



## **Sustainable residential development: What will the consideration of follow-up costs achieve?**

Nachhaltige Siedlungsentwicklung: Was leistet die Betrachtung von Folgekosten?

Brussels, 21.6.2011

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- 1. New tools of cost-efficiency**

## New tools of cost-efficiency for planning in practice

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- FIN.30 – Flächen Intelligent Nutzen  
[www.fin30.uni-bonn.de](http://www.fin30.uni-bonn.de)
- fokus bw: Wirtschaftlichkeit von Wohnsiedlungsprojekten  
[www.fokosbw.de](http://www.fokosbw.de)
- FolgekostenSimulator, FolgekostenSchätzer und FIA  
[www.was-kostet-mein-baugebiet.de](http://www.was-kostet-mein-baugebiet.de)
- LEAN*kom* – fiskalische Wirkungsabschätzung von Wohngebietsentwicklungen  
[www.mit-zukunft-rechnen.de](http://www.mit-zukunft-rechnen.de)
- Regionales Portfoliomanagement  
[www.rpm.rwth-aachen.de](http://www.rpm.rwth-aachen.de); [www.empirica-institut.de](http://www.empirica-institut.de)

### » INKA - Initiative „Nutzen-Kosten-Analyse im Flächenmanagement“

a joint website presenting all available cost calculators

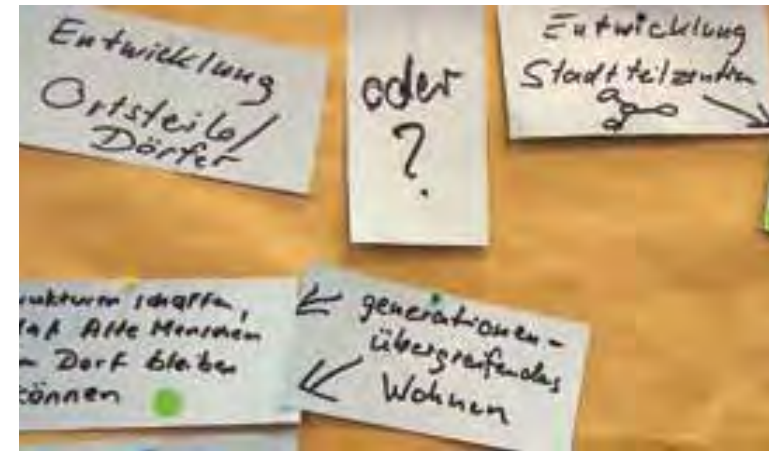
Sponsored by North Rhine-Westphalia's Ministry for Environment



