

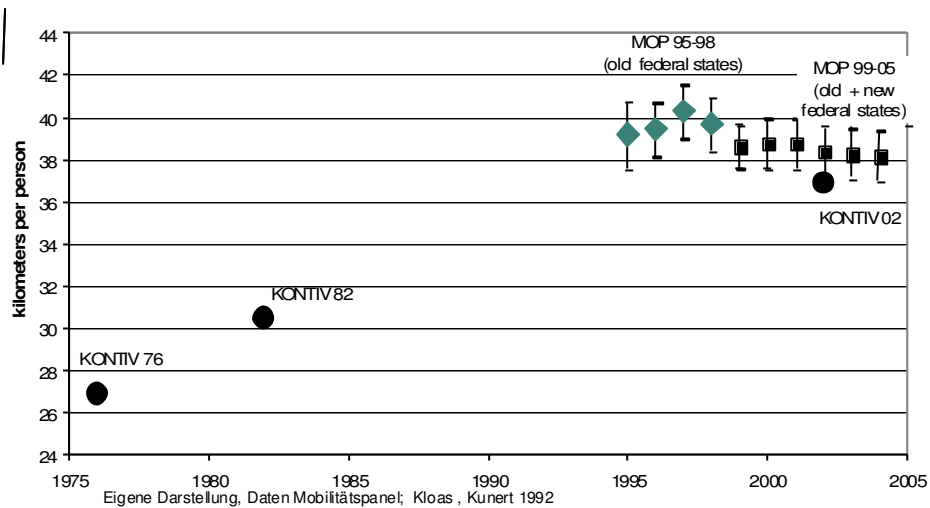


Demography and Transport - Assumptions and Expectations about future Developments

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Travel demand development in Germany

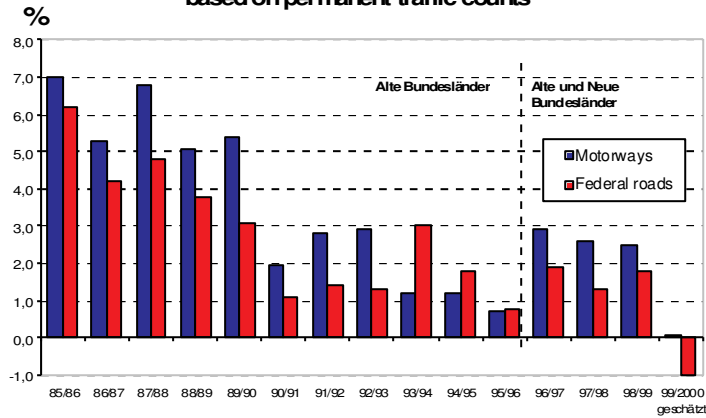


www.mobilitaetspanel.de



Traffic counts on federal road network

Demand development of vehicles 1985 - 2000
based on permanent traffic counts



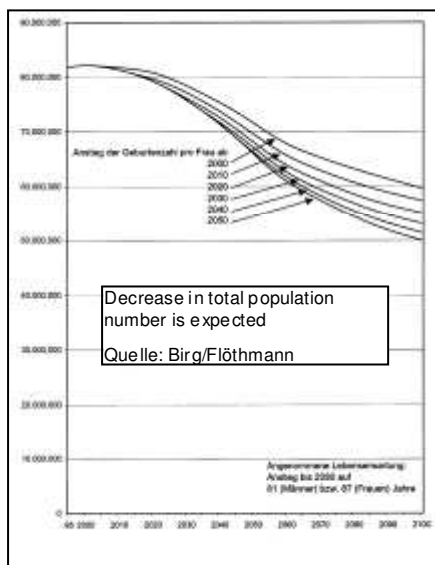
Decline in growth rates [%]

Quelle: Schmidt, G.,
Heusch-
Boesefeldt-Spektrum 19
(Mai 2001), S. 10

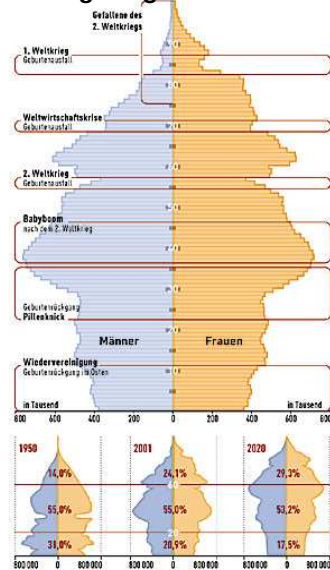


What does „Demographic Change“ really mean?

