



Bicycle and Intermodality, Experiences in Germany

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Difu – German Institute of Urban Affairs
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Diversity of „cycling cultures“ in Europe *...but the users' needs are the same*



About

- 1 Trends in Cycling (e.g. Berlin)
- 2 Organisation of Cycling Policy in Germany
- 3 Actual Challenges – Future Chances (Pedelects)
- 4 Some Actual Projects
- 5 Some lessons learned
Public Transport & Cycling – Competitors or Dream Team?



Some statistics first: modal split

entire Germany 1976 – 2008 (until 1990: Western Germany only)



Source: BMVBS 2010, MiD 2008



Changes in travel habits in Germany (especially: the “young & urban”)

Absolute number of trips, Germany nationwide (urban and rural)

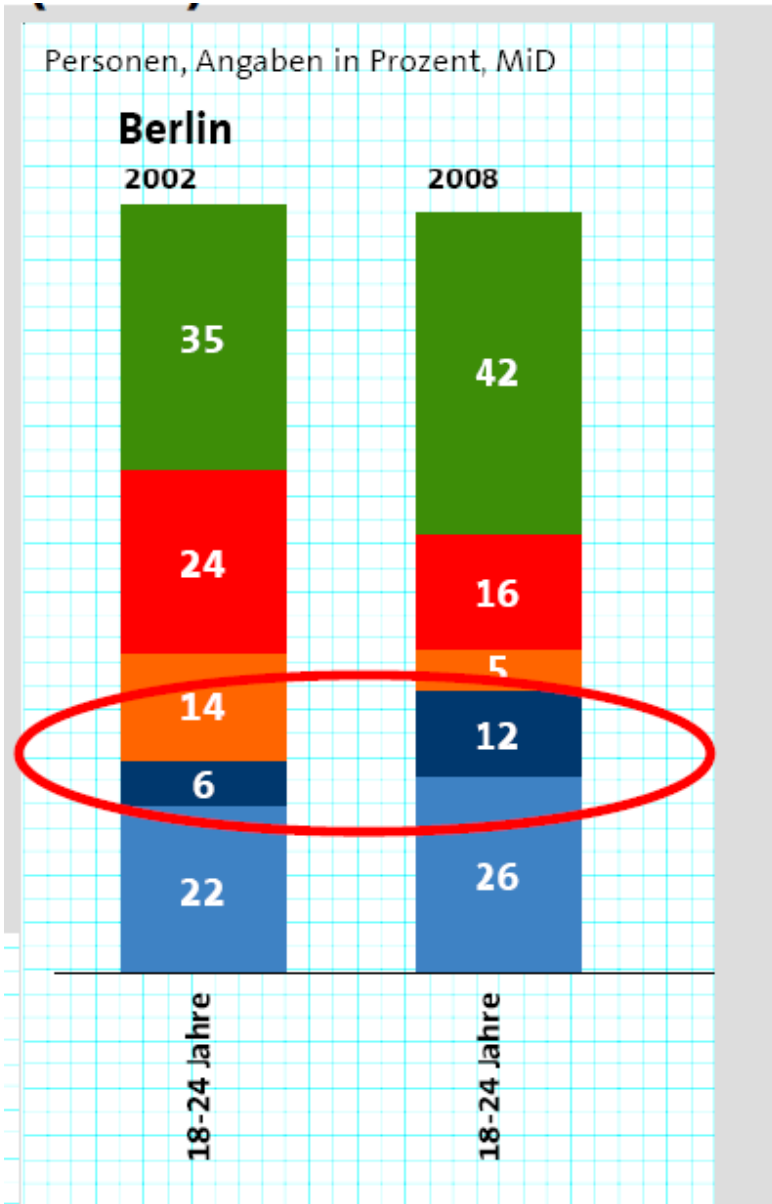


Source: MiD 2008

Berlin: 3.4 Mio inhabitants, well evolved public transport
SUMP in 2011 for 2025/2040 (*StEP Verkehr 2011*)



The young 18-24 years old in Berlin 2002-2008



public
transport

Car driver

Car passenger

Cycling

walking

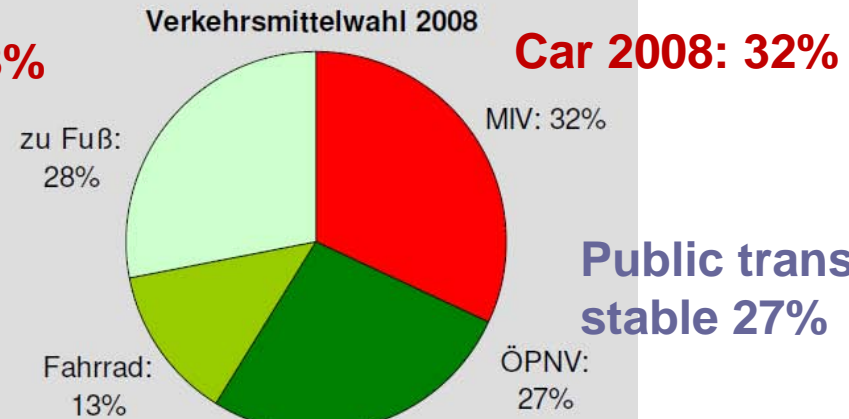
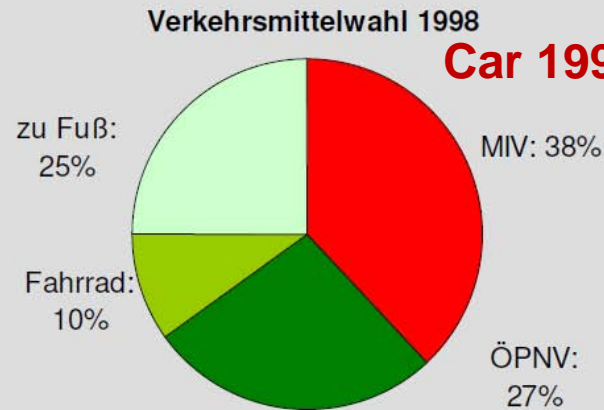


„This poster can not be big enough to say thank you for cycling and walking“
(Zero CO2 campaign
„Turn brain on – turn engine off“)

Modal split of Berlin's inhabitants 1998-2008

Walking 1998 25%

Walking 2008: 28%



Public transport
stable 27%

Cycling 1998: 10%

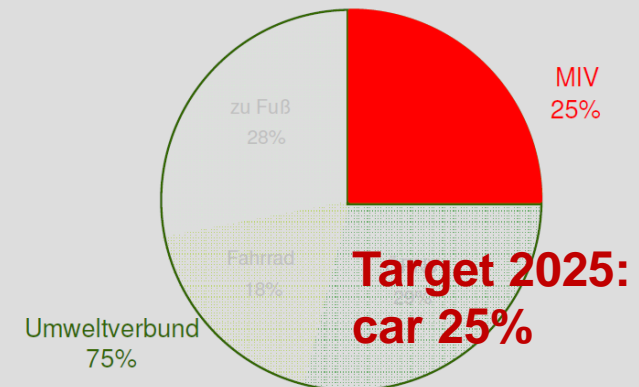
Cycling 2008: 13%

Wege der Berliner Wohnbevölkerung pro Tag

Daten: 1998 aus StEP 1.0; 2008 aus SrV

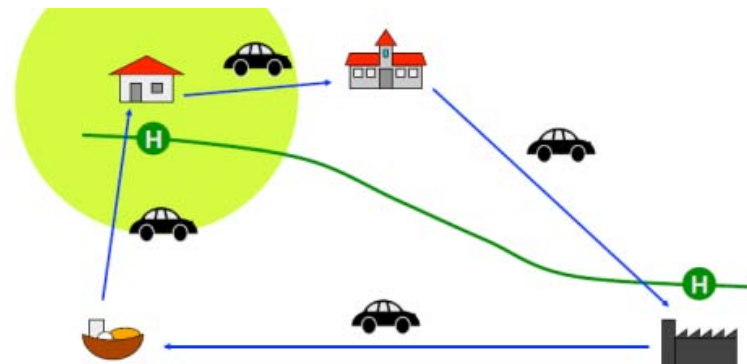
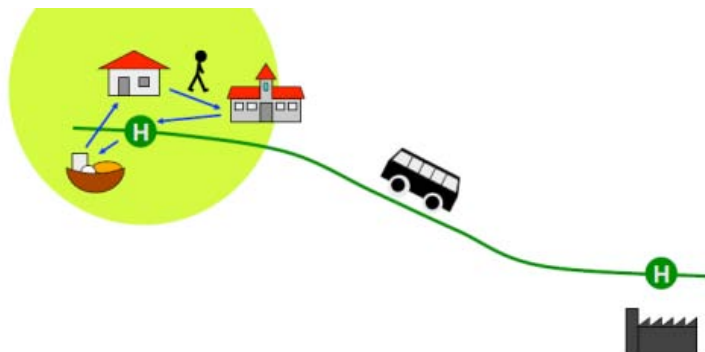
A car driver's paradise, very few congestions, thanks to other mobility options used frequently by the Berliners daily.