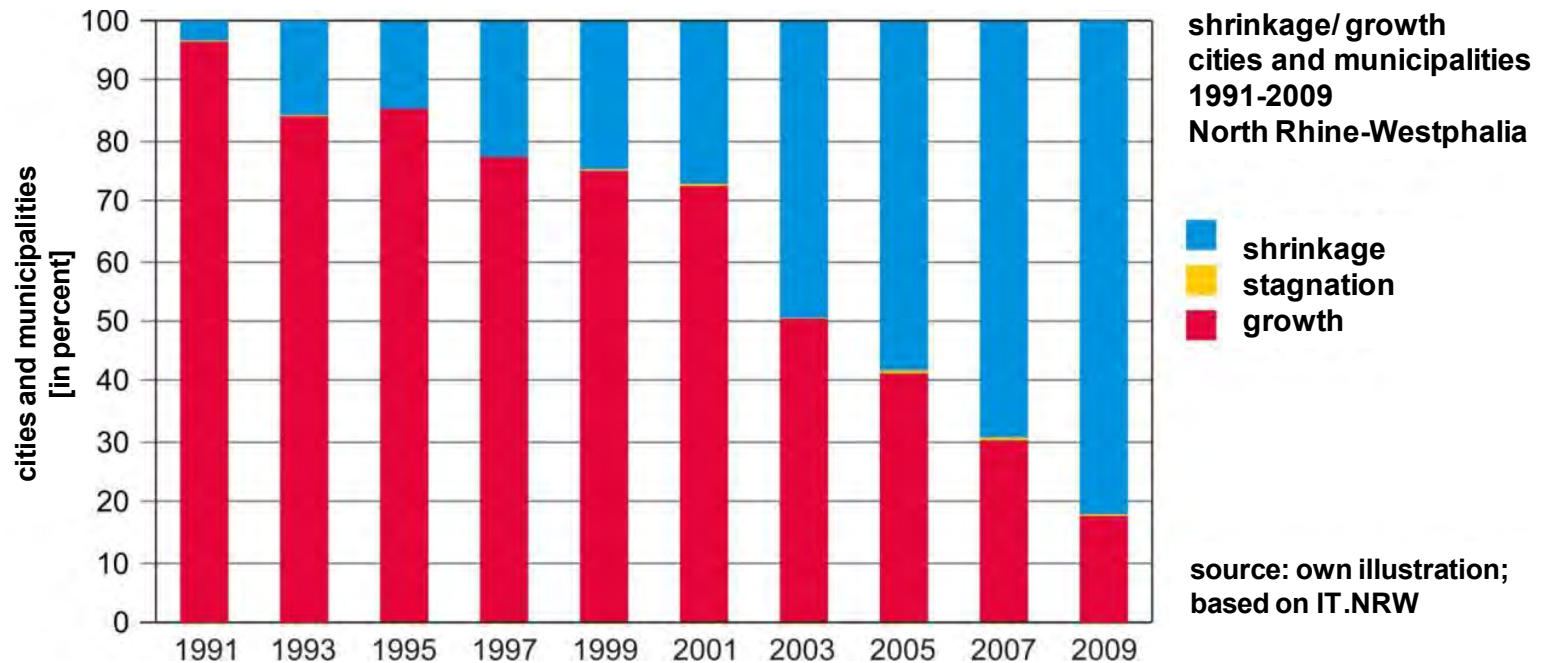
## New tools of cost-efficiency: Push and Pull Factors

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- technological advance and standardisation (Internet, Office, GIS)
- practice-orientated research and development
- changing conditions and municipal needs