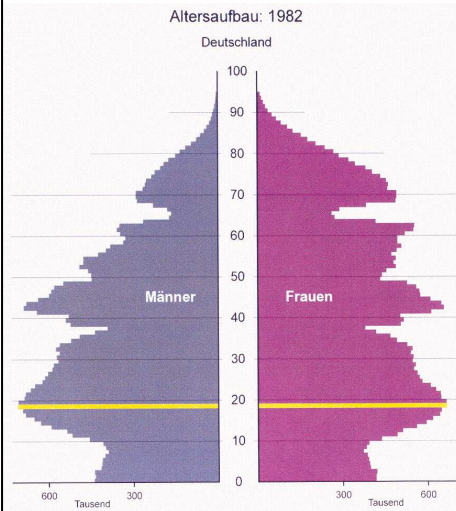
■ Decrease in population number



■ changed age structure



Looking back into 1982

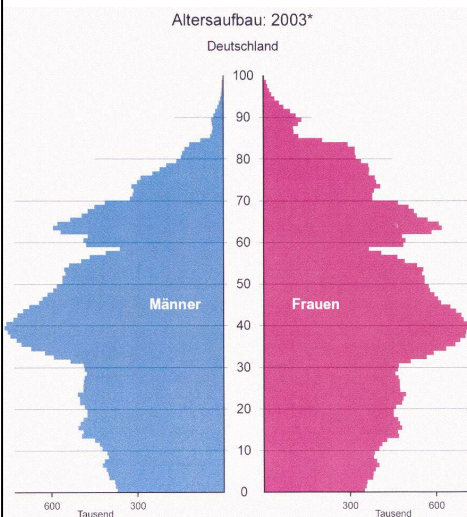


How demographic processes affect travel demand development

- each year large number of new drivers
- most mobile age classes groups constituted the largest part of the population
- by reasons of other processes in society extension of the duration of most mobile age classes
- motorisation
- Development of the transport system and infrastructure

= **Large annual growth rates !**

What is happening today?



How demographic processes affect travel demand development

- Babyboomers became adults
- Most mobile age groups becoming smaller
- Relevant processes in the society are mostly finished and not repeatable
- Motorisation development for most person groups terminated
- (stagnating available incomes for large parts of the population)
- (increasing mobility costs)
- **Senior citizens becoming more active and mobile**

→ **Stagnating demand by reasons of compensating effects ?**

Content

- **Demographic Change - Why it is relevant for Transport Planning**
- **Travel demand and spatial processes – considerations against the background of demographic developments**
- **Assumptions and expectations about the effects of the demographic change on transport and mobility**
- **Consequences for politics and planning**

Demographic Change - Why it is relevant to look on it for transport planning?

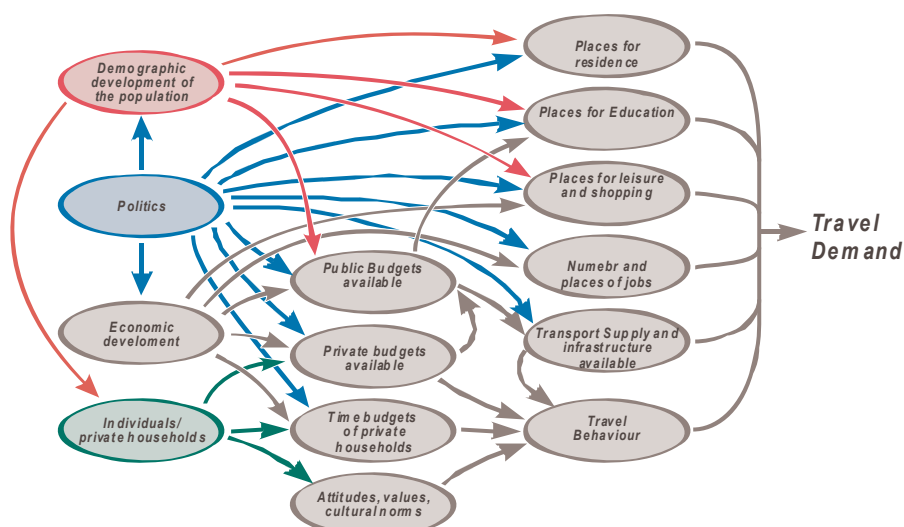
- Transport infrastructure and the infrastructure of our cities have a long life cycle and are binding massive parts of a society's capital stock
- Long planning periods
 - ➔ Another population with other mobility preferences and behavioural patterns
 - ➔ Changed requirements for the spatial system
- Typical problems of adaptation, restructuring and shrinking processes