Verkehrsmittelwahl 2025
Ziele des StEP Verkehr

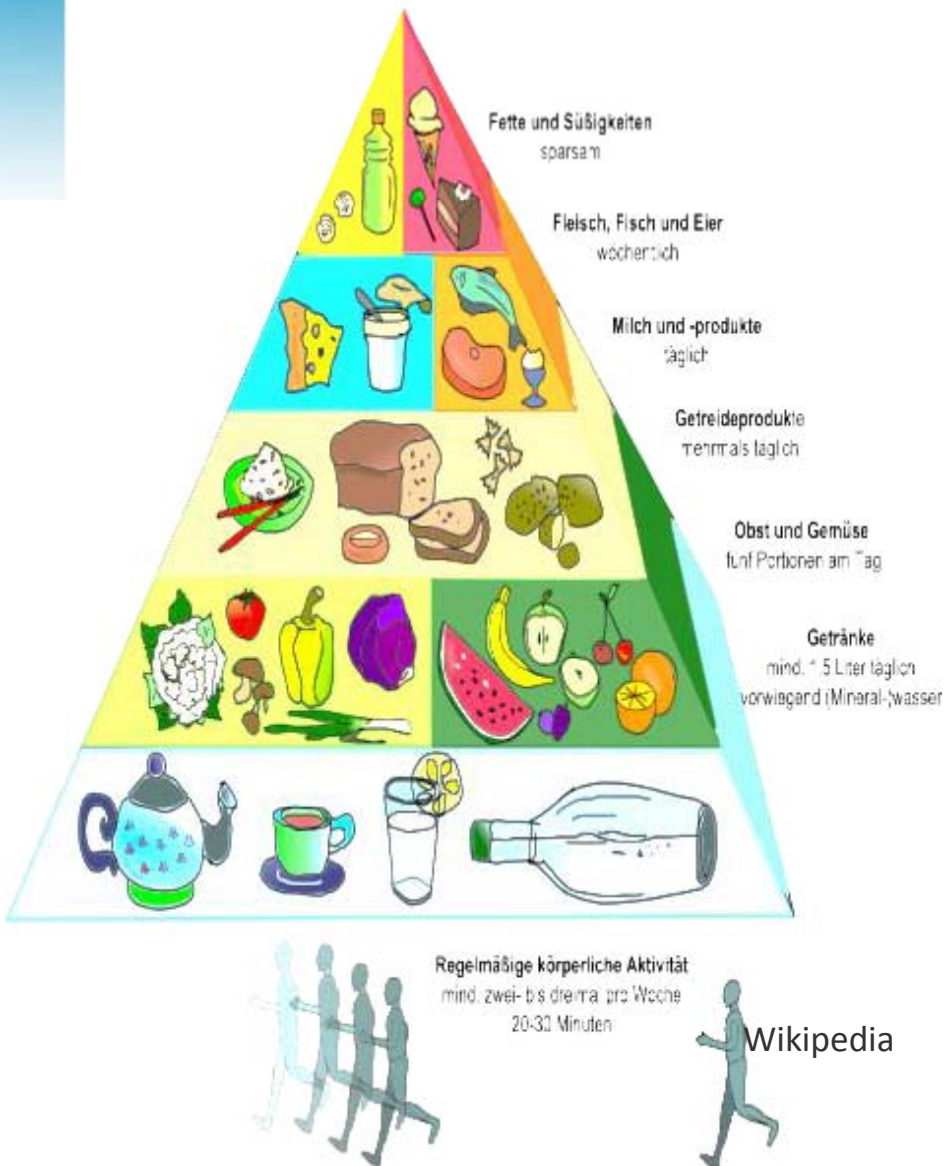


Any threats for the good cycling dynamics?

- **Perceived safety** - lacking trust of parents into public space
- **Need for maintenance and re-shaping streets** and other transport infrastructure - vs. austerity politics of public poverty
- **Increasing travel distances**, concentration of facilities to go to in space (“personal metropolis of activity islands, linked by fast roads & motorization”),



Nutrition pyramid for healthy life; Mobility pyramid for sustainability

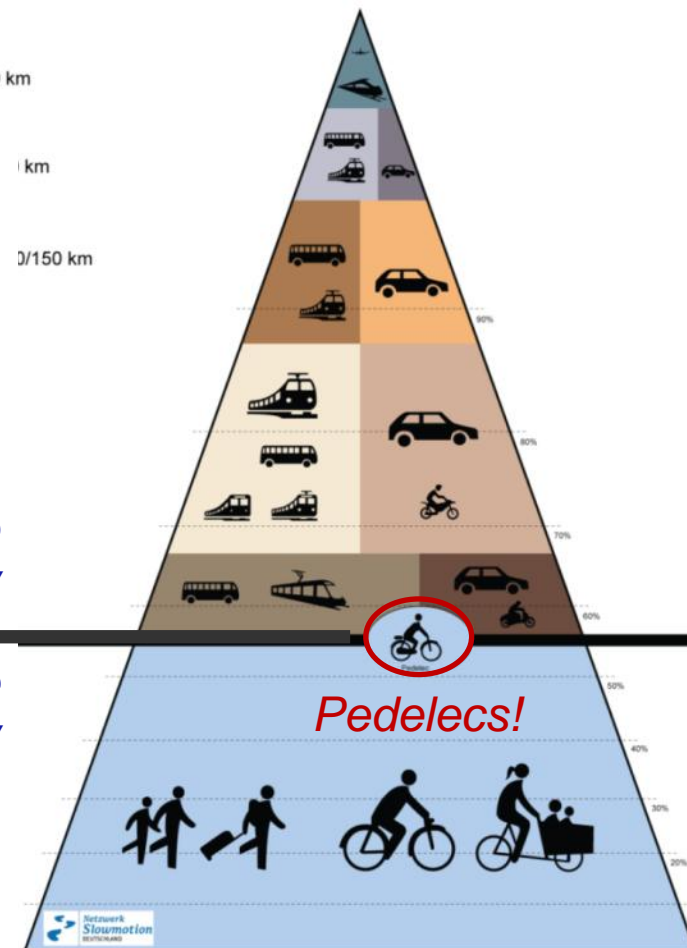


Passive Mobilität

5. Stock:
Weite Fernreisen >600/800 km

**Passive
mobility**

**Active
mobility**



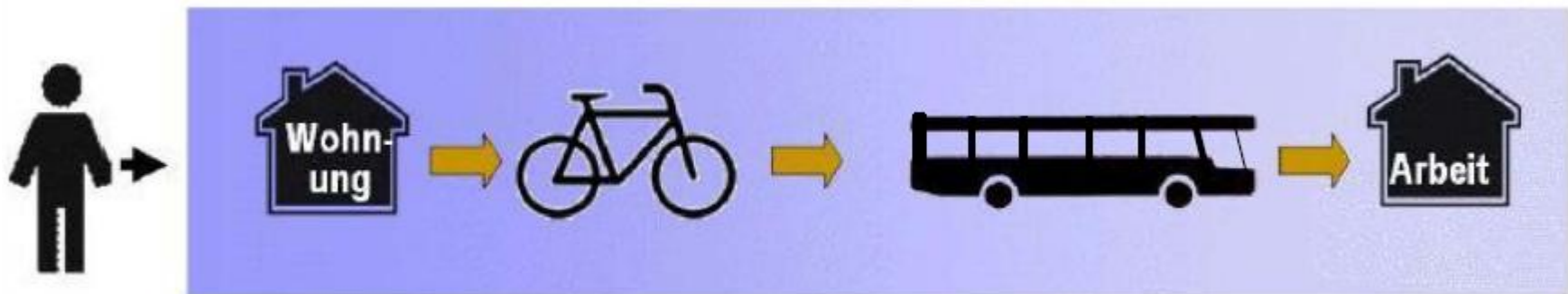
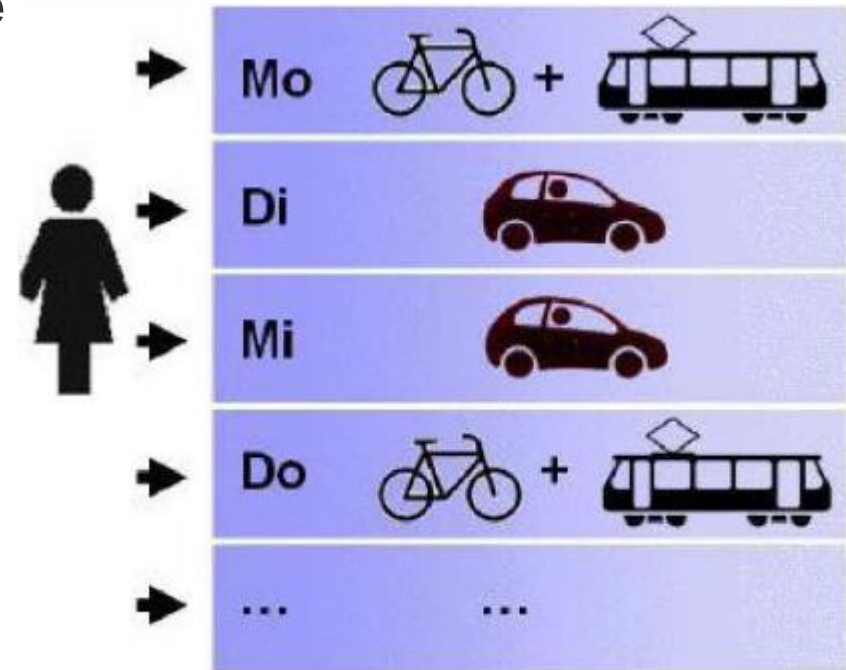
Evang. Akademie Tutzing 2013