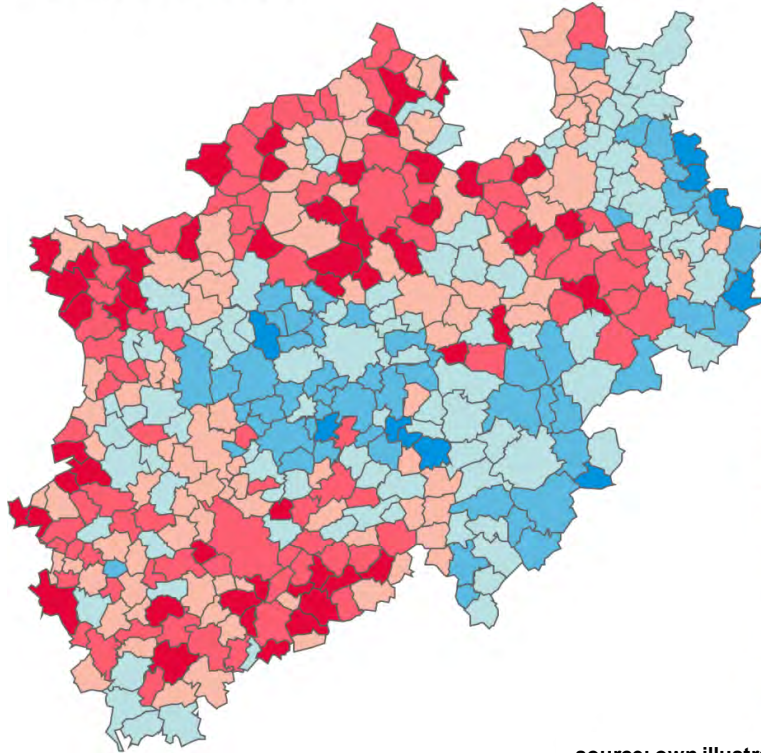


## Shrinkage as the „normal case“

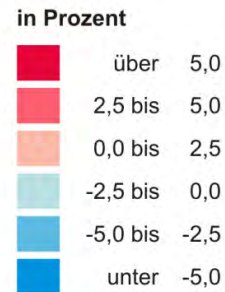


# Growth and shrinkage side by side

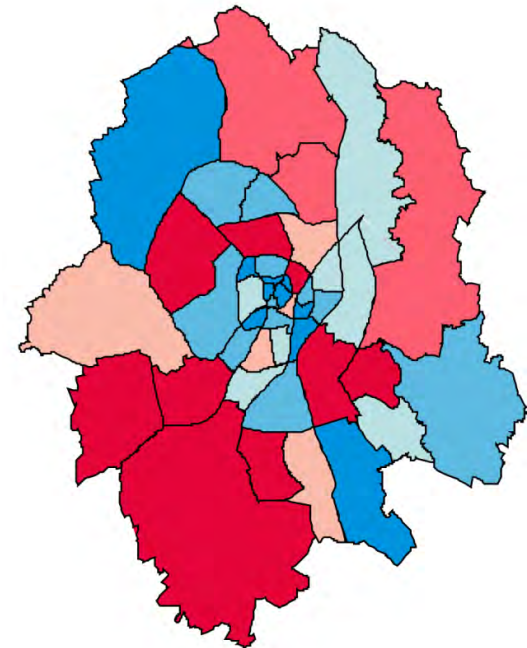
North Rhine-Westphalia  
municipal boundaries