- **Travel demand and spatial processes against the background of demographic developments**

**„Demography explains two thirds of everything“
(David K. Foot, University of Toronto)**

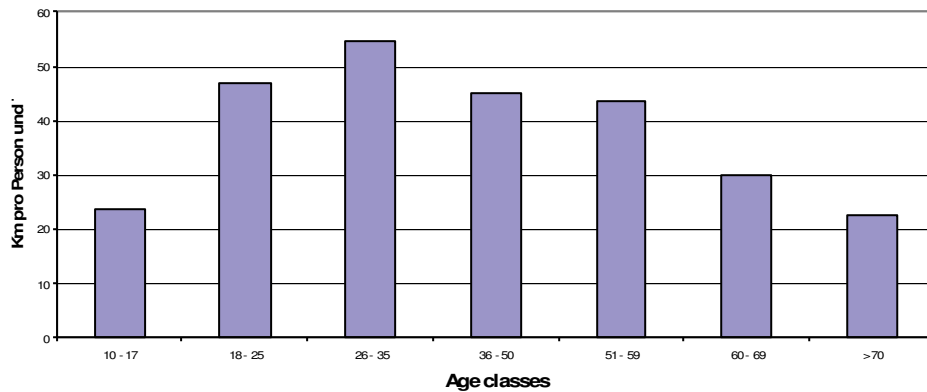
- Effect of a changing age structure
 - Effects of cohorts
 - Economic framework conditions — the generation and consumption of assets in the society and within households
 - Other framework conditions – what else we have to expect
- ➔ **Concurrence of effects, what role plays the demographic factor?**

How the demographic development influences travel demand



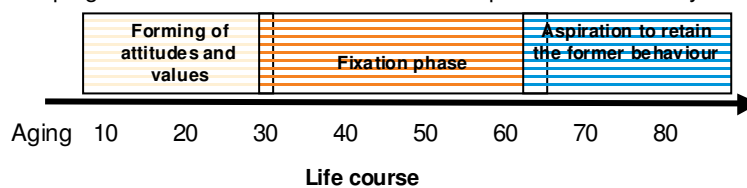
Effects of a changed age structure

Travel volumes (kilometer per person and day)
(Source: German mobility panel)



Cohort effects

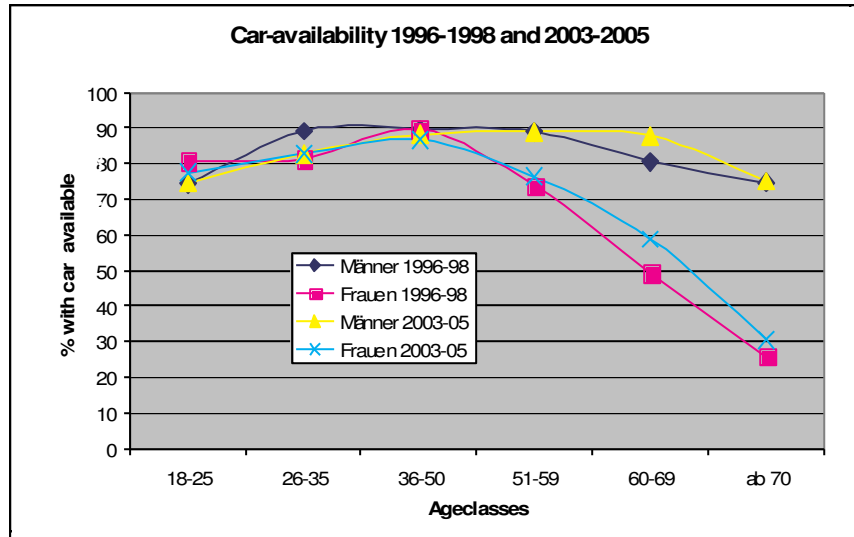
- Keeping behaviour and attitudes from earlier phases in the life cycle