Definition: monomodal, multimodal, intermodal

Monomodal: more or less just one mode use habit (car use, mostly)

Multimodal travel behaviour: switching modes during the week

Special form of multimodality:
Intermodal travel: combining different modes from origin (housing) to destination (work)



Source: TU Dresden, vip

Walking to the railway station as intermodality: Shared Space-projects at stations (DE / CH)



Locations: Baar, Wädenswil, HH-Bergedorf, Solingen

Reasons for intermodality: quick access from home to the commuter railway, regional bus stop

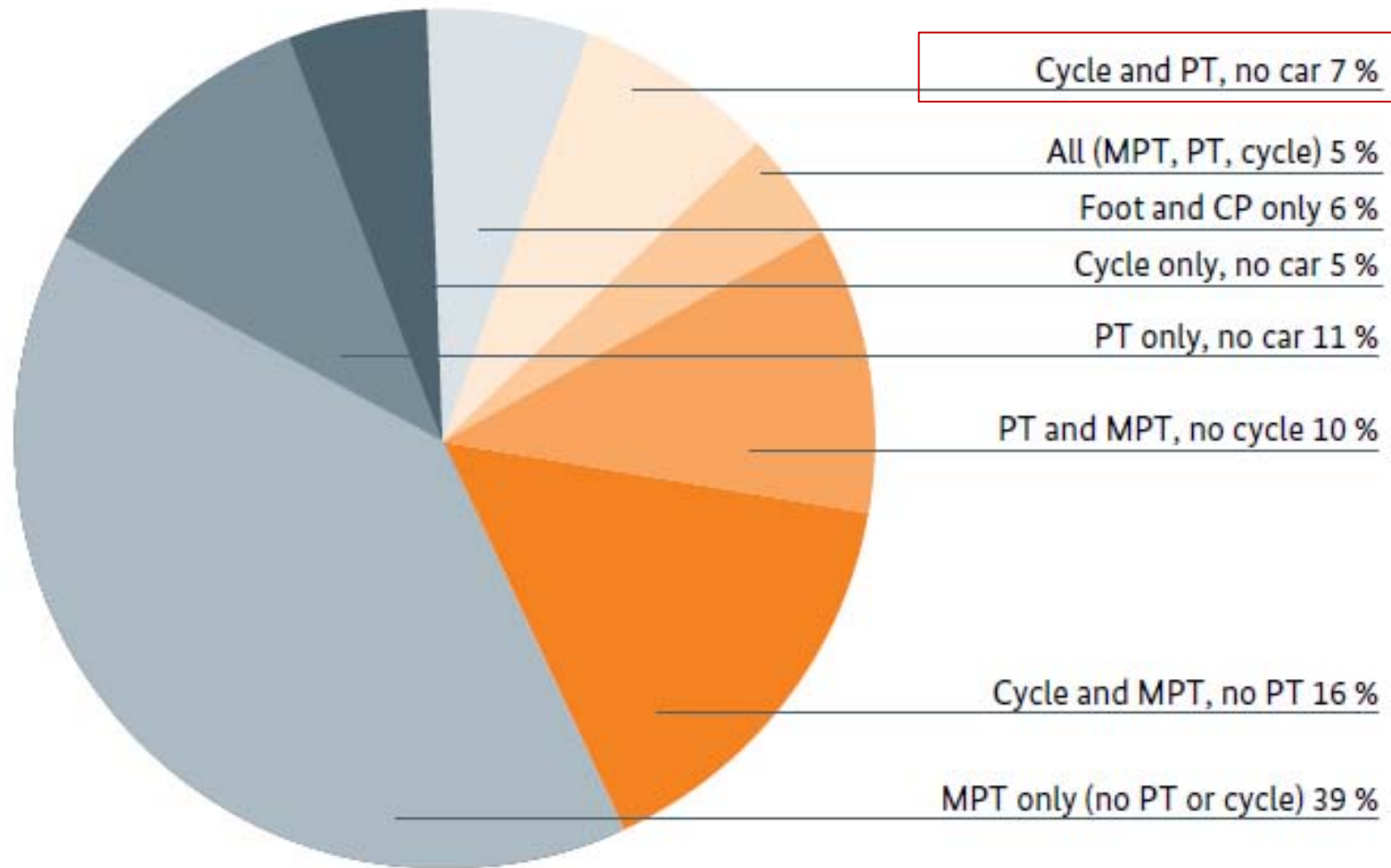


New reasons for intermodality: Rising passenger numbers in urban public transport (vs. public money)

>> *Cycling to moderate work load during peak hour?*

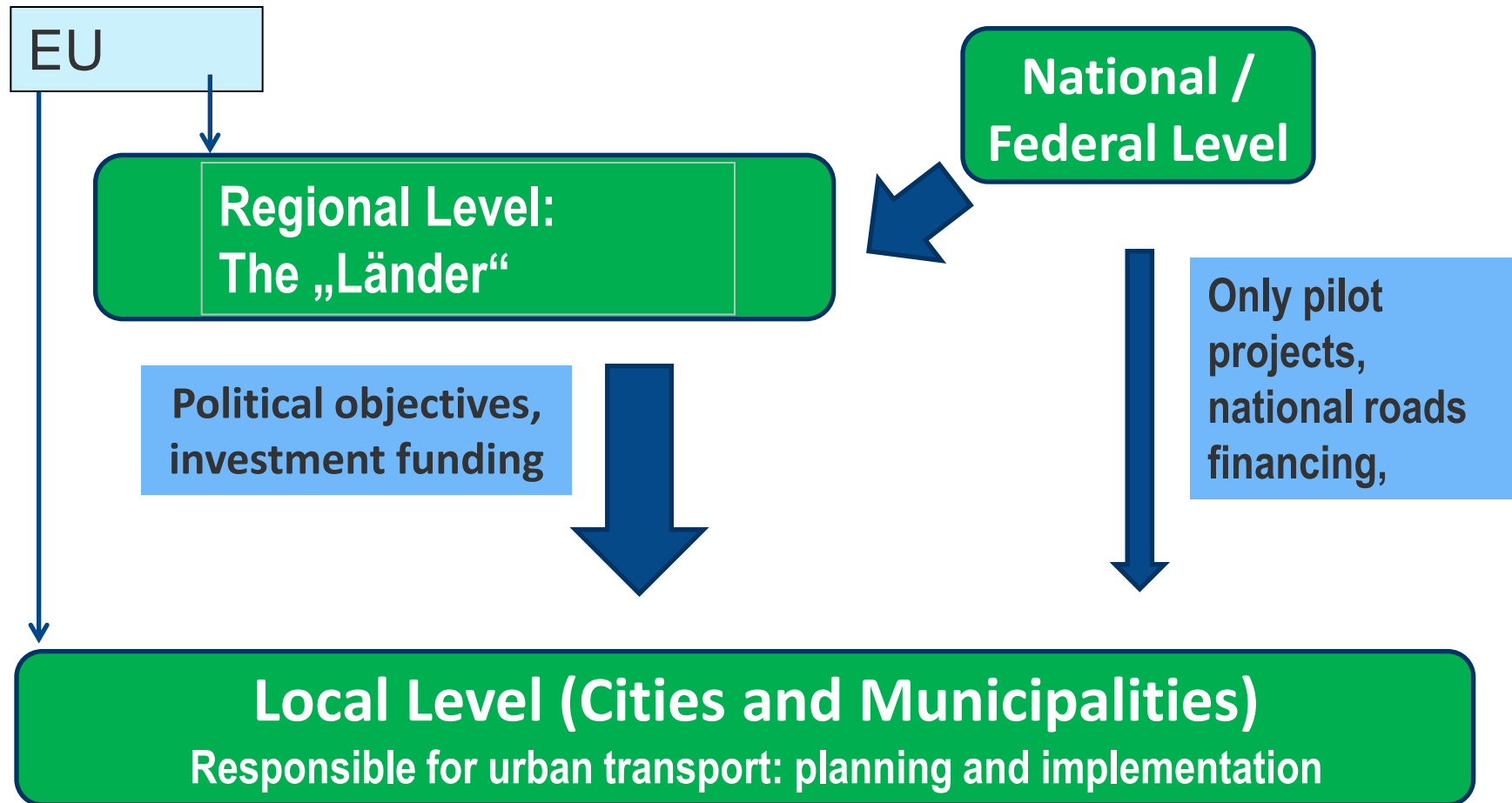


Multimodal use of means of transport in Germany



Source: NRVP 2020, BMVBS

Responsibilities in Germany's Federal System



Source: Difu 2010

Cycling in Public Transport legislation (ÖPNV-Gesetze)