Population Change  
2000-2007



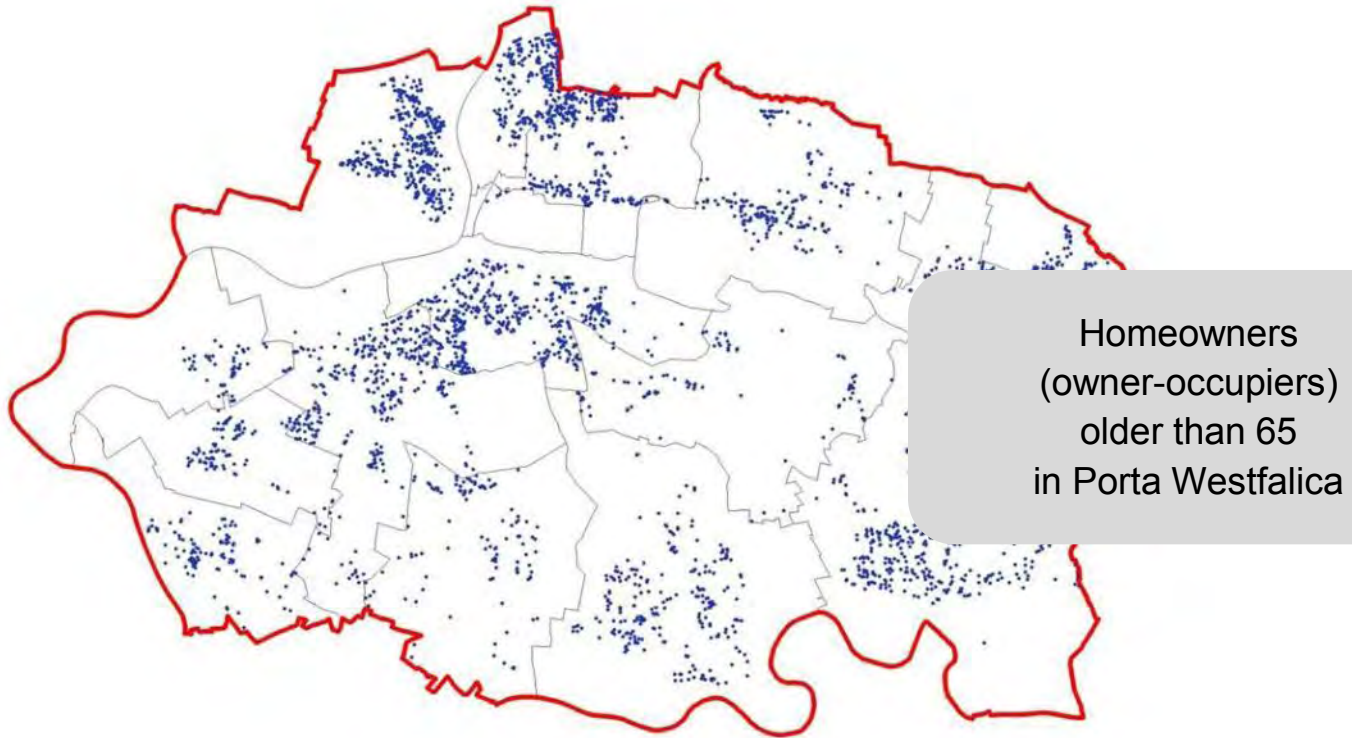
City of Münster  
City districts



source: own illustration; based on LDS NRW, Stadt Münster

# Aging of the population causes oversupply

source: Stadt Porta Westfalica 2008



## Follow-up costs of infrastructural networks: example municipal streets

source: Stadt Porta Westfalica 2008

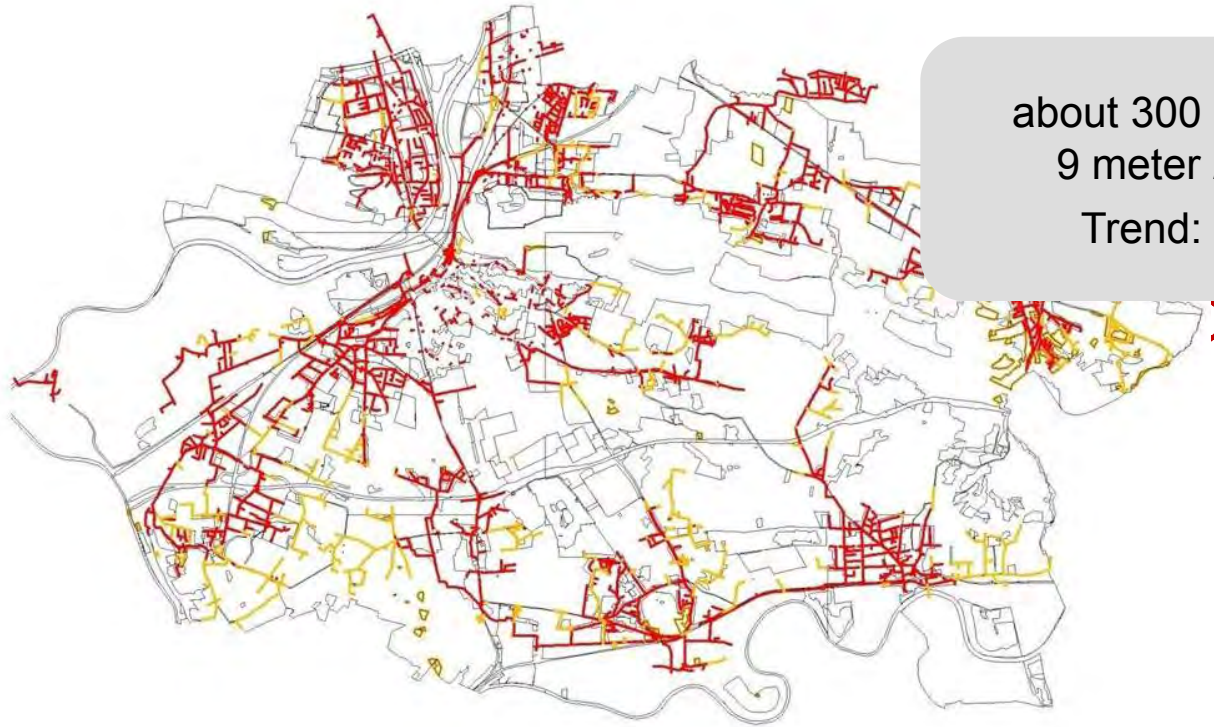


416 km municipal streets =  
11,5 meter / resident  
trend: upward!



