

An Integrated Planning Approach: The Strategic Urban Transport Plan Berlin

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Overview

- Models for City and Transport: Lessons Learnt
- Berlin Today and the Challenges of Transport Policy and Planning
- The Strategic Urban Transport Plan Berlin 2025
- Important Areas of Action, Measures
- Conclusion

1. Models for City and Transport: Lessons Learnt

Close relation between urban and regional built structures and transport structures!

- The „Golden Age“ of balanced urban structures and rail-bound transport systems
- The „Modern World“ – individualisation and motorisation
- „Modern Views“ on transport and the city in the late 1920s
- Post war planning: transformation to a „Car Friendly City“
- Vicious Circles: interdependencies and uncontrolled dynamics
- Recent shift of paradigm at the turn of the millenium: towards a more sustainable model

Primarily car-driven urban structures are neither liveable nor sustainable

The „Golden Age“ of Balanced Urban Structures and Rail-bound Transport Systems



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
- Reichskanzlerplatz (today Theodor-Heuss-Platz) 1 year after underground station was opened



Urban and transport development went hand in hand, public transport network as a recognised precondition for industrialisation and urban growth

The „Modern World“ – Individualisation and Motorisation

For Example: Berlin - Potsdamer Platz



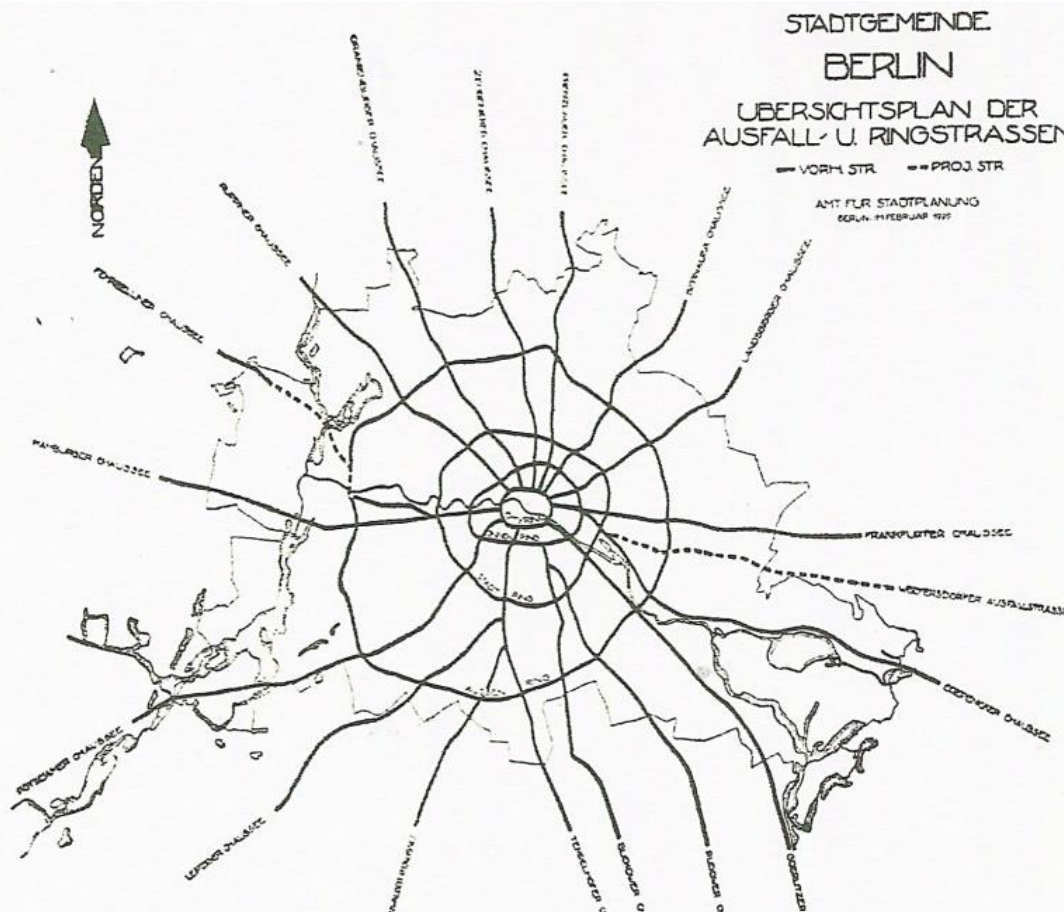
1914: Pedestrians and (mainly) horse-drawn carriages



1932: Electrified trams, cars the first traffic light

Past 1918: Public transport became electrified, private transport became motorised
Transportation became faster, cheaper, widely available
Disaggregation of urban functions, increase of land used for traffic space

„Modern Views“ on Transport and the City in the Late 1920s



Ring and radial road concept of 1929

Late 1920: Planners started to prepare the ground for the rise of the automobile

Post-War Reality: Transformation to a „Car-Friendly“ City

Re-building of cities after World War II followed new guiding vision



Grunerstraße / Molkenmarkt



Strausberger Platz

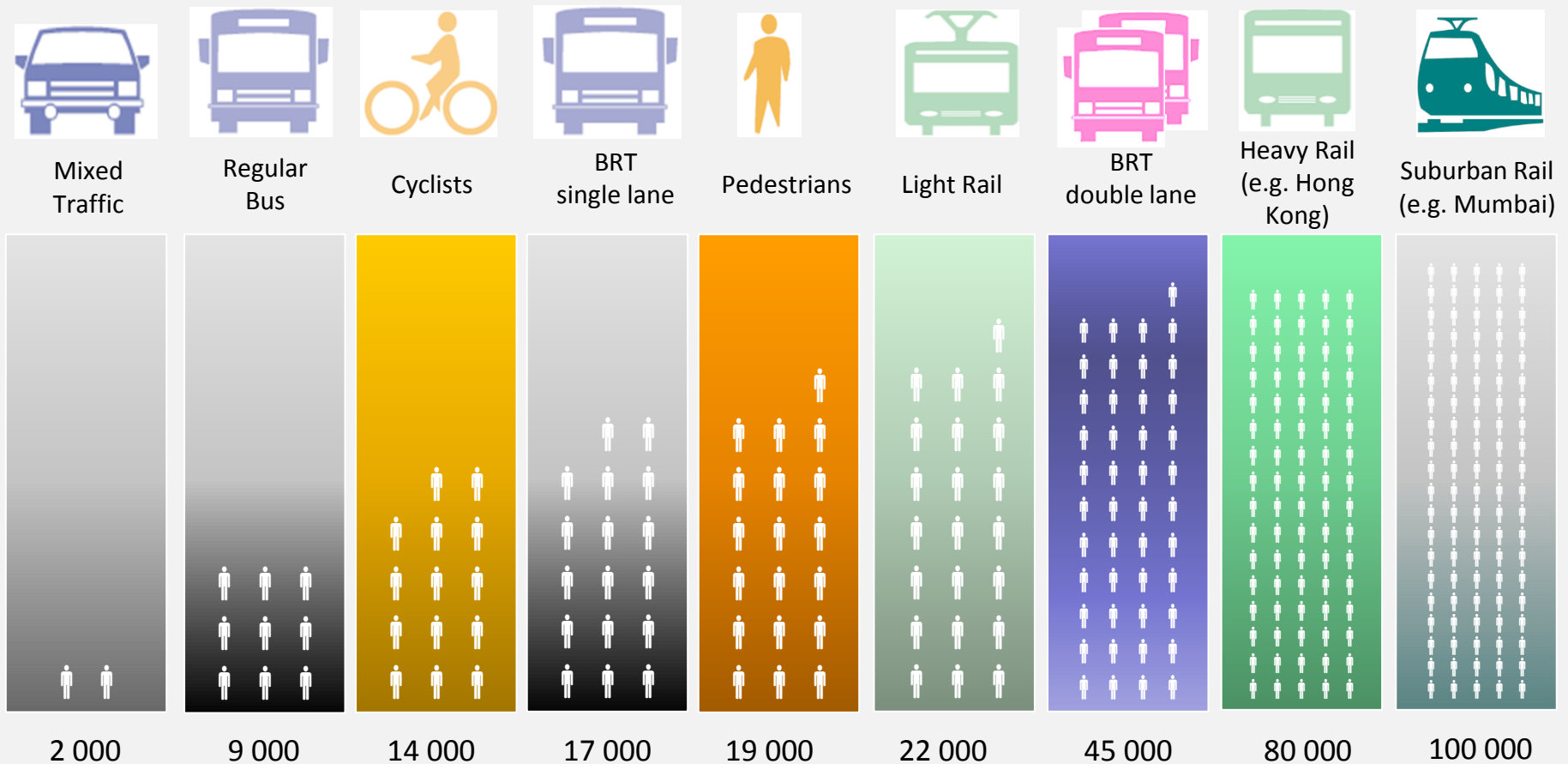
Past 1945: Car-friendly city structures were formed on both sides of the Berlin Wall
Urban space was transformed into traffic space,
Underground started to replace the tram

