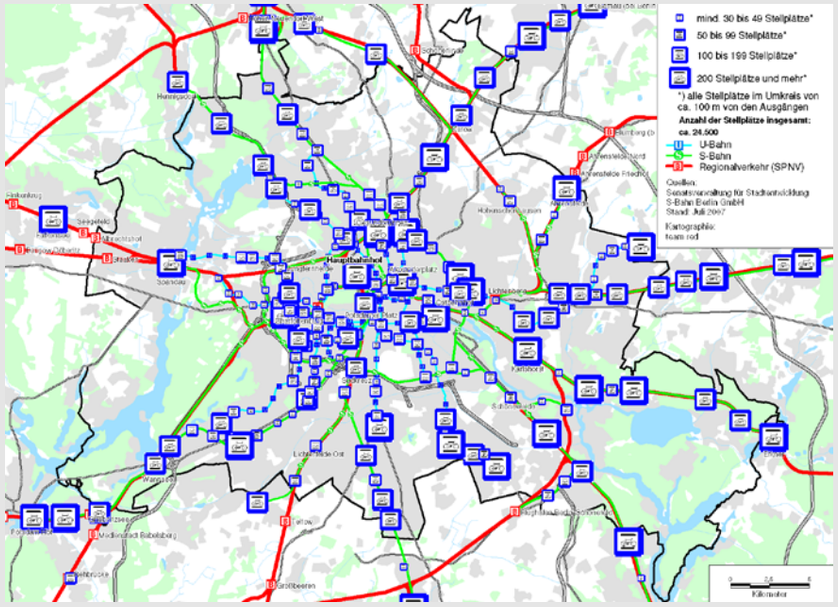
# (3) Multi- and Intermodality




Example Combining Cycling and Public Transport:

- Bike-&-Ride facilities on-board
- Taking bicycle on board of public transport
- Bike rental schemes – tariff integration

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# (4) Cycling  in Berlin – A Success Story


Cycling City:

Considerable extension of the cycling network
Bicycle parking facilities in public and private spaces
Communication measures

# (5) Walking - The Undervalued Mode of Transport in Cities

- (Nearly) all trips include a share of walking
- Every (mobile) person is a pedestrian
- Nearly 30% of all trips in Berlin are on foot
- People walk any time of the year, any time of the day, in any kind of weather…
- Planning for pedestrians is planning for everyone

Measures: Walking-friendly environments
Safety and barrier-free design
Mobility management and communication

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# (6) Car Traffic – Shifting Patterns


Areas with parking management in place

Push-and-Pull-Measures to further reduce car traffic in the inner city, i.e.

- Parking management
- New engine technologies and vehicle concepts (E-Mobility)
- Car Sharing: „Using instead of owning“




The Future of Urban Car Use :

Use less
Use differently
Use more consciously … and at the real costs

# (7) Reallocation of Road Space

Long Term Vision: Provision of space to modes in relation to their modal share

- Cars account for only 1/3 of daily mobility, yet they occupy 2/3 of public road space
- Results:
  - Capacity shortages – for cyclists!
  - Increase of (perceived) conflicts between transport modes
  - public transport stuck in car traffic jams
  - decrease of residential and quality of life in the city
- Pressure to act increases as new limited space needs to accommodate additional functions:
  - Carsharing stations,
  - bike rental infrastructure,
  - Electric (car) charging infrastructure...
- Measures:
  - Redesign of streets with notable decrease of traffic volumes (e.g. effects of large-scale bundling of traffic streams)
  - Step-by-step identification of potential areas for redesign
  - Continuous communication

Long-Term Project: On-going reduction of car traffic supports reallocation ambition
But: a lot of opposition from the car lobby and others
Implementation slow, but rewarding