## Follow-up costs of infrastructural networks: example sewage system

source: Stadt Porta Westfalica 2008



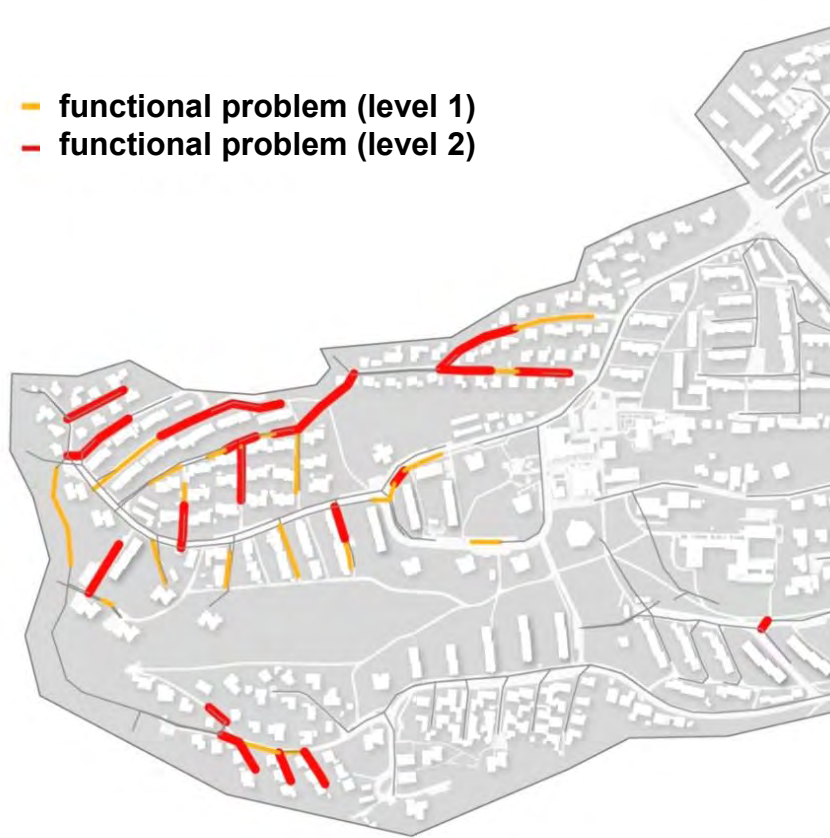
about 300 km sewer =  
9 meter / resident  
Trend: upward!



# Follow-up costs of infrastructural networks: example sewage system

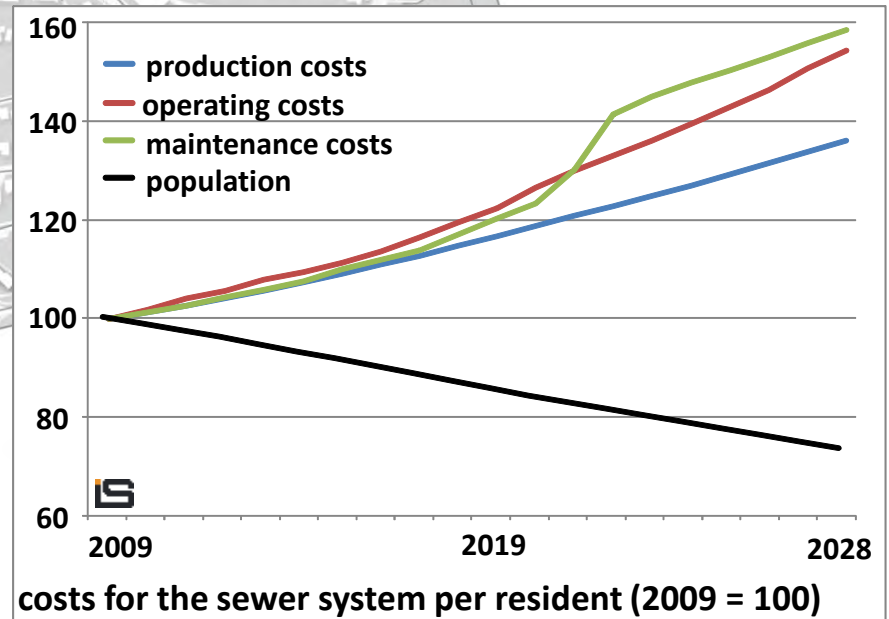
source: ILS / Planersocietät 2009

- functional problem (level 1)
- functional problem (level 2)



Change in costs for sewers until 2028  
(per resident)