Cycling mentioned
in 9 out of 15 PT laws:

- ★ „Bicycle Parking and Park+Ride at interchanges“
- ★ „Consider needs of women, children, cyclists, handicapped“
- ★ „An integrated, bike inclusive transport system, for the environment, public health goals“

★ For example obligation for Berlin city state:
„Consider bicycles, parked and taken with, in an adequate way“



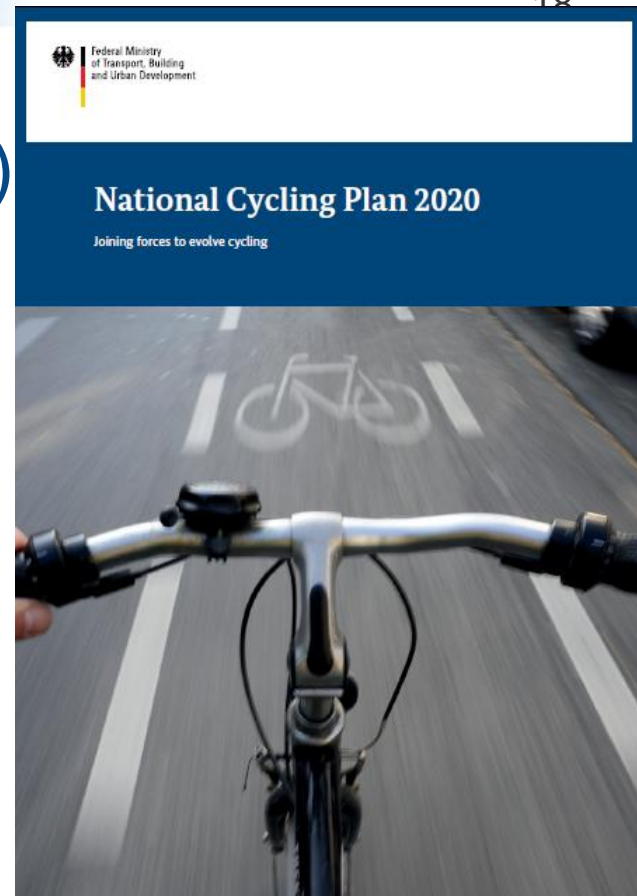
Map Wikipedia – „Länder“

Adopted in 2012 by Federal Government: National Cycling Plan 2020 (NRVP)

- Cycling modal share expected to rise from 10% to 15% of all trips in year 2020
- Also focus also on rural mobility, more difficult to achieve the targets

>> A joint drafting of the „corner stones“ with the regions, associations, scientists. Moderated by neutral Difu (municipality research institute)

450 suggestions collected from cycling advocates / local officers during cycling policy conference in 2011



Photos: Difu

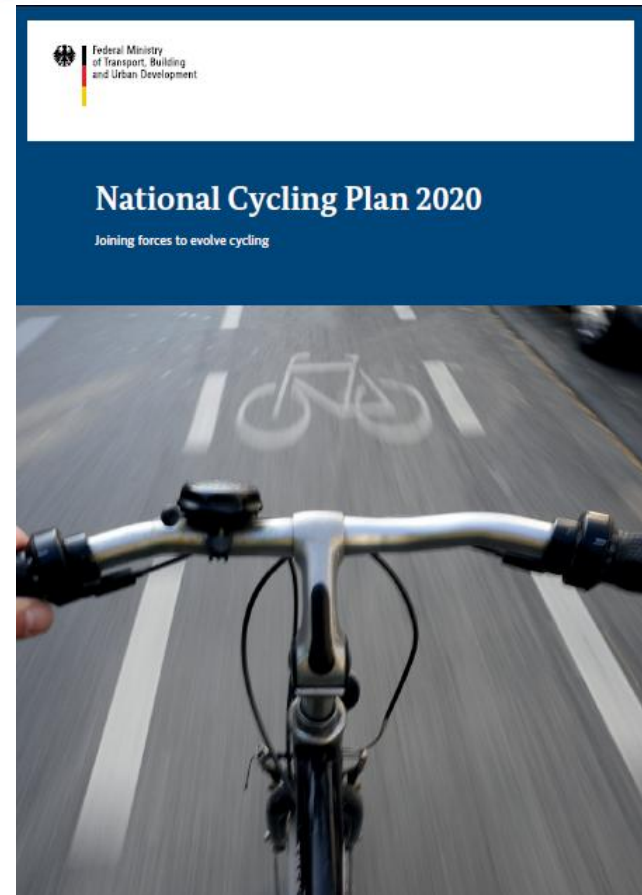
National Cycling Plan 2020

Combination with other modes highlighted:

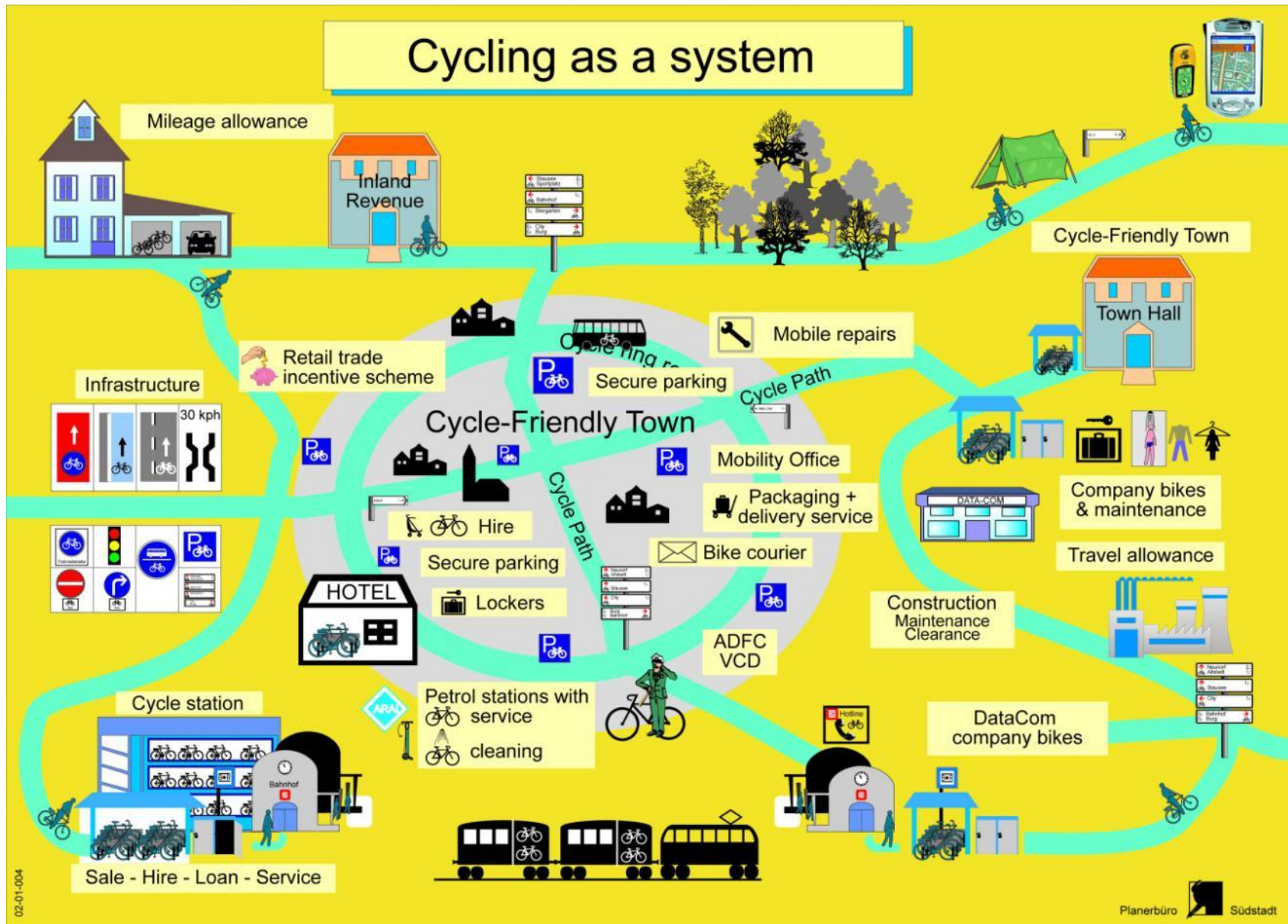
- **More bicycle parking at railway stations and major bus stopps**
(framework for the regions' responsibility)
- **Additional research and technical development** on the challenge of increased bicycle parking need, also to leave them safe at home
- **Mobility management for the workplaces** (responsibility of the employers)
- **E-mobility** federal money also to be used for electric bicycles