„Modern Views“ of Transport in the City around 1960

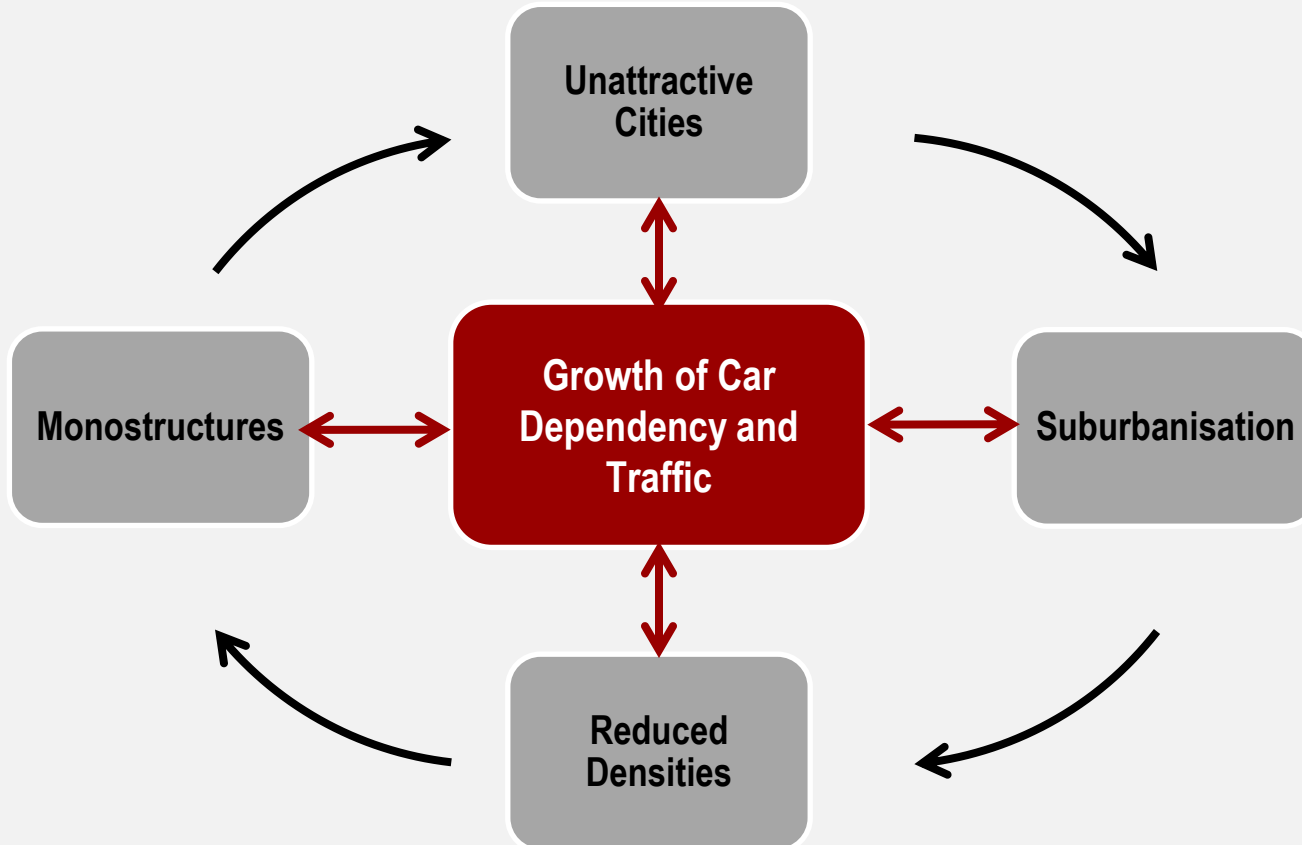


Headline: „The Floating Street – Utopia or Solution of a Genius?“

Corridor Capacity of Different Modes



Vicious Circles



Described interdependencies between urban and car traffic development entail uncontrolled dynamics

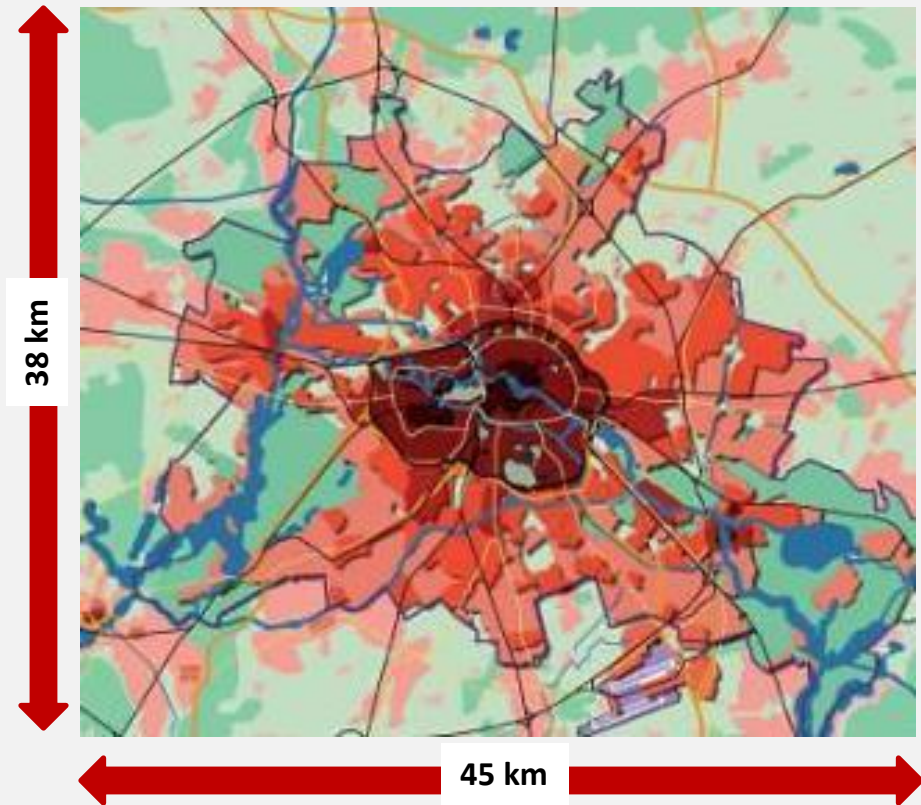
The Consequence: Recent Shift of Paradigm at the Turn of the Millenium

- Since the late 1990s cities in Germany and other parts of Europe have realised that it is impossible to combine the ideas of
 - a car-friendly city
 - and a city that is attractive and ressource-efficient / sustainable
- New planning paradigms were founded and implemented, including
 - re-urbanisation
 - re-vitalisation of inner cities
 - limitation of space used for cars / car traffic
 - restriction of further land-uptake for urban growth

2. Berlin Today and the Challenges for Transport Policy and Planning

- Berlin: facts and figures, some impressions
- Global challenges (expected end of oil age, climate change)
- National and local challenges (growth, demographic and societal changes, financial and environmental problems)

Berlin – Facts and Figures



- Area: 892 km²
- Inhabitants: ca. 3,5 million (region 4,3)
- Number employed: ca. 1,9 million
- Unemployment rate: ca. 11 %
- Motorisation: ca. 320 cars / 1,000 inh.
- 45% carfree households

Berlin is Germanys biggest city by far, and it is both, city and a state within federal Germany

Some Impressions: Aerial View of Part of Western Center



Some Impressions: Views of the City



Diverse city – in structure, density, age, functions...

Some Impressions: Views of the City



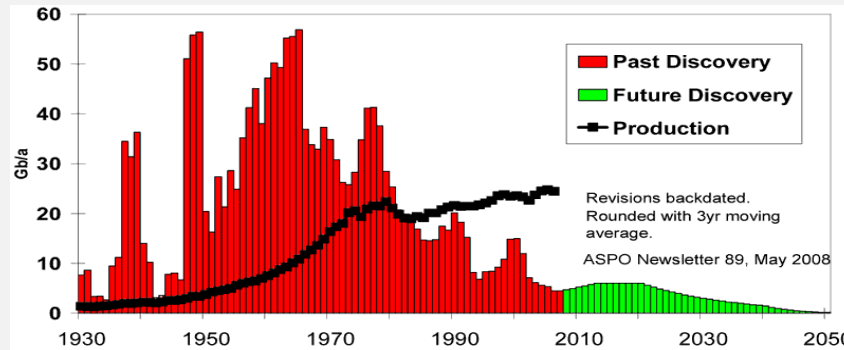
Spacious city – space for living, working and being mobile – by all means (and modes)

Global Challenges: End of Oil Age, Climate Change

The Growing Gap

Regular Conventional Oil

The number of oil discoveries is already in decline. The oil age is about to end while demand for energy increases dramatically.