**+ 40 %**

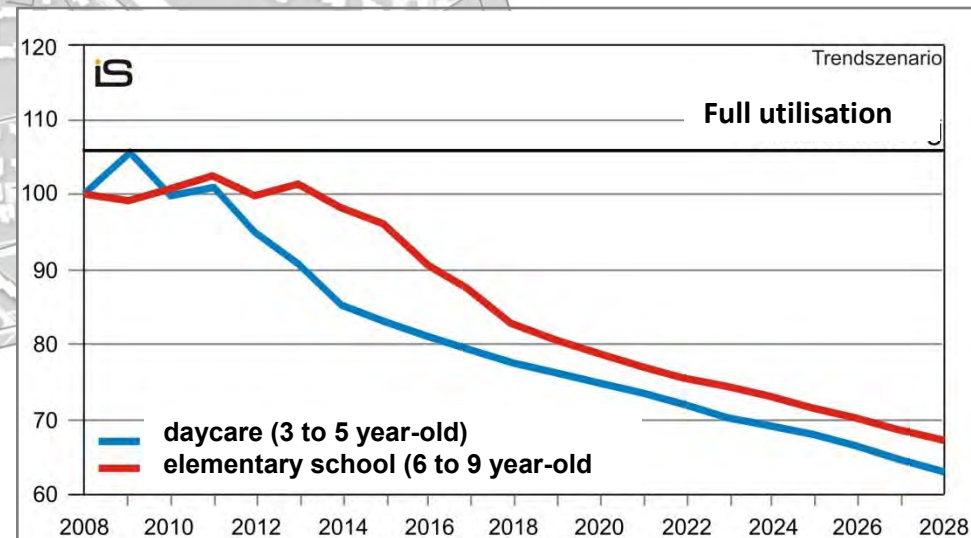
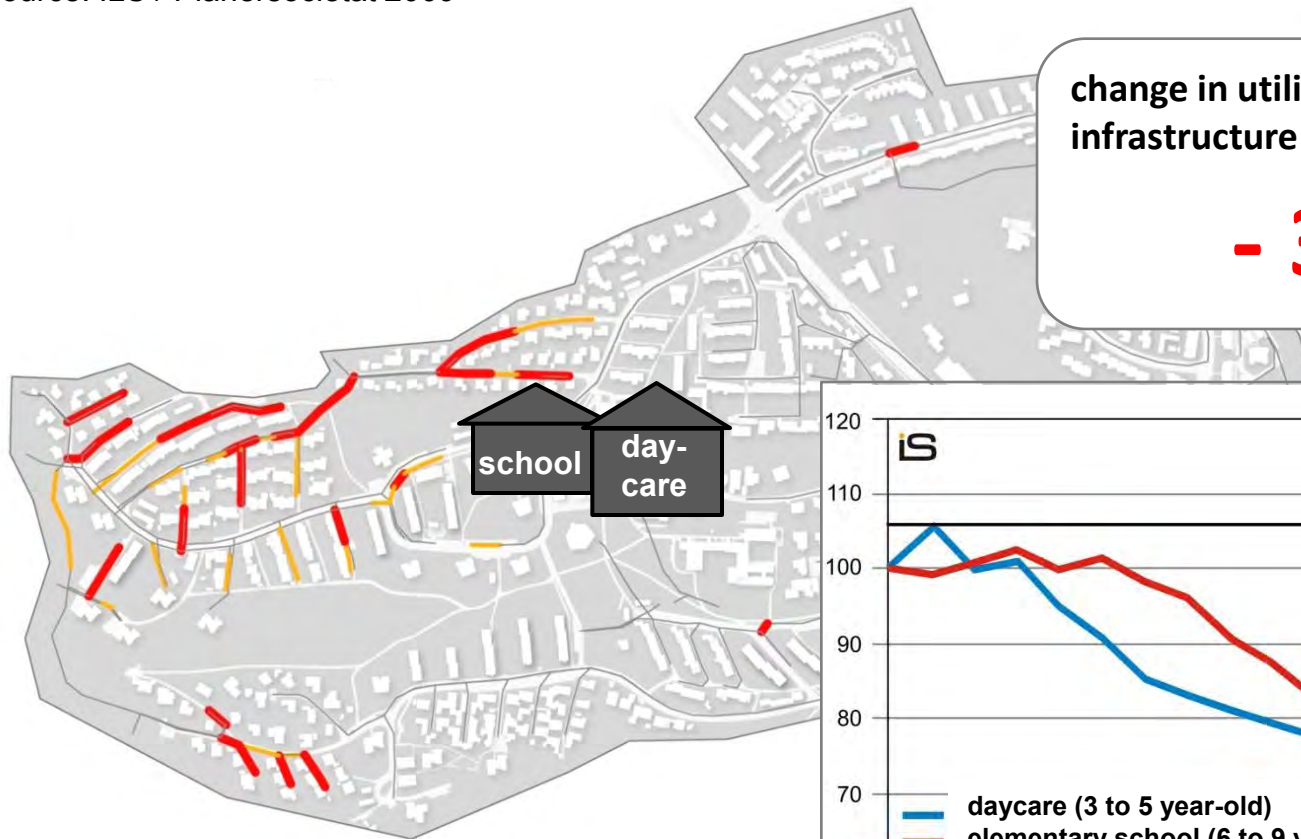