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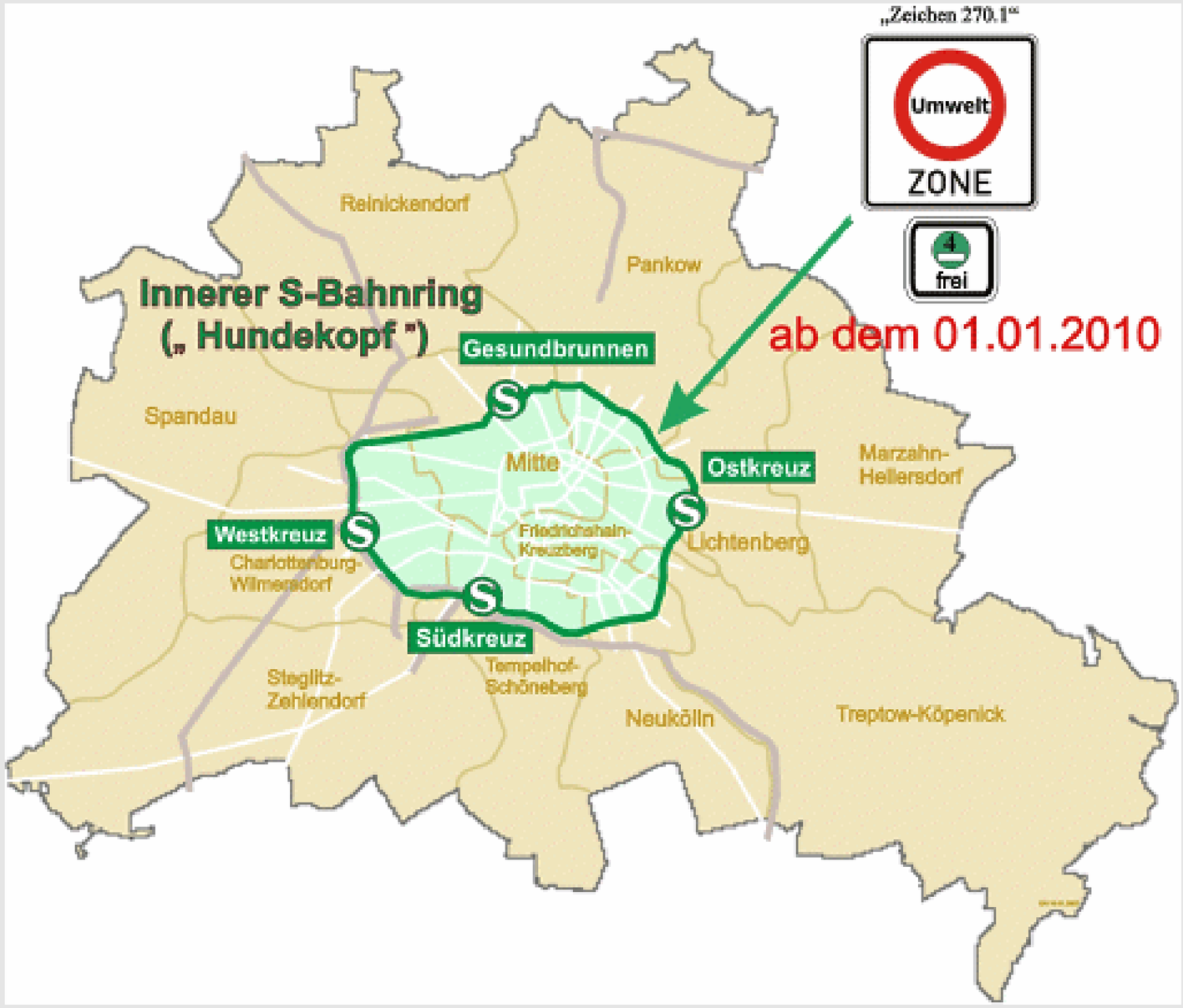
# (8) Environmental Zone




Fleet modernisation

- new vehicles
- refitting of vehicles

Decrease of emissions*

- diesel exhaust particulates: -58 %
- NOx: -20 %
- NO2: -5 %
- PM10: -7 %
- traffic induced carbon particulate matters: - 50%

Positive effect is well proven, but:

- Still too many exceedances of set limit values (PM2, NOx)
- Reasons: high background levels of PM10, meteorological conditions, wood heating, construction sites
- further measures needed citywide – also with relation to transport

*Second level as compared to situation without Zone

Results: Improvement of air quality achieved
More efforts needed to meet the air quality targets
Management measures in combination with technological progress

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# (9) Information and Traffic Management


Transport organisation with a focus on the environment

- coupling real time air quality measurements and traffic flow organisation
- i.e.: in case of exceedance of limit values for PM10: direct reaction, e.g.:
  - speed limits,
  - adjustment of traffic signalling,
  - in an extreme case maybe restrictions for car use in inner city

Status: Dynamic (real time) intermodal traffic information
Pilot projects showed great potential
Complex system – careful considerations needed