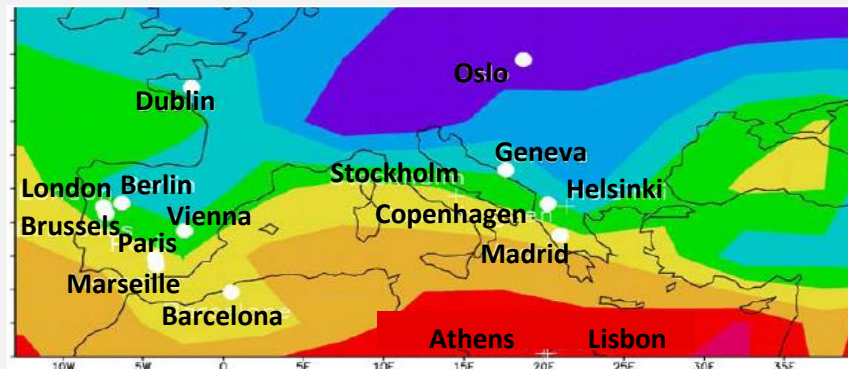


The Growing Heat

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).

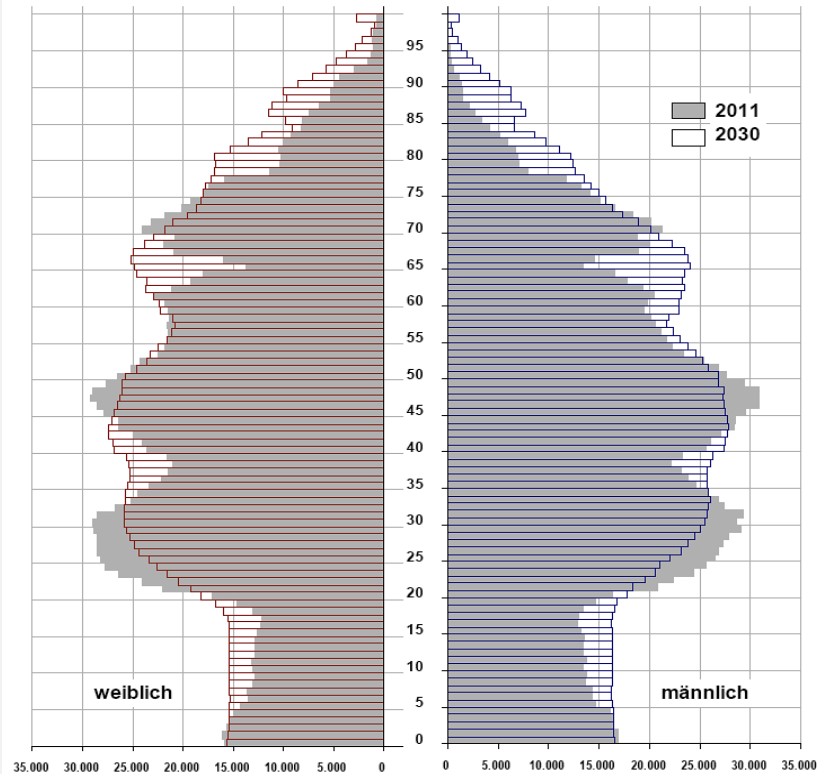


„Post-fossil Mobility“:

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

National / Regional Challenges: Demography and Participation

Altersaufbau der Bevölkerung am 31.12.2011 und am 31.12.2030
Berlin



- Societal Changes:**
- Ageing of population – shifting mobility needs,
 - Transport policy as controversial policy field (infrastructure, parking...)

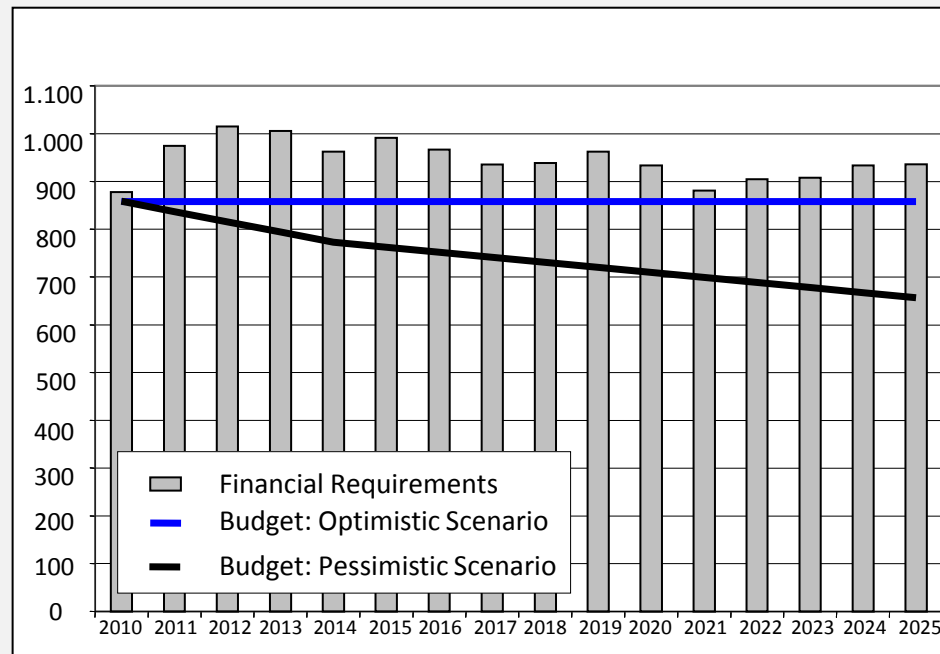
National / Regional Challenges: Financial Issues - Economic Feasibility and Affordability

Public Budgets

- Demands for public transport financing exceeds allocated public budget
- 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

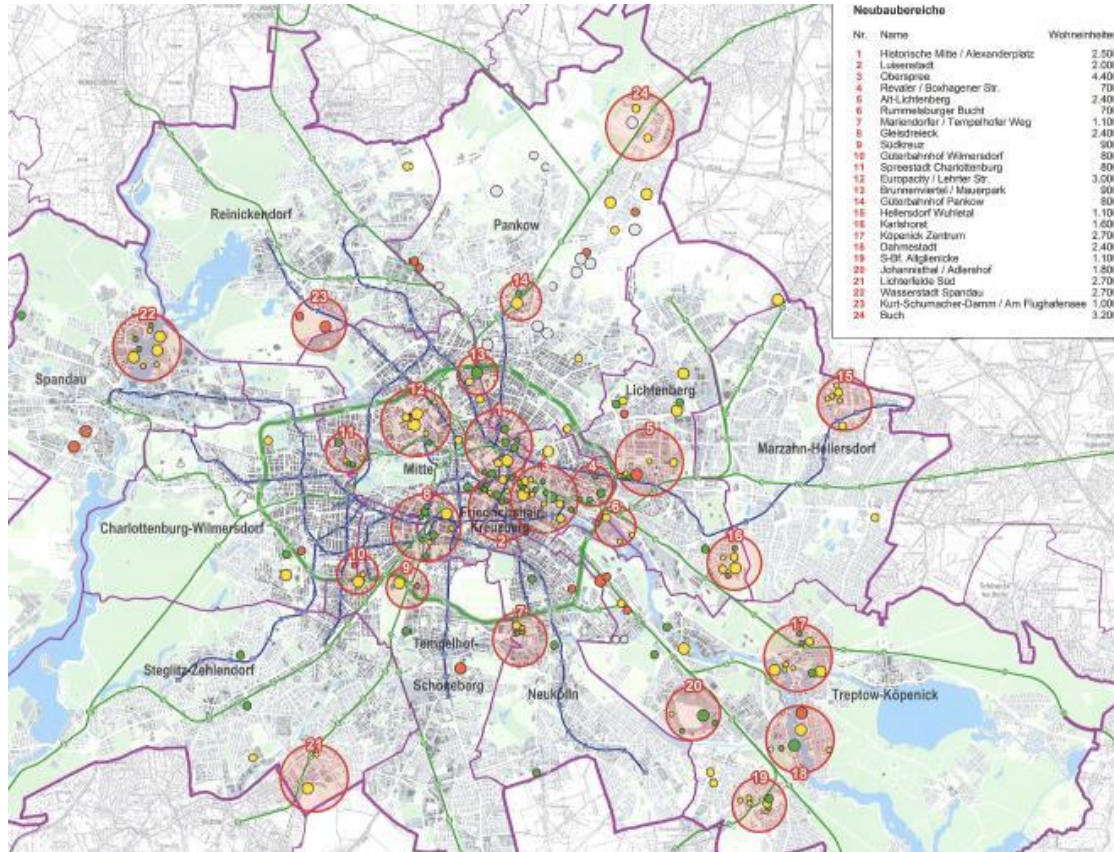


Source: SUTP Berlin 2025

Finding Funding:

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

Local Challenge: Population Growth and New Housing Demand



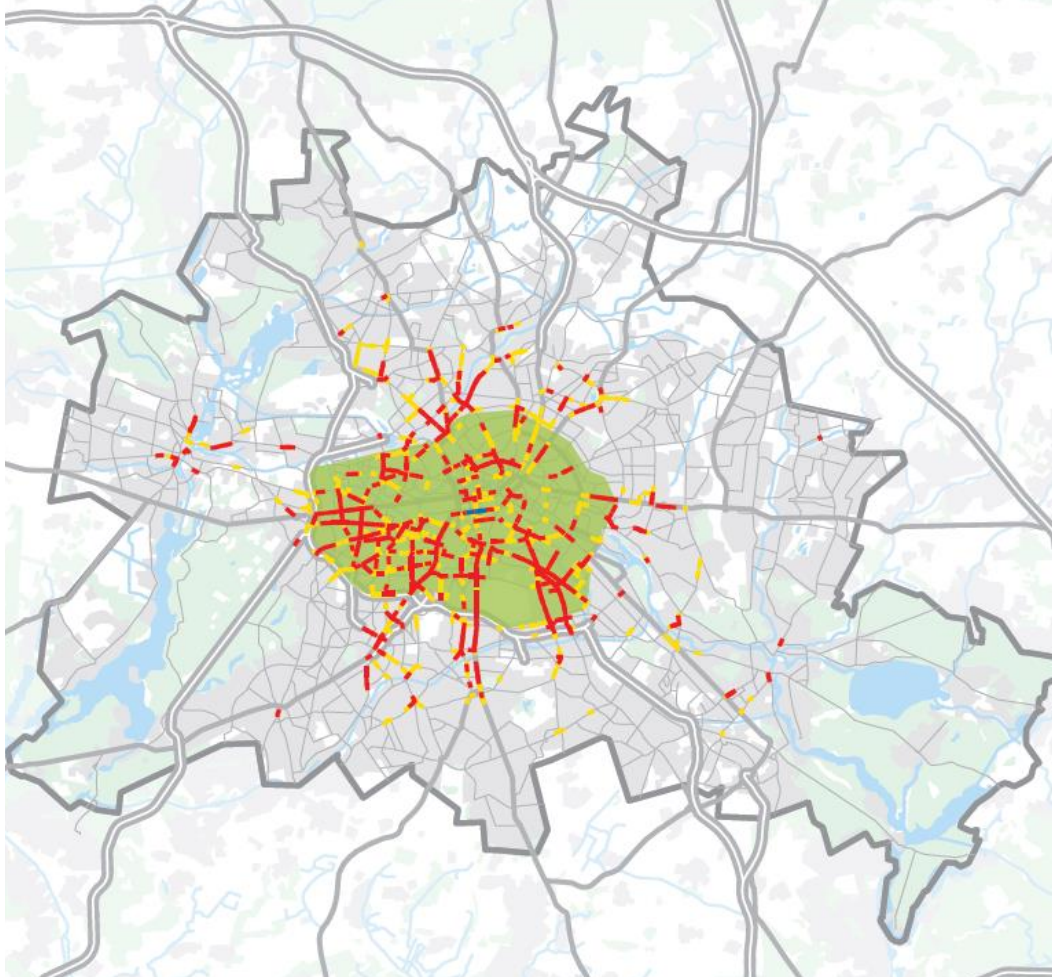
Annual growth
persons (past years) 40 000

Growth expectation > 250 000
persons (2025)

Annual housing
production (units) > 10 000

New housing programme: Locations in central parts and close to public transport net

Local Challenge: Environmental Issues

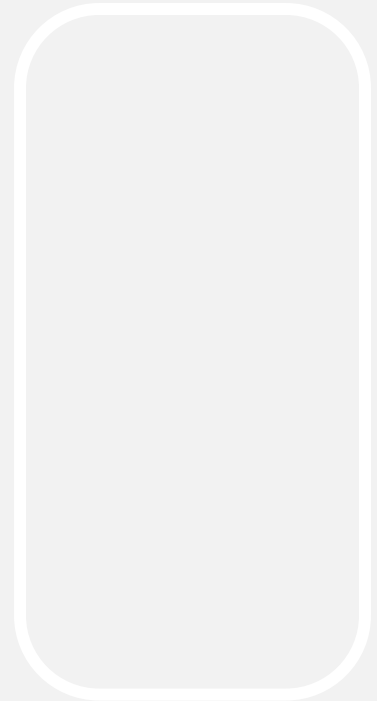


In the inner city air pollutant levels (Nox, fine particulate matter) are above tolerable limits set by European Legislation

Car traffic is the main source of air and noise pollution and of greenhouse gas emissions

Consequence: Framework Conditions Cause Shifting Planning Paradigms

- **Post-fossil mobility:** zero-fuel / zero-carbon dioxide mobility package
 - walking and cycling
 - new technologies / alternative fuels
 - rethinking mobility demands
- **Funding and spending revised:**
 - more efficient spending (public money)
 - pricing external benefits / external costs of transportation
 - fair pricing for users
- **Meeting environmental challenges**
- **Societal changes**
 - For whom are we planning?
 - With whom are we planning?



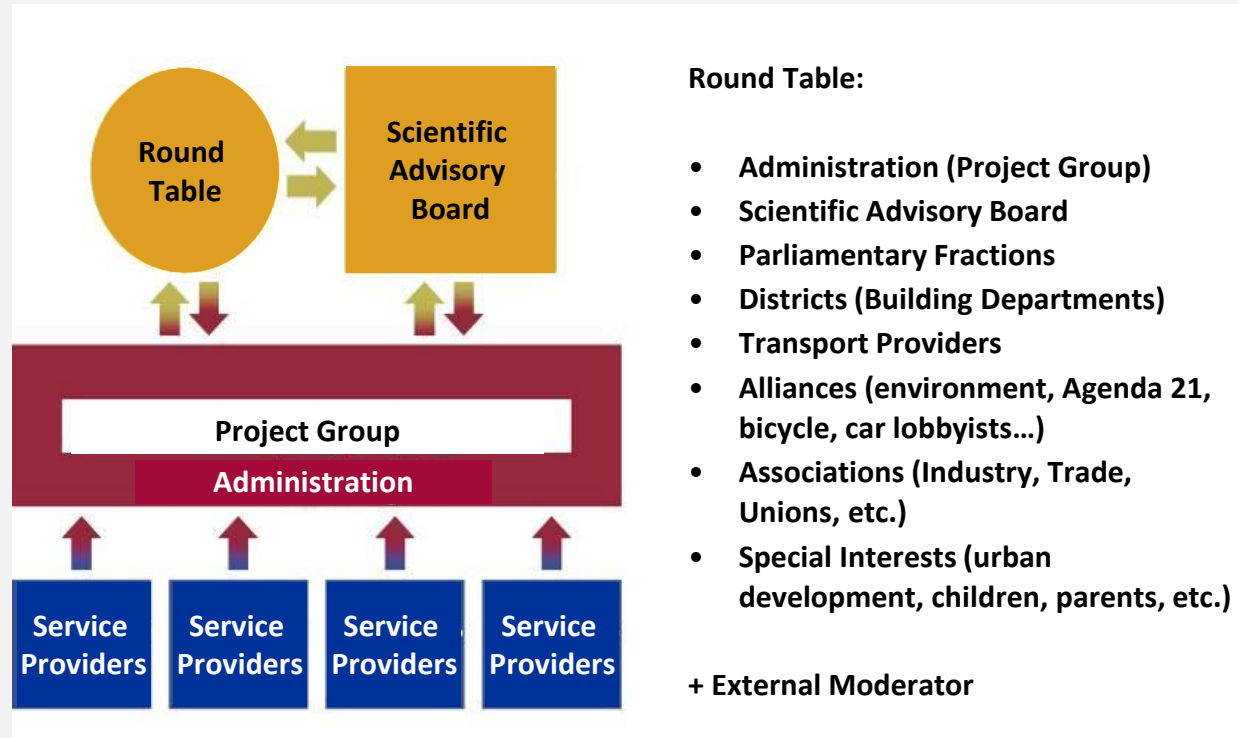
‘Troika’ of requirements: (1) Integrated strategy regarding contents and process, (2) Long-term vision, met by short-/medium-term actions , (3) Continuous evaluation and flexibility