„**Bicycle Academy**“ training programme for municipal staff

Read more on the cycling knowledge portal www.nrvp.de
(>5000 files)



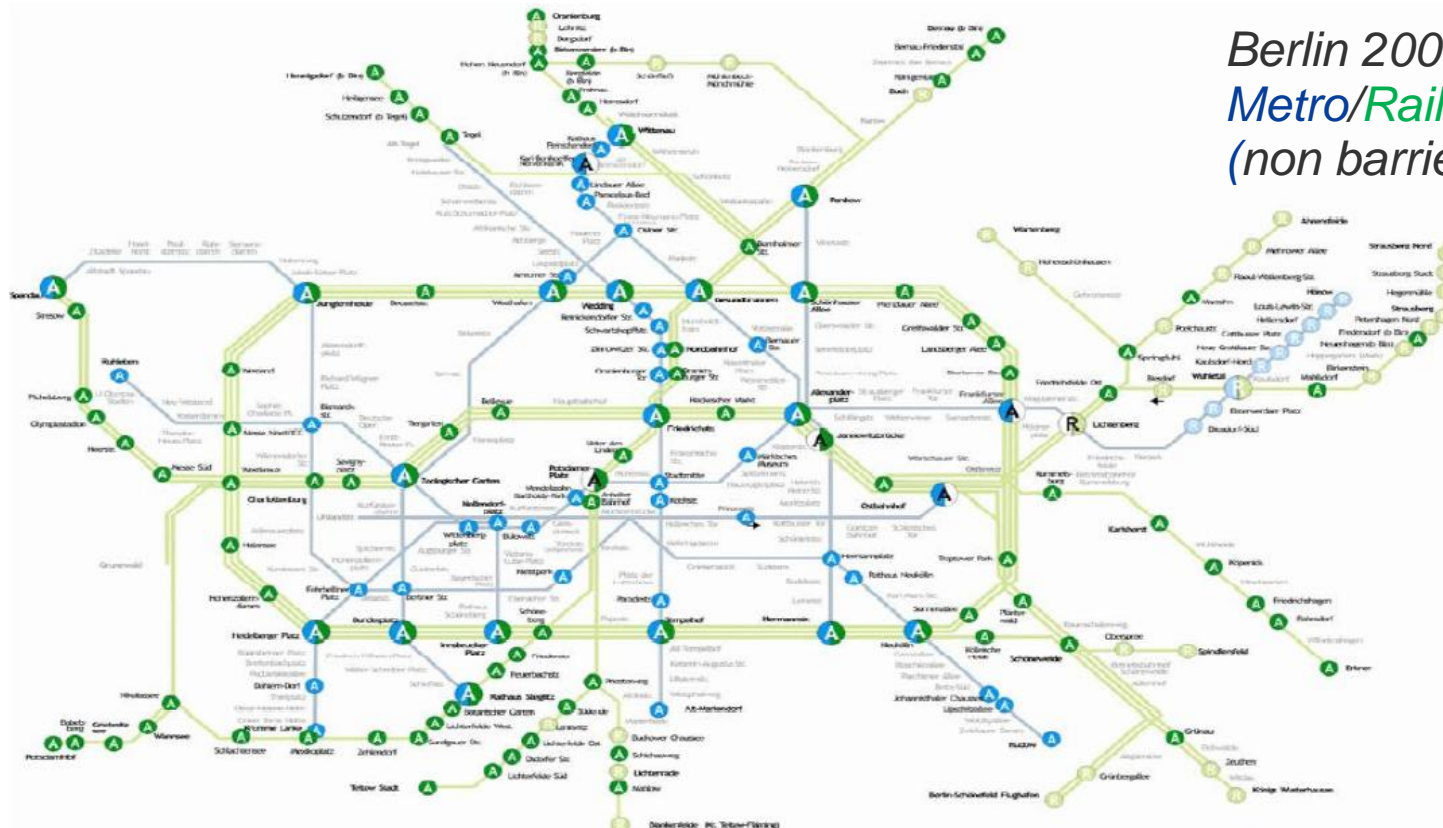
Cycling as a system



Law on Equal Rights for the Disabled (2002), Law on Passenger Transport (2013)

Local Public Transport Plan / SUMP:

- Requires specific consultation of advocates from disabled persons' groups
- Requires declaration to what extent service not barrier free until year 2022



*Berlin 2006: ramps & lifts in
Metro/Rail network
(non barrier free: not shown)*

Target „comprehensive barrier free“ in 2022 a great chance also for cyclists' access



Target „comprehensive barrier free“ in 2022

>> getting to the platform an obstacle for tourism still



Source: IVU 1997

Bicycle parking at bus-/tram-stoppss

(still poor in Germany, examples from CH, NL, NO, AT)



Collective parking at PT interchanges (DE, FR, AT)



New bicycle garages in Germany in Bamberg, Erfurt, Hamburg-Bergedorf, Kiel (local bus operator's passenger center!)



Most beautiful – all service: Malmö-Triangeln (2013)

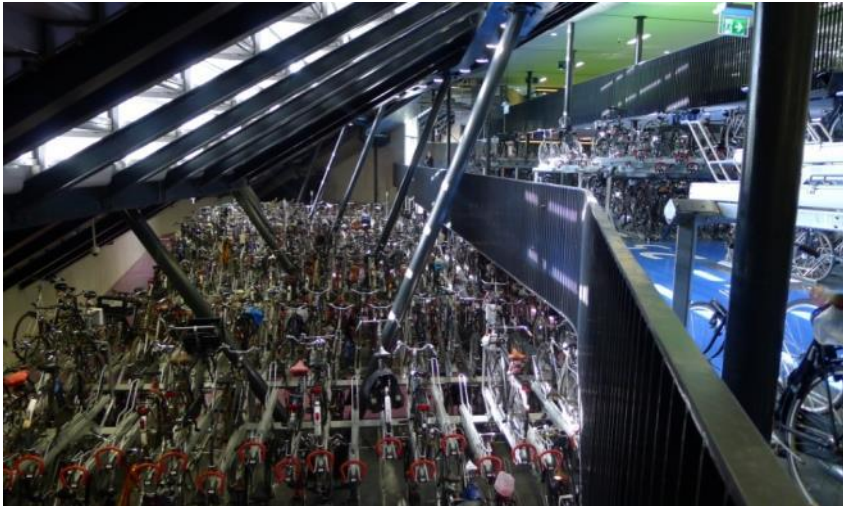


Prototype of Dutch commuter station

Alphen an den Rijn, NL, 30,000 inhabitants



Utrecht, Netherlands (2014 – planning for more)



„Intermodality
town“
Houten
near Utrecht
(50,000 inh.)