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# (10) Traffic Safety





<u>Traffic Safety Programme</u>

- Target: 40% reduction of number of the heavily injured/killed people as compared to 2004
- Measures:
  - Technical, i.e. safer crossings, cycling lanes, sidewalks, traffic signalling, speed regulations
  - Behavioural, i.e. life-long mobility learning, creating awareness and a safe “mobility culture” including

Campaign for „(Mutual) Respect in Traffic”

Joint Efforts: Participatory process involving federal and district administration, police, car and cycling lobby, pedestrian association, etc.
Plan review and update scheduled for 2013

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# Achieved Results

- Berlin is the capital of „green mobility“
  - lowest CO2-intensity of all German cities
  - largest modal share of „environmental alliance“
  - best in traffic safety
- Favourable conditions for further development:
  - excellent infrastructure
  - dense network of research institutions and universities creating and supporting innovation
  - urban trends working towards a sustainable city (flexibility, little car dependency, lively debate culture)

But: Remaining challenges (economic, demographic, environmental)
Partly limited instruments
Nevertheless: ambitious aims for the future

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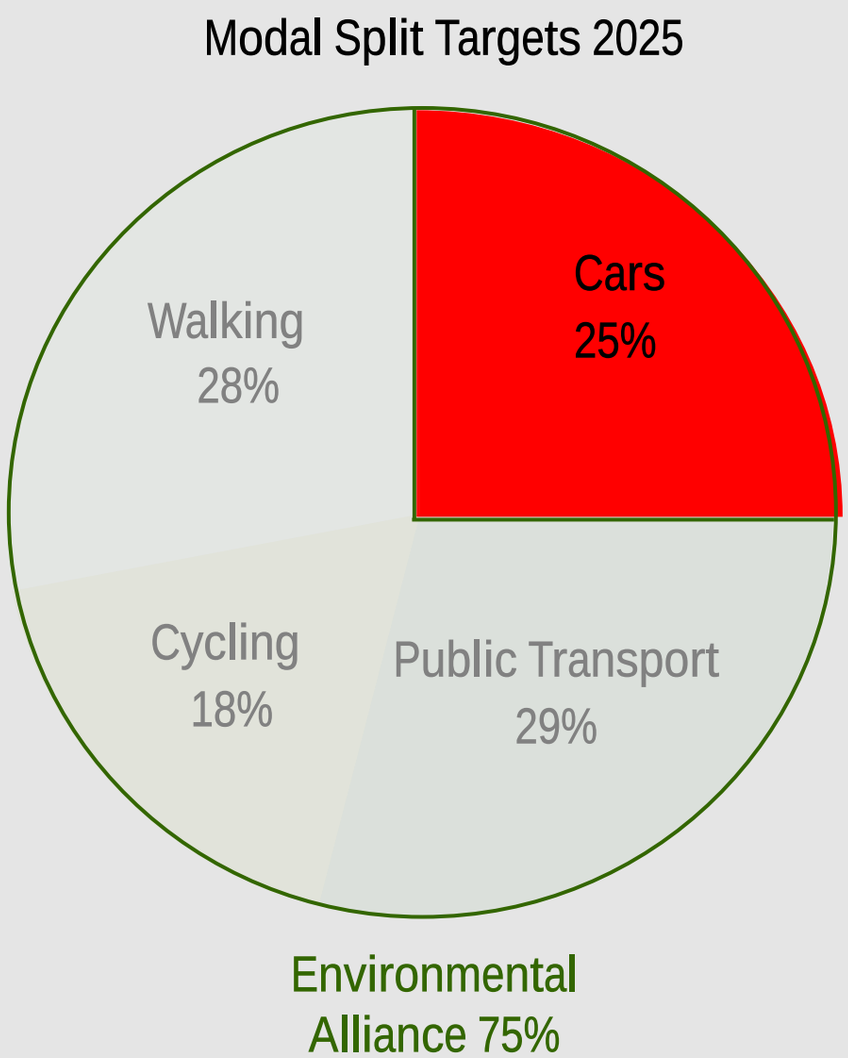
# Next Targets




"We do not just organise transportation.
We create quality of life in the city"

- Ambitious modal split target
- Traffic safety: Minus 40 per cent traffic injuries/deaths
- CO2-free Mobility – using muscle power and/or renewable energies
- Urban / spatial planning as integral part
- Strengthening participation
- Securing finances and investing in quality

High local quality – as part of global responsibilities

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