3. Strategic Urban Transport Plan Berlin 2025

- Strategy developed 2000 – 2003, updated 2011
- Participatory planning Process – intentions and experiences
- Structure and contents of the strategy:
 - Guiding vision
 - Aims and indicators
 - Example: environment
 - Integrated strategy: overlap of partial strategies
 - Impact assessment and feedback (ex ante)
 - Monitoring and evaluation

Experience: Planning process is essential for quality of result, acceptance and implementation

Participatory Planning Process



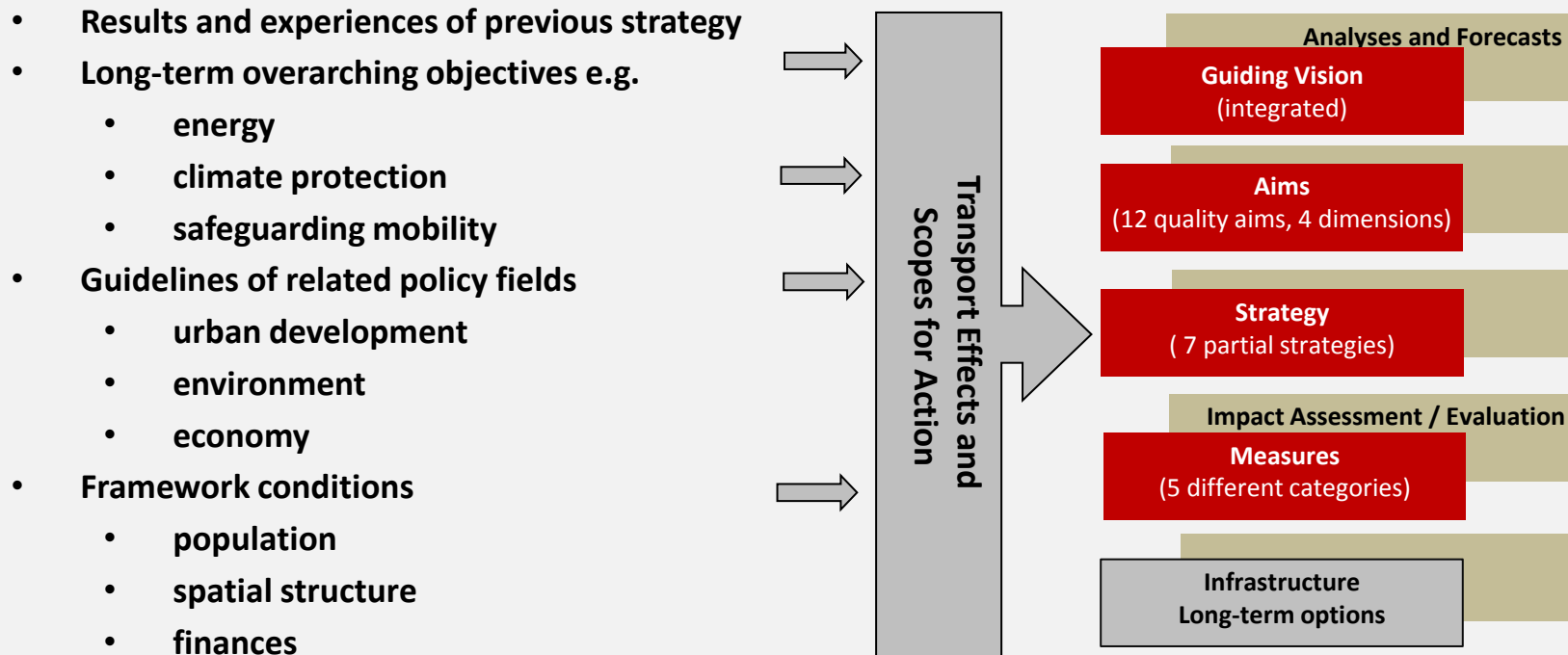
Rationale:

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

Participation in Planning: Intentions and Experiences

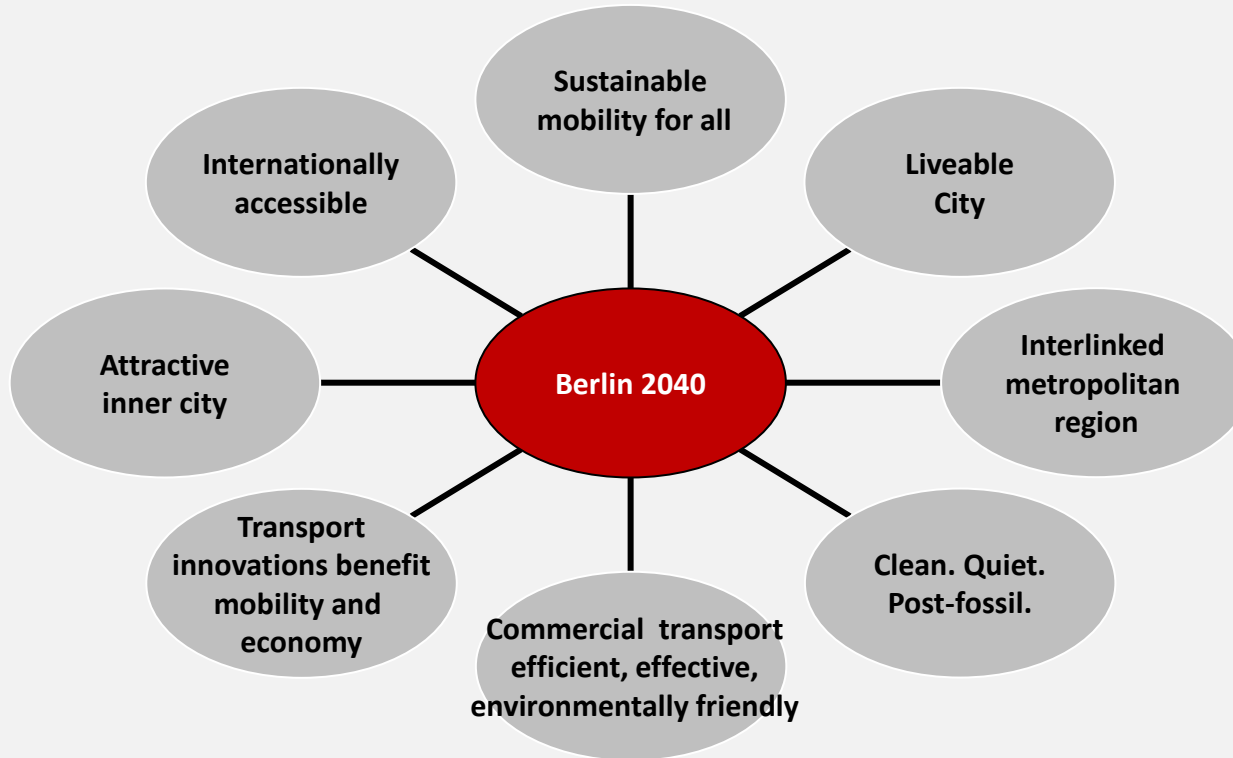
- Joint development of aims and targets
- Joint learning process about interrelations of effects (regarding measures)
- Acceptance of the plan, stronger commitment
- Willingness of stakeholders to support and to be part of the implementation
- **Important: independent moderator, rules for cooperation, continuity**
- Similar participation processes were adopted for development of the partial strategies on cycling, walking, traffic safety and goods respectively commercial transport

Structure and Contents



Complex structure: Approaching different aspects separately; combining measures in integrated packages; integrated impact assessment to optimise set of measures