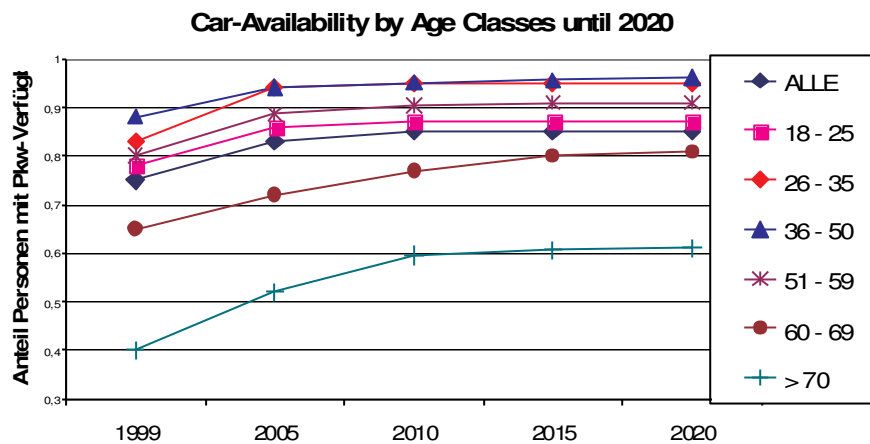
- ➔ relevant for places of living, places where friends live
- ➔ relevant for other activity places (leisure, shopping)
- ➔ relevant for modal behaviour

- **Senior citizens of tomorrow will have another behaviour as those of today!**
- **Trends concerning attitudes, experiences and in the behaviour have to be identified and projected!**

Cohort-Effects - Car availability



Cohort effects: Modelling of the car-availability of age classe by means of panel data



Economic framework for mobility against the background of demographic change

Past (+ Present ?)

- Economic growth was the primary driver for both spatial processes and transport demand growth

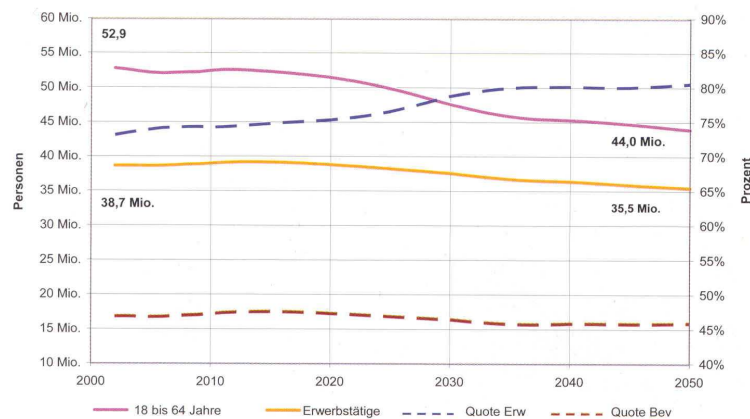
Future

- **Further economic growth can be expected, but...**
 - In which way is an aging population able for innovations?
 - In which way the savings for the retirement are influencing economic growth?

➔ **What will be the annual growth rate per labour force?**

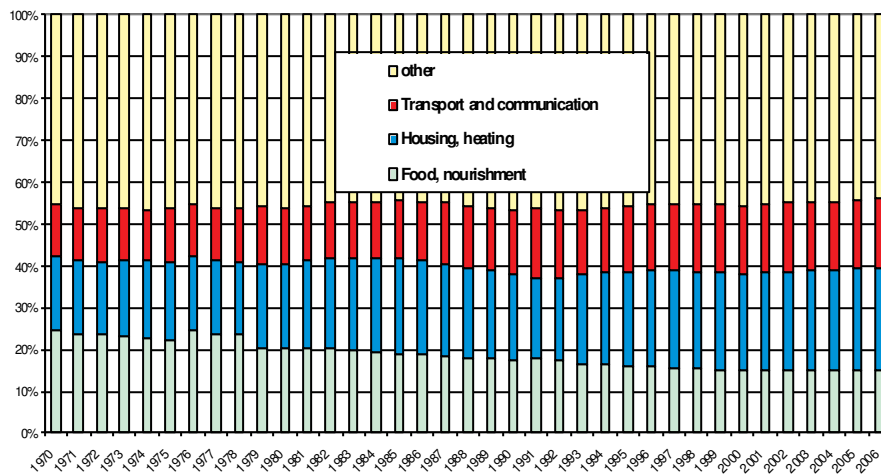
Expectations (Economy + Demography)

- Decreasing share of working population ➔ „Age ratio“ (?)