Cycling Garage
= station hall
for 3200 bicycles



Rotterdam, Netherlands (2014)



Ghent, Belgium (2014)





Provisorian during reshape of Zürich Main Station



Main challenge of bicycle parking quantities in dense housing areas

A matter for car parking companies to establish bicycle neighbourhood parkings (example Utrecht)

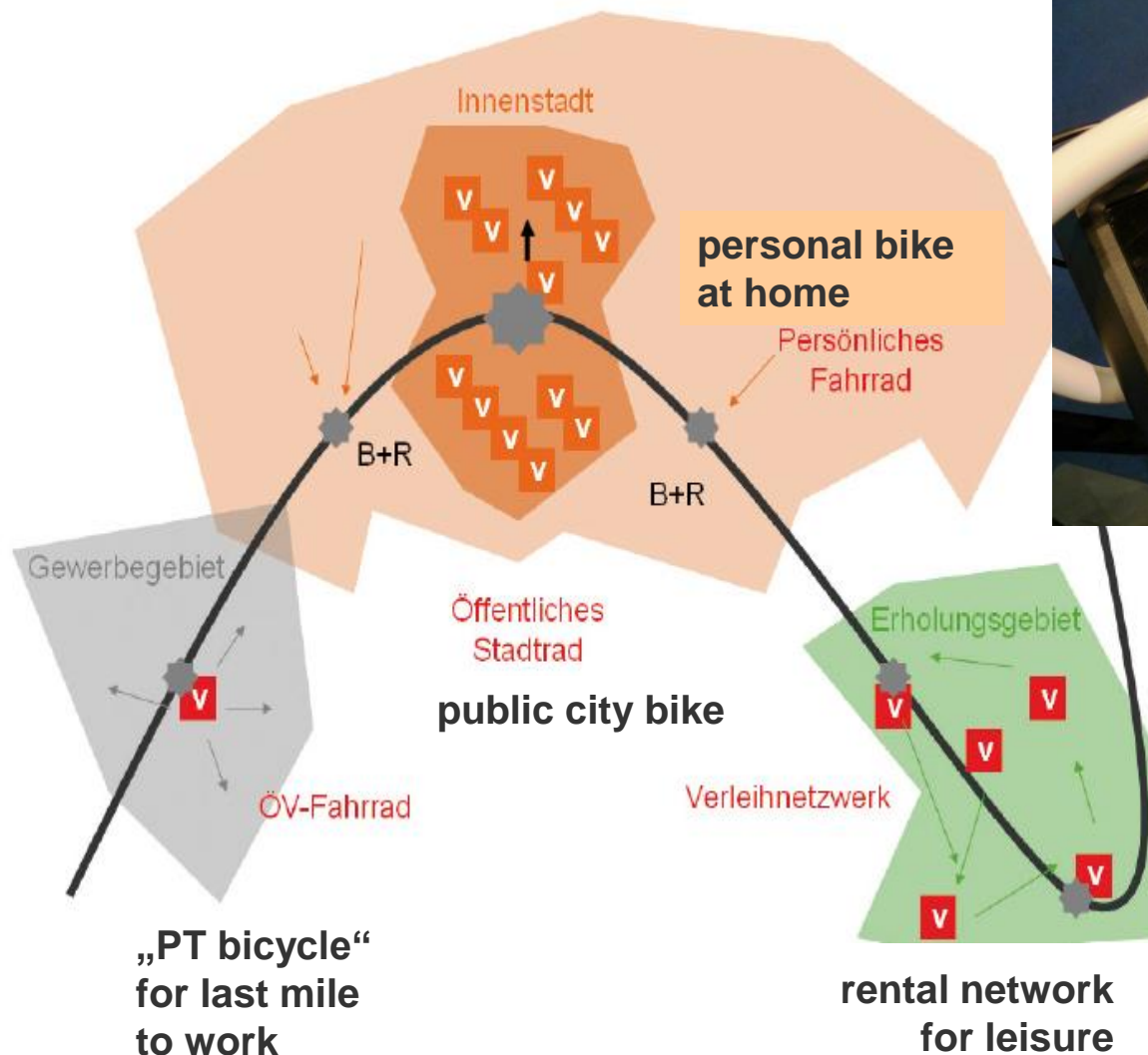


Capacity Restraints to take bicycles in trains/buses

- **20 years tradition of free bike in all regional trains / busses** in Sachsen-Anhalt State, providing optimum mobility for young rural population!
- **Once 20,000 bicycles per day in Berlin** commuter rail & metro, due to free bicycles in season tickets; social pressure to use it less under difficult conditions
- **Very fragmented conditions and fares in the PT tariff integration regions**
- **In the long run a „dead end“ in quantities for urban / agglo transport??**
- **Flexibility all times when space available! Due to social control.**



Capacity restraints to transport bicycles in PT and Bike&Ride: >> Bike Sharing systems!



E-Bike-Award 2014::
„Bycyklen“ Copenhagen
 Pedelec Sharing
 („A tablec computer on two wheels“)

A high proportion of electric bicycles expected



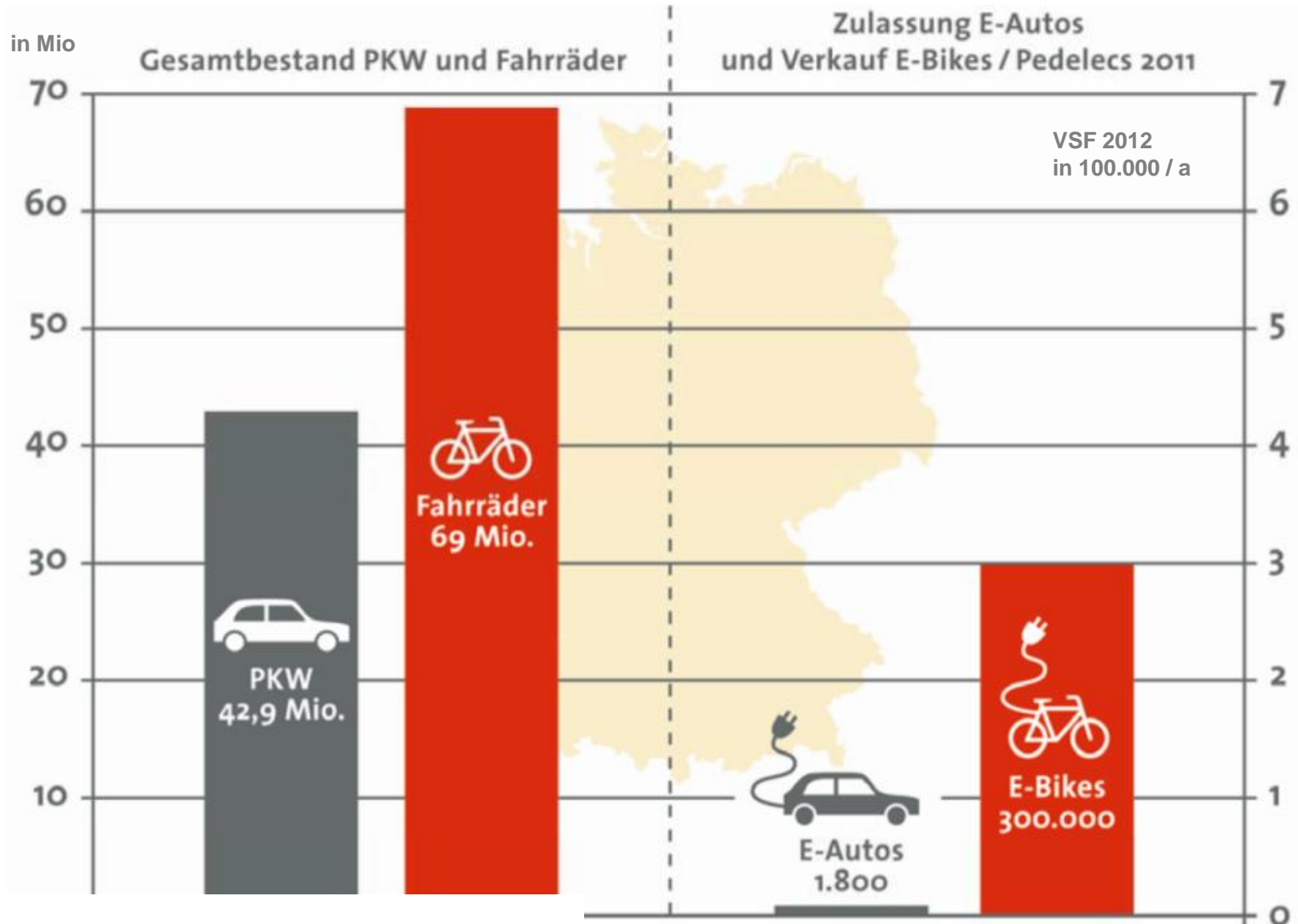
Source: Advertise Poster



Almost 2 Mio. pedelecs now in Germany

Status of fleets in Germany

pedelecs sold per year



Not only from pedelecs: trend in Germany's manuals:
on the road the rule, no more on the sidewalk (Hannover)



Ideas for charging & anti-theft facilities in cities

- Pedelecs' different needs compared to e-cars (charging less theft more important)
- Exception: tourist pedelec use needs charging opportunities on the way.
- Standardisation on the way to ... (2018??), combining locking and charging
- Can „e-lock“ technique possibly substitute the „locked box approach“ in future??