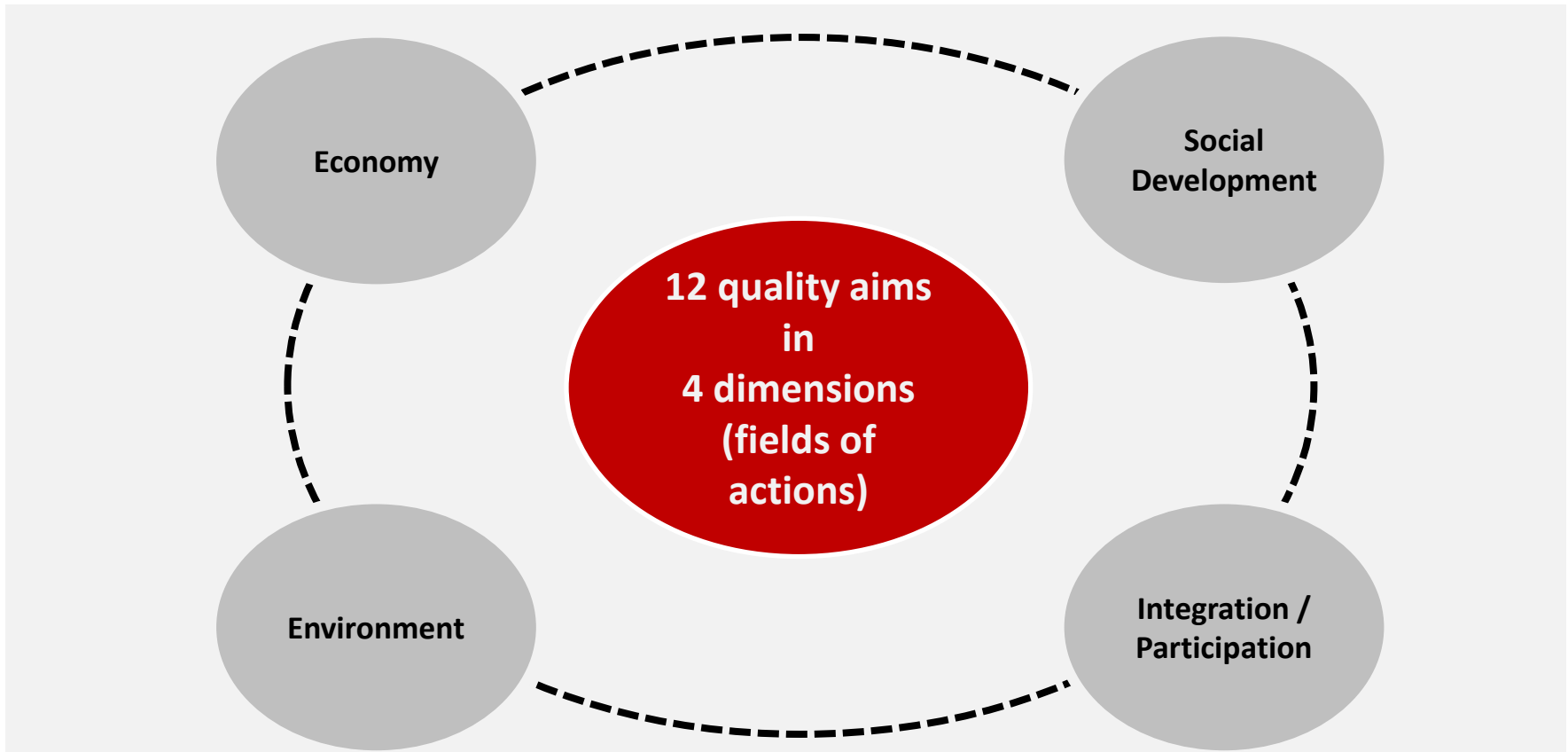
Guiding Vision (Long Term)



Integrated vision:

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

Aims and Indicators



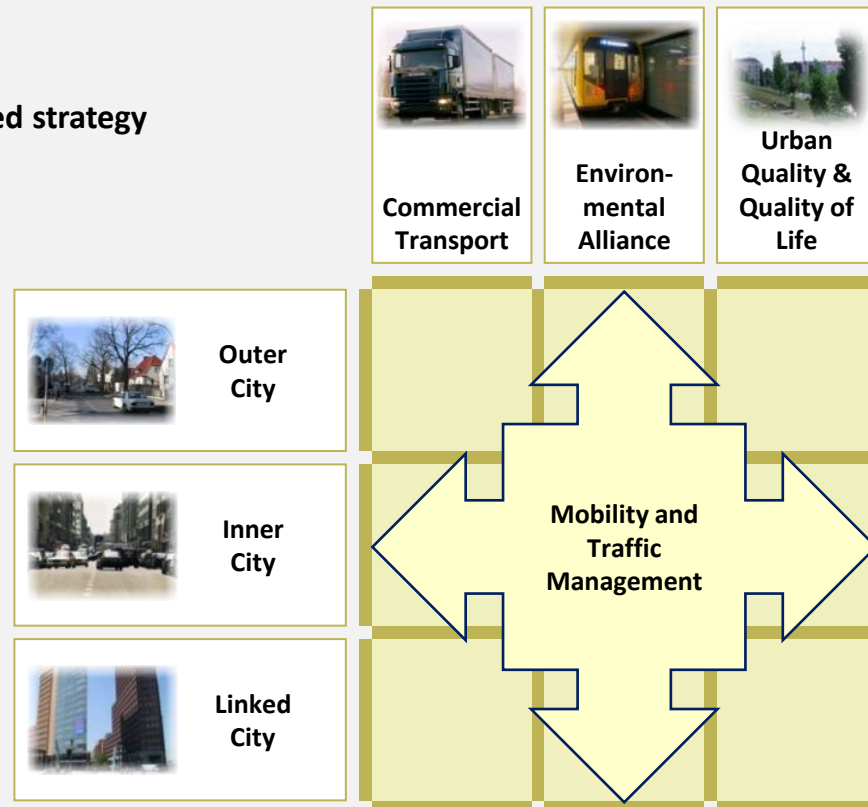
12 „quality –aims“ are translated into 44 „operational aims“/indicators (subject to monitoring)

Aims and Indicators: example environment

Quality Aim	Operational Aims / Indicators
Relieving the local and global environment from traffic related burdens	Reducing traffic related greenhouse gas emissions by 25% in 2025 as compared to 2008
	Reduction of air pollution caused by traffic (benzene, NO _x , PM _{2,5/10} , CO, PAH) in 2025 to a level considerably below EU-targets (25%)
	Reduction of noise emissions in the main road network for at least 100,000 inhabitants who are exposed to noise levels above 60 db(A) during night-time; Reduction of noise levels to max. 65 db(A) at daytime
	Reduction of rail noise, particularly no exceedance of 55 db(A) at night-time (tram)
	Limiting the (new) construction of roads causing barrier effects, at the same time preventing further spoiling of nature and the landscape

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



Push and pull-measures; each measure with „price tag“, responsible actor, time slot

Impact Assessment and Feedback (Ex Ante)

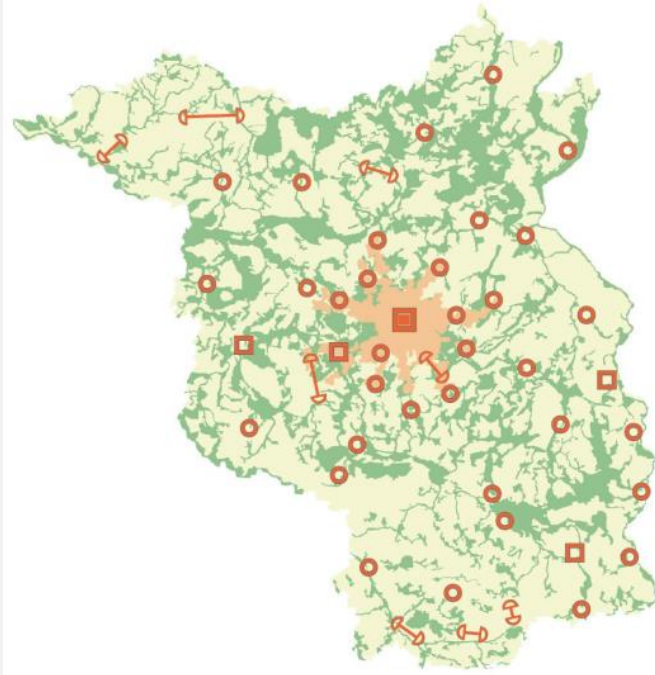
- Objective: to identify the generated effects as to their impact direction and intensity:
 - highly relevant individual measures (e.g. specific infrastructure projects, extension of parking management, decentralised location of additional retail space)
 - different combination of measures (3 scenarios in addition to „trend“: „balanced intervention“ , „reduced infrastructure“, „extended public transport infrastructure“)
- Modelling and calculation for 2025 (traffic and environmental impacts)
- Comparison of trend development with measures combined in the scenarios
- Result: sound assessment of the measures, arguments for scenario to be chosen