# Follow-up costs of infrastructural networks: example social infrastructure

source: ILS / Planersocietät 2009

change in utilisation of social infrastructure

**- 35 %**



utilisation of social infrastructure (2009 = 100)

## Demographic change as a „cost trap“

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- downward trend in utilisation of infrastructure
- increasing municipal follow-up costs and burden of charges
- growing demand for tools which calculate and illustrate all costs

## 2. LEAN<sup>2</sup> / LEANkom

## How much is this site going to cost us?

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Quelle: MUNLV NRW

## How much is this site going to cost us?

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source: MUNLV NRW

# lean<sup>kom</sup>

Wirkungsabschätzung von  
Wohngebietsentwicklungen

## Wirkungsabschätzung von Wohngebietsentwicklungen

### Willkommen bei LEANkom™

Mit LEANkom™ können beabsichtigte Wohngebietsentwicklungen auf ihre finanziellen Auswirkungen auf den kommunalen Haushalt hin überprüft werden. Neben den Ausgaben für die Erstellung und den Betrieb der notwendigen technischen and sozialen Infrastruktur werden ebenfalls aus der Gebietsentwicklung resultierende Einnahmen betrachtet.

LEANkom™ bietet damit fundierte Entscheidungsgrundlagen für eine strategische Stadtentwicklung!

### Arbeitsschritte

Zunächst werden die zu untersuchenden Baugebiete angelegt, welche durch LEANkom™ überprüft werden sollen. Jeder Fläche können dabei verschiedene Planungsvarianten zugeordnet werden. Im Anschluss lassen sich aus mehreren Gebieten Flächennutzungsstrategien zusammenstellen und im Programmbereich Auswertung berechnen. Eine detailliertere Beschreibung der Funktionen ist im Menüpunkt Hilfe abzurufen.

### Anmeldung

Zugriffsstufe

Kennwort

### Lizenz

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# LEANkom: costs and benefits

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## Development

- external / internal transport infrastructure
- open space and compensation areas
- sewage system
- planning costs

## Follow-up services

- day-care centres
- elementary schools
- mass transit
- school busses

## Site & Budgeting

- apportionment
- interim purchase
- investor contract
- financing costs

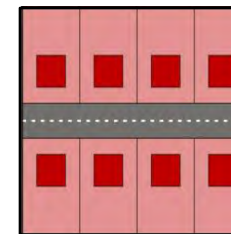
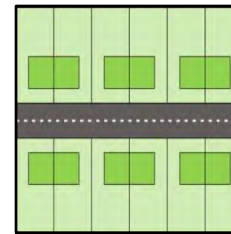
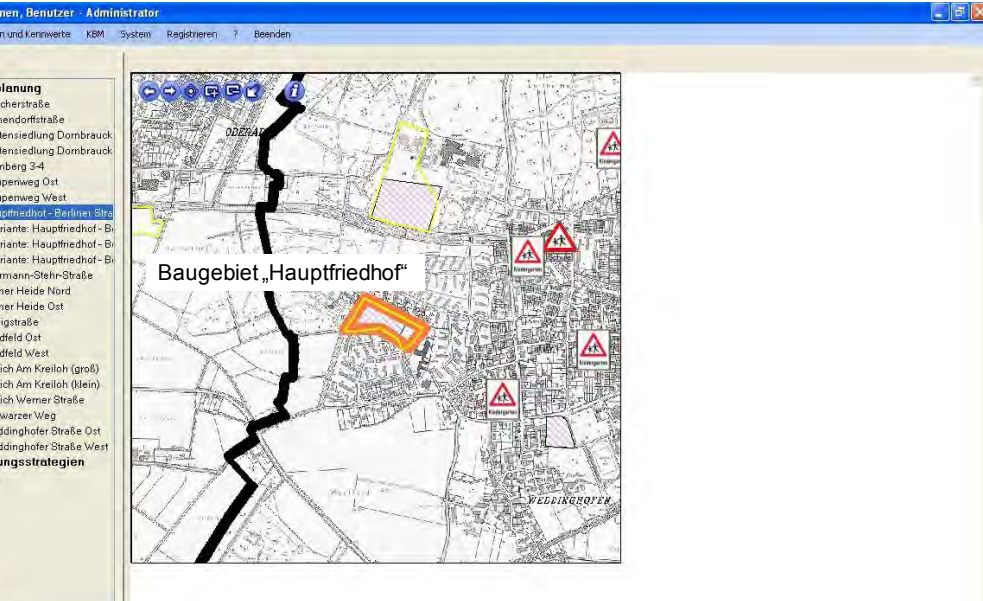
## Gains