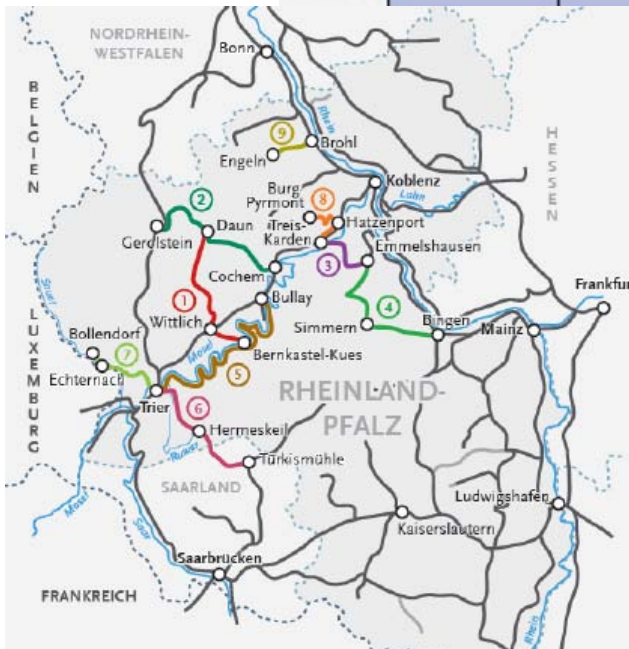
Advantage: Diversity of innovations by regions

1. Tradition of free taking bikes into entire PT in the region
2. „100 bicycle stations“: parking/rental/service
3. Accompanied bicycles tourist bus service
4. Standardized pedelec charging network
5. Automatic bicycle parkings
6. E-cycle highway to station
7. Collective bicycle parking garages in entire region *MVV*
8. Village public pedelec a feeder to bus route, *inmod*
9. Pedelec incentives: feeder to express bus *ST-mobil*
10. Large scale mobility management *EBikePendeln*



Tourist bicycle buses

mainly in mountain regions with greenways,
e.g. Rhineland--Palatinat (Land Rheinland-Pfalz)



9 Freizeitbahn Brohltalbahn
 RRM - Expres
 1. Januar bis 31. Dezember 2014

Infotext  **Vulkan-Expres**
 Tel. 02656/80505
 www.vulkan-expres.de

Brohl (Brohltalbahn) [G]	9.30	9.30	14.10
Schneppelburg Heilbrunn*	9.40	9.40	14.20
Bad Treisstein	9.45	9.45	14.25
Burgbrohl	9.55	9.55	14.35
Waller*	10.02	10.02	14.42
Niederrhein	10.20	10.20	15.00
Oberstein	10.30	10.30	15.10
Brück*	10.45	10.45	15.25
Engeln	11.00	11.00	15.40

Engeln	11.30	14.10	16.30
Brück*	11.38	14.18	16.38
Oberstein	11.55	14.11	16.55
Niederrhein	12.02	15.00	17.02
Waller*	12.11	15.11	17.11
Burgbrohl	12.20	15.20	17.20



 Online-Reservierung von Fahrplätzen

Images: Zweckverband Rheinland-Pfalz Nord

„100 Radstationen in NRW“

Programme of the Northrhine-Westfalia State Government after Dutch example

- Guarded parking
- Bicycle rental
- Service / repair
- One consulting / certificate office for municipal projects)

Mostly social projects to bring unemployed young people back to contact with customers

DB German Railways:
DB Station & Service: „Bicycle Parking no business case“; >> Joint venture (BEG) with NRW State Transport Ministry



Image: Radstationen NRW



Pilote automatic bicycle parking (Offenburg)

- 120 places in redesigned Smart-Car display tower
- 12 access points simultaneously
- 0,33 mio. € expenditures (mainly funded by BaWü region)
- Operation by municipal technical road administration



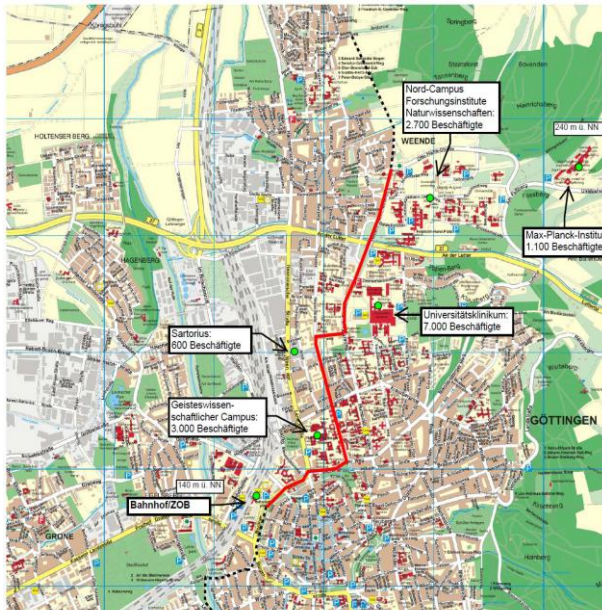
„e-Cycle-Highway“

Göttingen: ca. 15,000 Employees and 25,000 Students in the corridor

(1st million users counted)

Funded from Federal E-Mobility money due to charging station at Göttingen Station and pedelec tested at companies
(www.eradschnellweg.de)

Map: City of Göttingen brochure

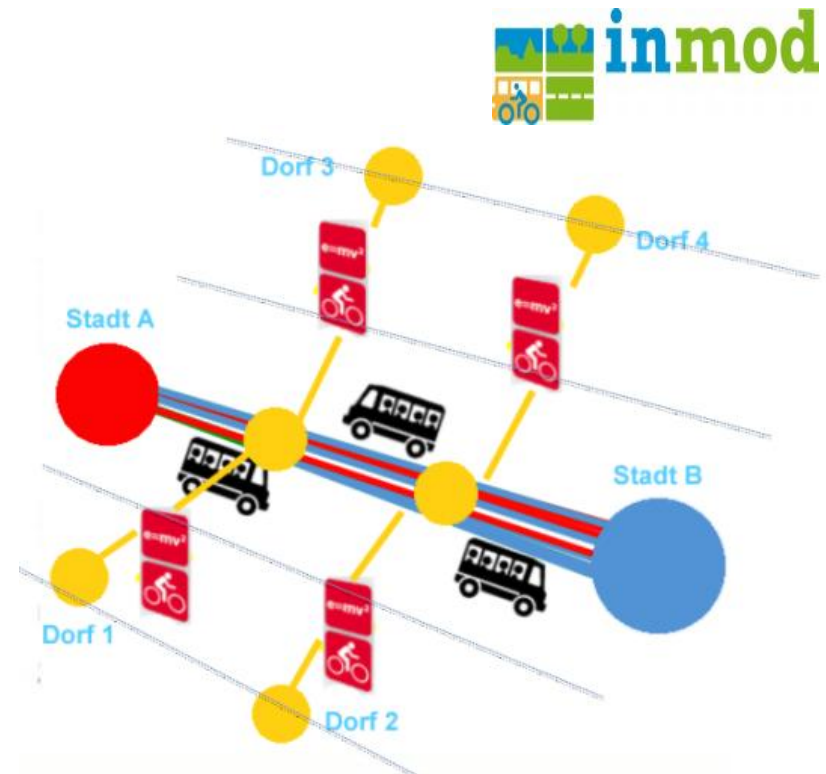


inmod: Very Rural Pedelec Sharing Project

feeder system to bus service (each 2nd hour)

Experiment 2012-2015:
Cycling a part of the public transport scheme in Mecklenburg-Vorpommern
 >> access to jobs for those without an own car
 >> elderly „without family“ (demography problem area)

Funded by Federal research fund on electric mobility



Pedelec & express bus service for commuters

„STmobil“ project by regional bus operator

- Incentives to rent a pedelec for half year, later buy a pedelec at reduced price from regional bus operator (support from region NRW)
- Intensive advice at local office
- Boxes at local bus stops with charging electricity (rare use)
- Effects: season bus tickets trippled. Entire passenger numbers +11%



Photo: RVM



Perspective: Interchanges for post-fossil intermobility in rural areas



Scenario / Model from bus operator for Münsterland (RVM)

www.switchh.de Hamburg - chipcard for all modes public transport, bicycle community parking, flexible car-sharing...



City of Offenburg planning intermodal „Mobilstationen“ >> infrastructure subsidies from int. emission trade money!