**Total result: long-term strategy including short-/medium-term action plan
(more than 100 measures in detail)**

4. Important Areas of Action

- Integration of spatial and transport planning in the Region
- Strengthening public transport
- Limitation and qualification of private car use
- Promotion of „active modes“ (walking and cycling)

Integration of Spatial and Transport Planning in the Region



Structure of the Region

Central places in Berlin and Brandenburg



Transport Network

Core Network and international corridors

Joint planning framework:
State Development Plan

Corner Stones:

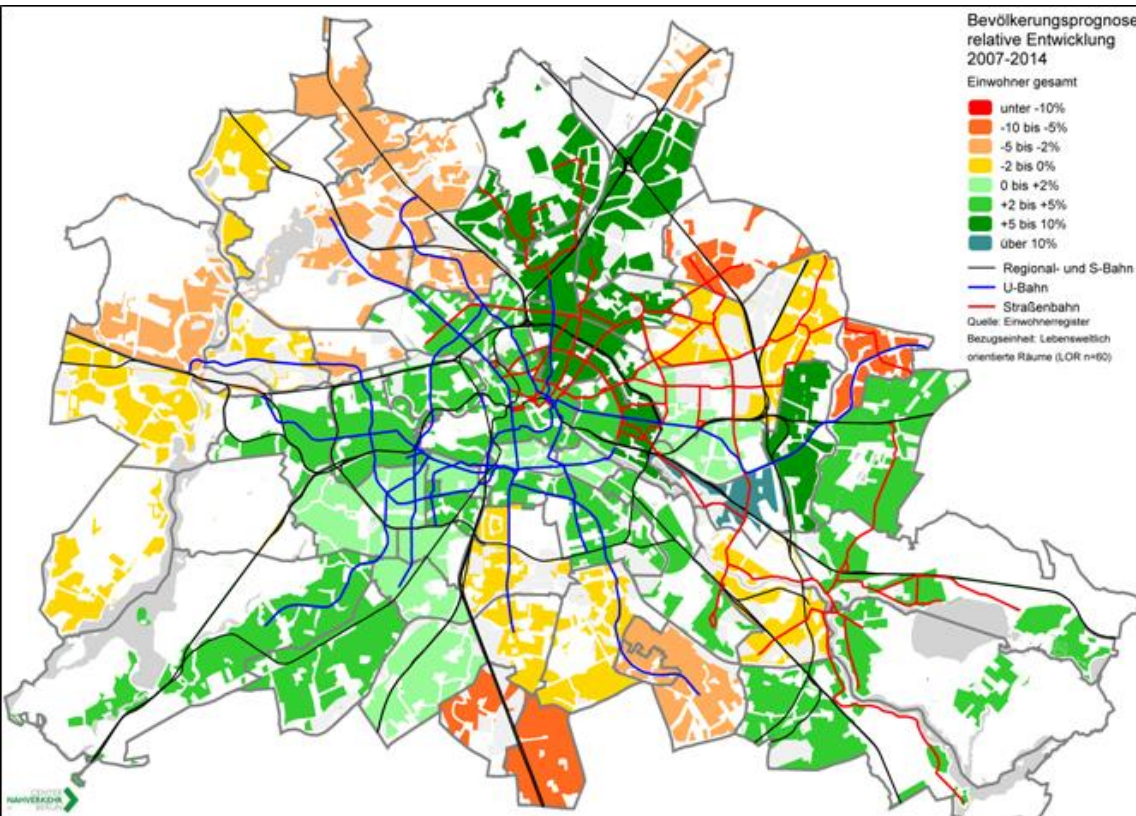
- Priority to inner development over development on outskirts
- Transit oriented development within rail-corridors

Berlin and Brandenburg: Two states, one regional planning administration, one plan

Strengthening Public Transport, the Backbone of Urban Transport

- Dense **integrated public transport network**: 5 different modes form one system
- Defined **ambitious standards**: access – connection – level of service, contract based services
- Improved transport provision in **reaction to changes of demand**
- Regional transport association and **integrated service and tariff / pricing: one ticket** (50 different companies in region, all modes of public transport)

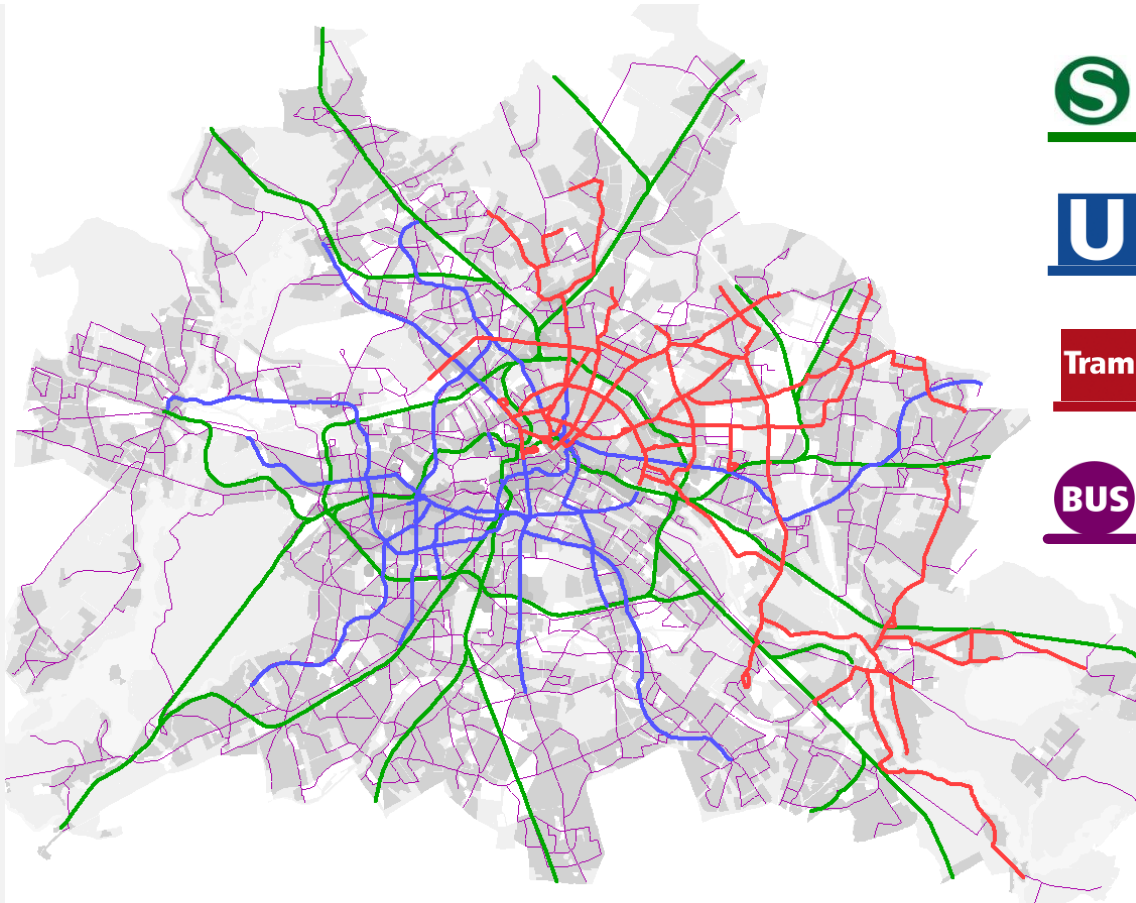
Analysis: Expected Changes in Transport Demand



- Population increase in some parts of the city will increase transport demand
- Further drivers of demand increase:
 - growing number of tourists
 - positive economic development
 - spatial developments (new residential and working areas as well as qualification of existing build-up areas)

Continuous adaption of supply necessary

Dense Integrated Public Transport Network



Suburban rail (rapid transit)
network: 257 km; stops: 133



Underground:
network 145 km; stops: 173



Tram
network: 190 km, stops: 374



Bus
network: 1,180 km, stops: 2,482



Not shown in map:
Regional Trains
network: 213 km, stops: 21

Total network length of about 1.900 km, equaling the distance Berlin – Moscow

Defined and Controlled Ambitious Standards

- **Accessibility standards**, i.e. max. distance to a PT-stop with a service frequency of min. 20' off-peak-hours:
 - 300 m for densely developed areas
 - 400 m for sparsely developed areas

Achieved for:

 - 86% of inhabitants during day-time hours
 - 83% of inhabitants during night-time hours
- **Connection standards**, i.e. max. travel time to defined areas:
 - 60 min to central areas City West and Mitte (Alexanderplatz)
 - 40 min to main centres
 - 30 min to district and local centres