Quelle: DIFU 2006

Share of expenditures for transport and communication from the consumable income (budgets in private households)



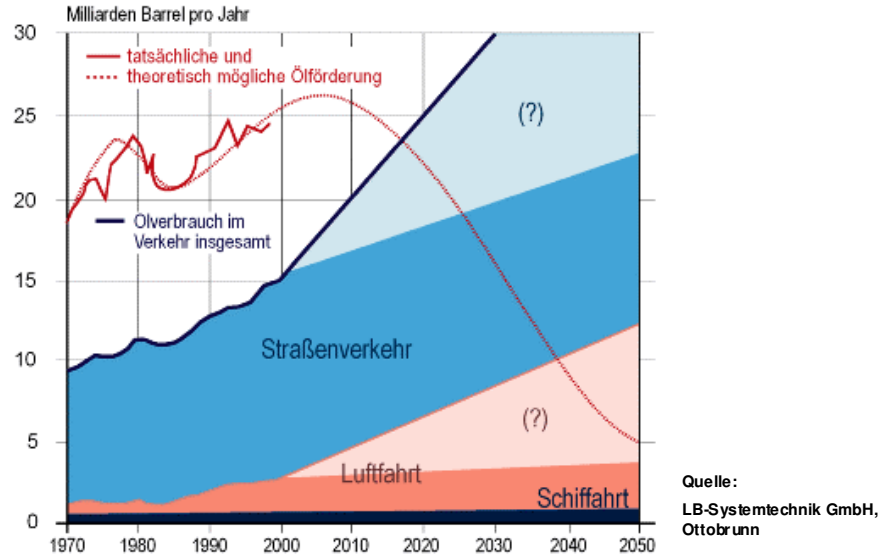
Source: German Federal Statistical Office

Expectations (Economy + Demography)

Assignment of private monetary budgets against the background of demography

- Increase of social insurance contributions...
- Need to transfer available income of today for making provisions for one's old age...
- Relative decline of pensioners benefit levels...
- Increase in expenditures for health and care by reasons of a massive increase of the share of aged people...
- ➔ Will the „budget-stability“ be valid in the proportions of the past?
- ➔ Can we expect a polarisation in the society between young and old, rich and poor?
- ➔ How much mobility we can afford?

Demography + Economy + other framework conditions demand for energy and petrol worldwide



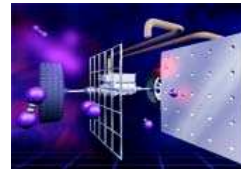
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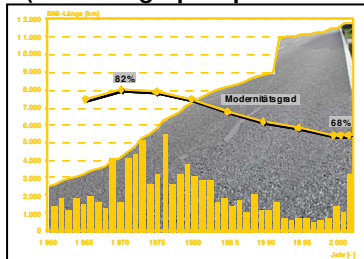
Demography + Economy + other framework conditions

Cost of mobility

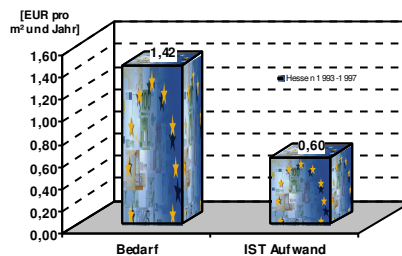
- Technological progress can solve problems, but will increase user cost



- Increasing cost for replacement investments and maintenance (the demographic problem of Germany's roads)



Quelle: (Daten) BMV/BW, Verkehr in Zahlen 2003/2004 (Darstellung) ZANDER, BASI



Quelle: FGSV, Erhaltungsbedarf für Bundesfernstraßen, Landes- und Kommunalstraßen, 1999

- (Higher) charging the infrastructure's user will become probable

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3. Consequences of demographic change for the transport system

Transport demand

■ Traffic volumes

- spatial differentiations of increases and decreases
- in a long term perspective for the whole of Germany decreases can be expected

■ Polarisations within the society

- young versus elderly
- poor versus rich
- mobile versus less mobile people

■ Modal aspects

- Increasing car-availability must be expected but not an increase in car use !
- decrease of the clientele of public transport both by the effects of age structure and cohort effects !
- Multimodal behaviour → more flexible use of modes

3. Consequences of the demographic change for the transport system and spatial structures

Spatial structures

■ Reversion of suburbanisation trends?