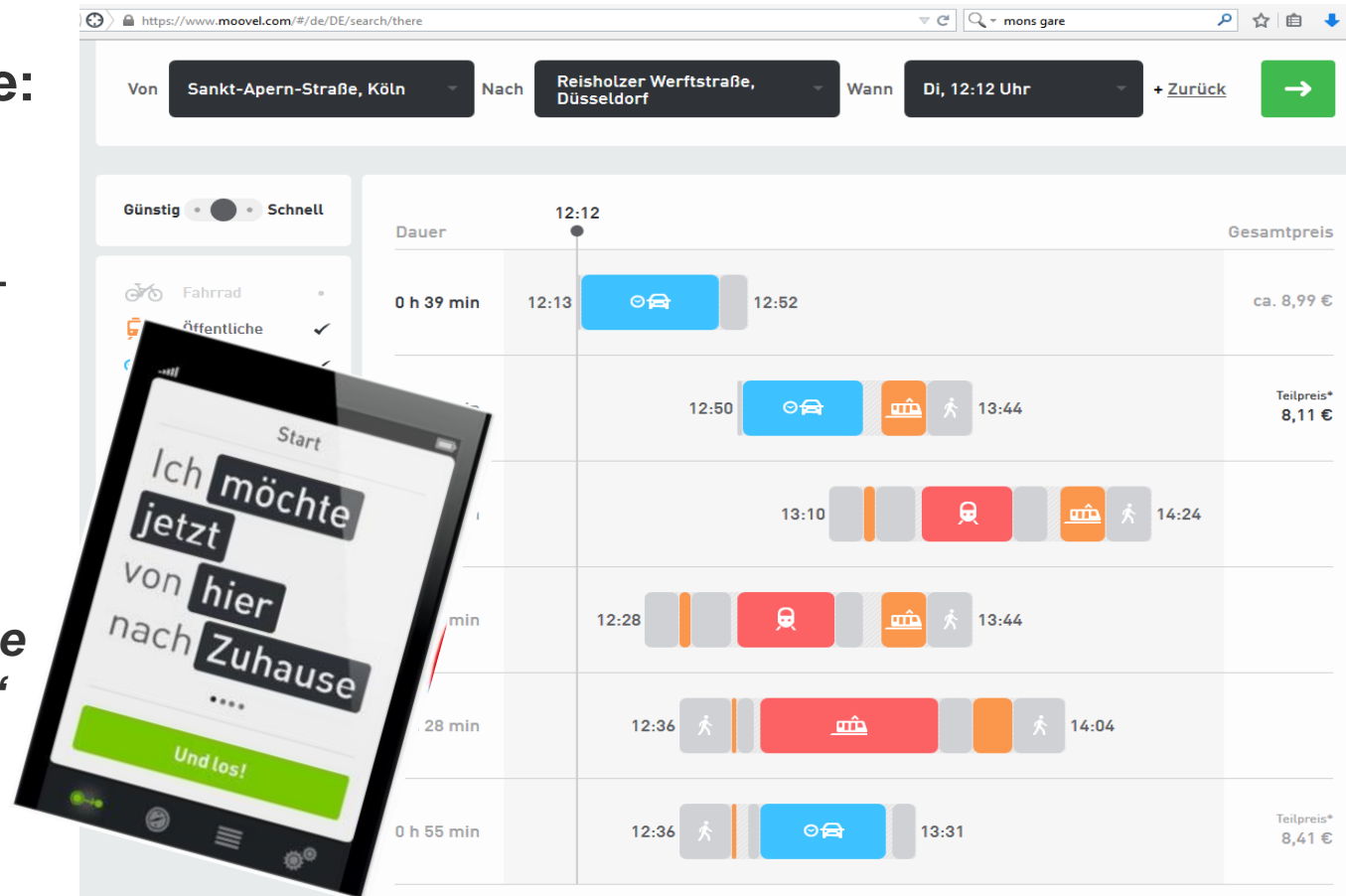
Images: City of Offenburg

Digital Revolution and intermodality: e.g. Moovel platform (recent benchmark)

On smartphone:

- Multimodal comparisons
- Real-time PT time table
- Smartphone ticketing

*„I just want home
from here now.“*



Outlook: from transport integrator towards a personal mobility curator (Google and other global web platforms??)

Some Lessons learned in Germany

- **People start cycling when they see others to cycle.**
A movement coming out of society. Infrastructure and just space to keep the potentials from fun of cycling during leisure trips.
- **Regional diversity an advantage to implement new ideas.**
But what about adaptation in other regions?? Rule of Green & Social Democrats parties to initiate new ideas, but Conservative rule continues the former cycling policy.
- **Public Transport and cycling may become a dream team.**
Mainly to enlarge the stopps coverage, also to reduce the morning peak work load in local service. But un-equal seasons' circle
- **Pedelecs have high potential to substitute car based commuting. It needs safe parking at origin and destination.**
The charging infrastructure is less important.
- **Future big bicycle parking quantities at railway stations** will become costly. Bike sharing systems a substitute for this in some areas?

„Cycling Expertise“ files on www.nrvp.de/en/cye (print & download, newsletter in English)

Cycling Expertise

Bicycle Parking at Train Stations

Bike & Ride: Advantages for cyclists and for the public transport system

Combining cycling and train use is advantageous for both cyclists and for public transport service providers:

- Bicycles are a more flexible means of reaching and leaving the train station, preventing waits for shuttle transport to and from the station (compared with buses or trams for example).
- By not having to drive a vehicle, commuters have the comfort and time on longer train rides for work or reading.

The more environmental combination of bike and train offers door-to-door commuting times comparable to the motor vehicle. Local public transport service providers benefit from the "Bike & Ride" combination by reaching a wider radius of users with any given stop, as compared with exclusive use by pedestrians.

In many public transport networks, the "Bike & Ride" is also advantageous for service providers because cyclists pay the same amount as users of shuttle transportation. The combination is especially useful during the morning and evening rush hour; much of the transportation to and from train stations is accomplished by cyclists, alleviating pressure on shuttle services. Thus, fewer additional staff and vehicles are needed during those short periods. However, train stations face particular infrastructural challenges if a large proportion of train riders

arrive by bicycle, as parking availability needs to be sufficient.

In other countries with large proportions of bike and train riders, experience has been collected over the past decades on how best to handle the large demand for bicycle parking space at train stations, with various operational models offering more efficient services. Most experienced with regards to bicycle parking, the Netherlands offers examples of solutions for both large and small train stations. Bicycle parking garages with a capacity of up to 5,000 spots have been newly built or enlarged at a number of central stations around the country (for example, in Groningen, Leiden, and Utrecht).

Cover image: Germany's largest bicycle station in Münster.
© Jörg Thiemann-Linden

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- The bicycle station concept – not just a building, but an organisational solution 2
- The „100 bicycle stations in North Rhine-Westphalia“ project 2
- Other types of new bicycle parking systems in Germany and its neighbours 3
- Conclusion 4

Challenging planning task which depends on train services in particular:

- the amount of space available for transport in limited street space;
- driven car speed.

Procedures for quality integration and local acceptance 3

Outlook: More integration of the modes in the street space? 4

Transport from 2002 to 2008 in Germany (total number of journeys per day); Source: (BfV 2008)

Cycling Expertise from Germany O-1/2010

Mode	Journeys per day (2008)
cycling	117
walking	108
public transport	104
car (drivers)	100
car (passengers)	95

in Germany

Mode	Modal split share (%)
car (passengers)	43
car (drivers)	10
walking	24
public transport	10
cycling	13

total split share (in percent) of the various transportation modes in Germany 2008

Comparison of bikes to other means of transport 1

Who travels by bike often and who seldom? 2

What types of journeys do people take by bike? 3

Where do people travel by bike? 3

In what areas are bikes used? 3

Conclusions 4

Methodology 4

Cycling Expertise from Germany A-4/2010

Cycling Facilities

Integration of technical guidelines on

of the art road design is not limited to the

new FGSV Guidelines for Design of Urban

It is recommended a new methodological

design (see Cycling Expertise No. 1-2).

new effort on the part of the planners in

is the integration and balance of all modes.

It, and where the street lacks space, the

recommended full and planned integration

of the same space in order to provide a top

structure to all forms of transport. The layout of

new "safety lanes" in the countryside – recommended

new cycling facilities

generation of technical guidelines on

of design 1

sons for the new ERA 2010 1

2010 – new manual on cycling facilities

search on road traffic safety – different

to direct the cyclists 3

methodology in choosing the appropriate

cycling facility 3

Cycling Expertise from Germany O-2/2010

Cycling

local energy sources and the lack of

CO₂ emissions arising from every-

not including holiday travel and

shows the carbon footprint of

created by travel for work and

and tourism;

are created by recreational travel

is created by travel for shopping

(29 million tonnes)

bike traffic lights in Berlin

office 1

ing are certain types of

cycling for short distance

electric bicycles 4

ing urban development 4

portal 3

academy 4

vestment cycling projects 4

Cycling Expertise from Germany O-2/2010

Cycling

another, and to allow

integrated routes, re-

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a means to differentiate

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German Institute of Urban Affairs

Thank you for your attention

Jörg Thiemann-Linden

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