Achieved for virtually all stations, only few justified exceptions
- **Service standards**, i.e. min. frequency at peak / off-peak times:
 - S-Bahn, Underground, Metro-Lines (Bus, Tram): 10' / 10-20'
 - Bus, Tram: 20' / 20-30'
 - Regional Trains: 60' / 120'

Achieved on all lines, with the (justified) exception of a few very sparsely populated areas

Limitation and Qualification of Car Use

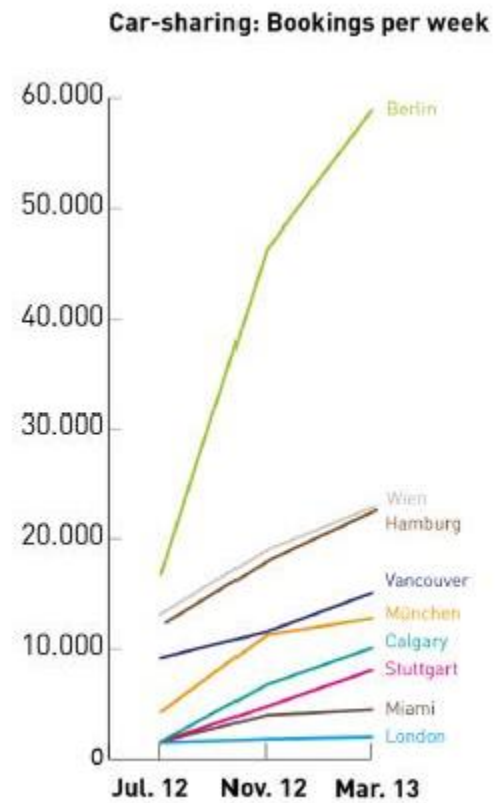
Private cars also in future will play an important role in Berlin

but

- **Transport Strategy:** reduction of car traffic to a **modal share of 25% (2025)**
core measures: redistribution of street space in favour of public transport and nonmotorised modes; parking management; attractive alternatives
- **Qualification of cars** (alternative propulsion, assistance systems, downsizing ?)
- **Changes in behaviour:** using instead of owning (in central Berlin), multimodal behaviour



Electrification of cars



Quelle: innoZ 2013

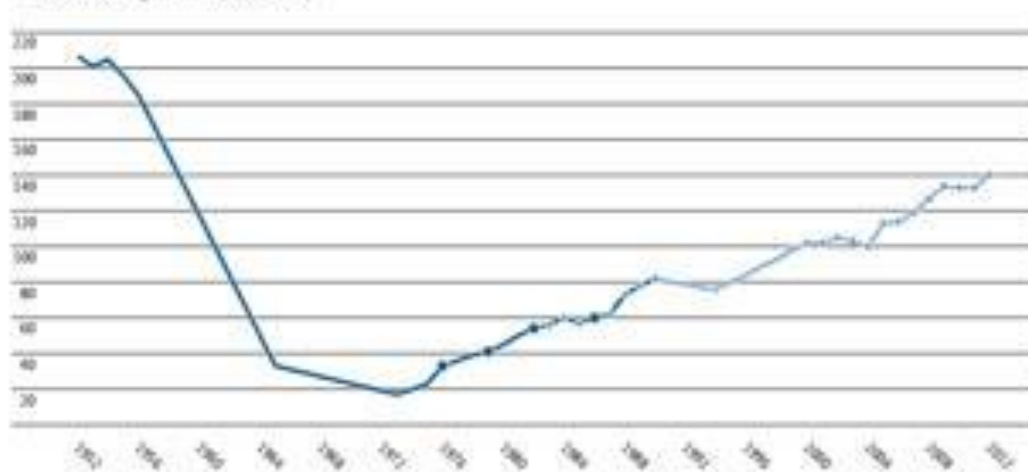


Study for „XXS“ city car

Promotion of „Active Modes“ (Walking, Biking)

- Essential modal share (walking about 29%, Cycling about 15%)
- Most urban-friendly modes: emission-free, space- and energy-saving, healthy, cheap
- growth-potentials of „short-distance-mobility in cities

Relative Veränderung in Prozent (2004 = 100%)

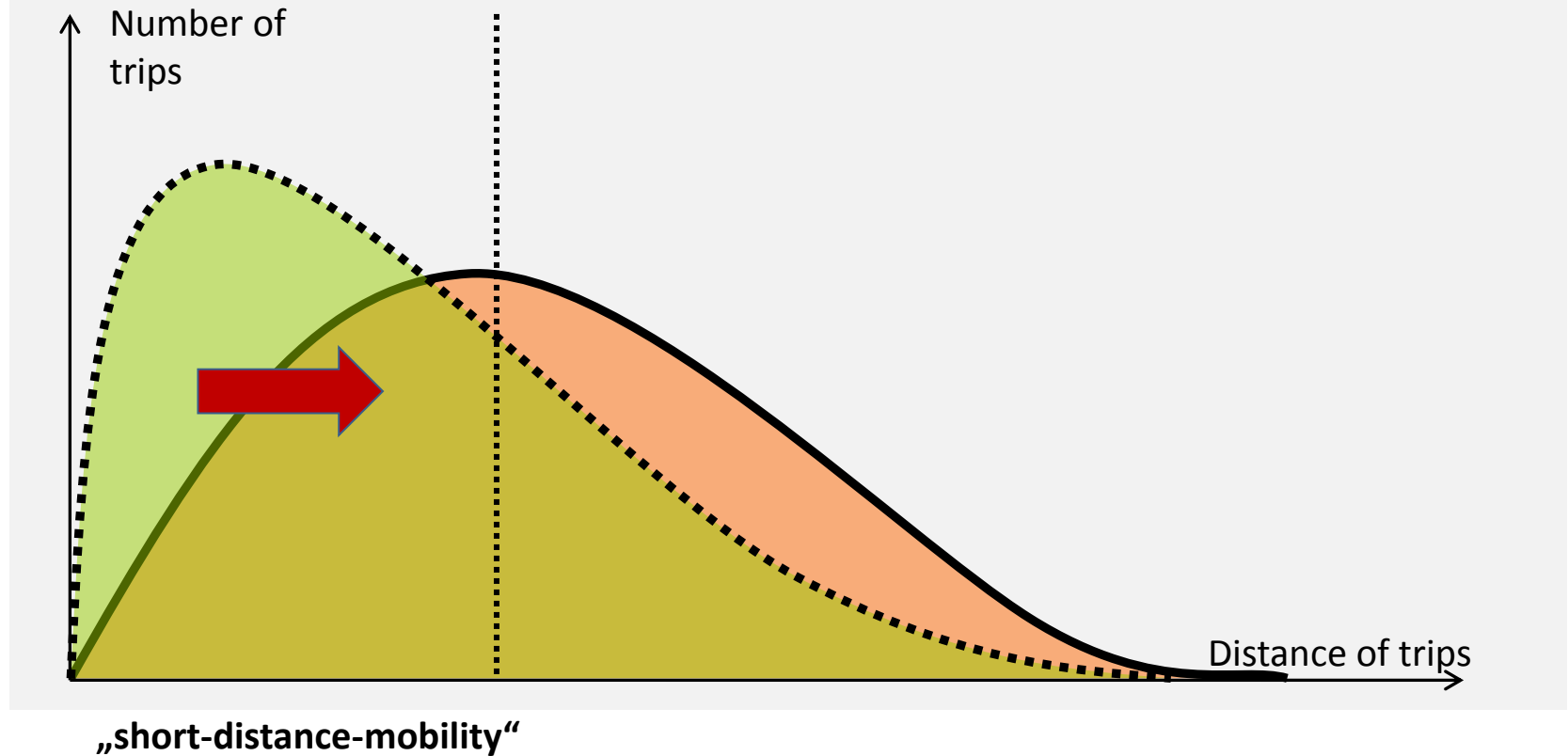


Decline and growth of cycling in Berlin since 1951

Decline until 1970 parallel with individual motorisation, since 1971 constant growth

Growth potentials for walking and cycling

Shifts in Frequency-Distribution of Trip-Lengths (Schematic)



Large part of short trips despite of growing trip length: 75% of trips in Berlin < 10 km

5. Summary of Experiences, Conclusions

- Urban structures and transport structures are closely linked: While planning the structure of a city think of transport **before** traffic appears!
- Primarily car-influenced city structures are neither sustainable nor liveable
- Global, national, regional and local challenges request a change of planning paradigm
- The process of planning is essential for the quality and the acceptance of the achieved plan
- Future oriented transport policy needs/stimulates both technological and social innovations
- Future urban transport will be multimodal transport.

Thank you for your attention!



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