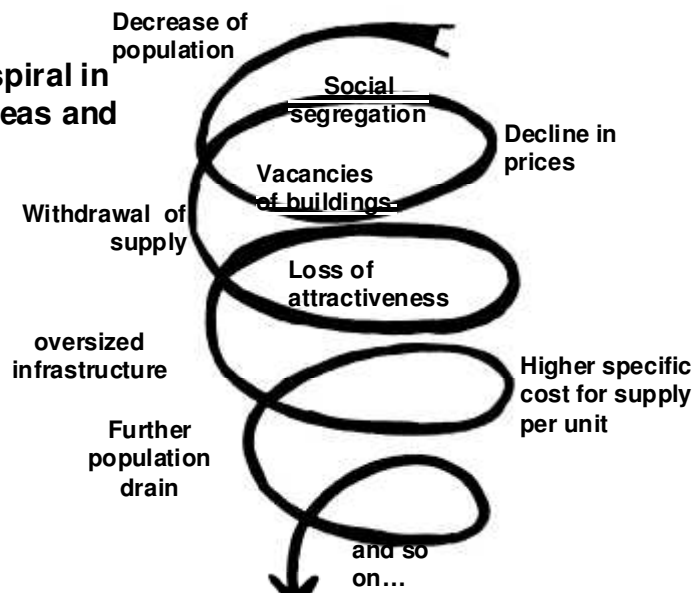
- for seniors are urban places for residence more appropriate
- young people with higher levels of education → concentration in urban areas
- releasing and replacements of the places of the “early suburbanisation rings“

■ Different developments and trends in

- growing areas
 - shrinking areas
- both on a makro- and mikrolevel (Federal states / regions against municipalities / urban districts)

■ Price trends for real estate as “early indicators”

Downward spiral in shrinking areas and districts



It is possible to go against such a process by planning? Does it really make sense to do so?

4. Conclusions for policy and planning

Increasing discrepancies between the funds available and required

- Paradigm shift concerning the equality of conditions for life and prosperity
- concentration on urbanised regions

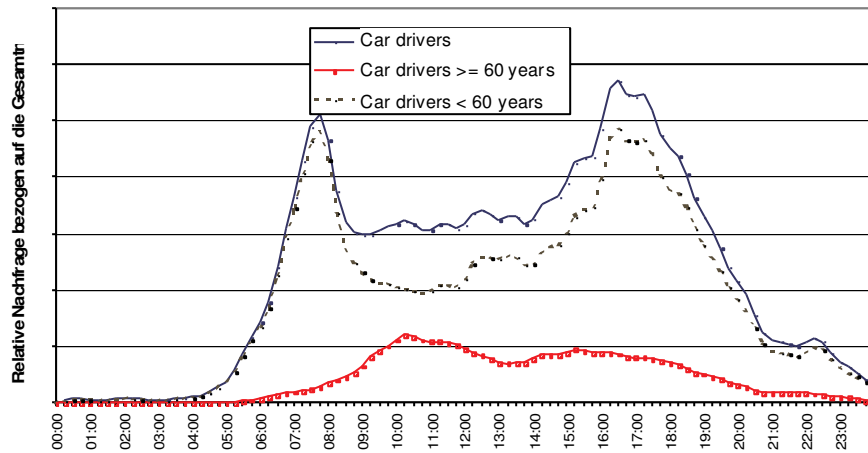
Assessment and planning of new infrastructure

- provision for decreasing demand levels and a changed demand profile
- provision of scenarios for abandoning and phasing out of large projects

For the case of capacity lacks demand management

- Road Pricing
- using the technology available

Demand profiles in car demand by drivers of different age classes



4. Conclusions for politics and planning

Public Transport:

- ➔ Supply orientation in high density / urban areas
- ➔ Flexible services in low density areas (having a service at all >> high speeds)
- ➔ Paratransit – citizens' buses and organised shared rides
- ➔ Supplementing public transport services for a population able to drive a car ("car-sharing")



Road infrastructure and road maintenance

- ➔ Concentration on relevant areas – where is the demand low, where it is high?
- ➔ Reduction of quality levels and standards (achievable speeds), where demand volumes are low
- ➔ In urban areas senior citizens' suitable street design without barriers for non motorized transport

Changed driver collective

- ➔ Speed limits, more "intelligent" vehicles, customisation of traffic signalisation



Conclusions for politics and planning

Spatial structure

- Use of market mechanisms: Achieving cost transparency in terms of the cost for housing and mobility → concentration of the population where the system cost are low
- Appealing and stimulate the demand for living in urban areas
- Supply housing for an aging society
 - assisted living for senior citizens
 - additional services schemes like home delivery
- Availability of brown fields enabling housing for a a society under change
 - former industrial sites
 - former military sites
 - former railway yards

Spatial structures



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Quelle: www.heidelberg.de/bahnstadt/

Conclusion:

**The demographic change has some risks,
but offers chances, too!**