- property tax
- income tax
- allocation of funds from the state
- multiplier effect (e.g. purchasing power)





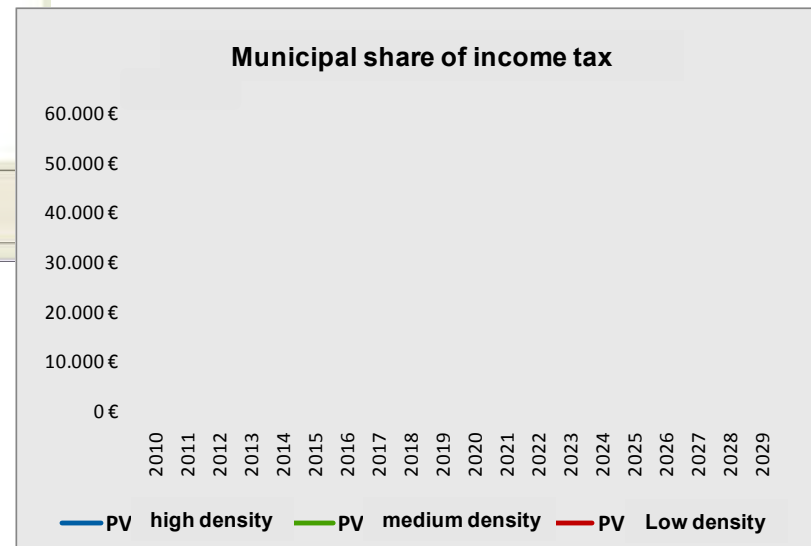
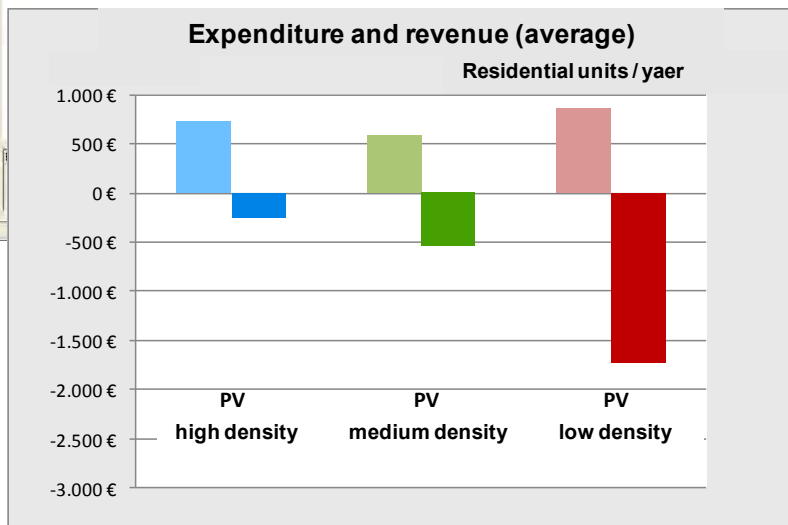
# Focus: planning variants by comparison



ant  
y"  
ts/ha)

planning variant  
„medium density“  
(45 dwelling units/ha)

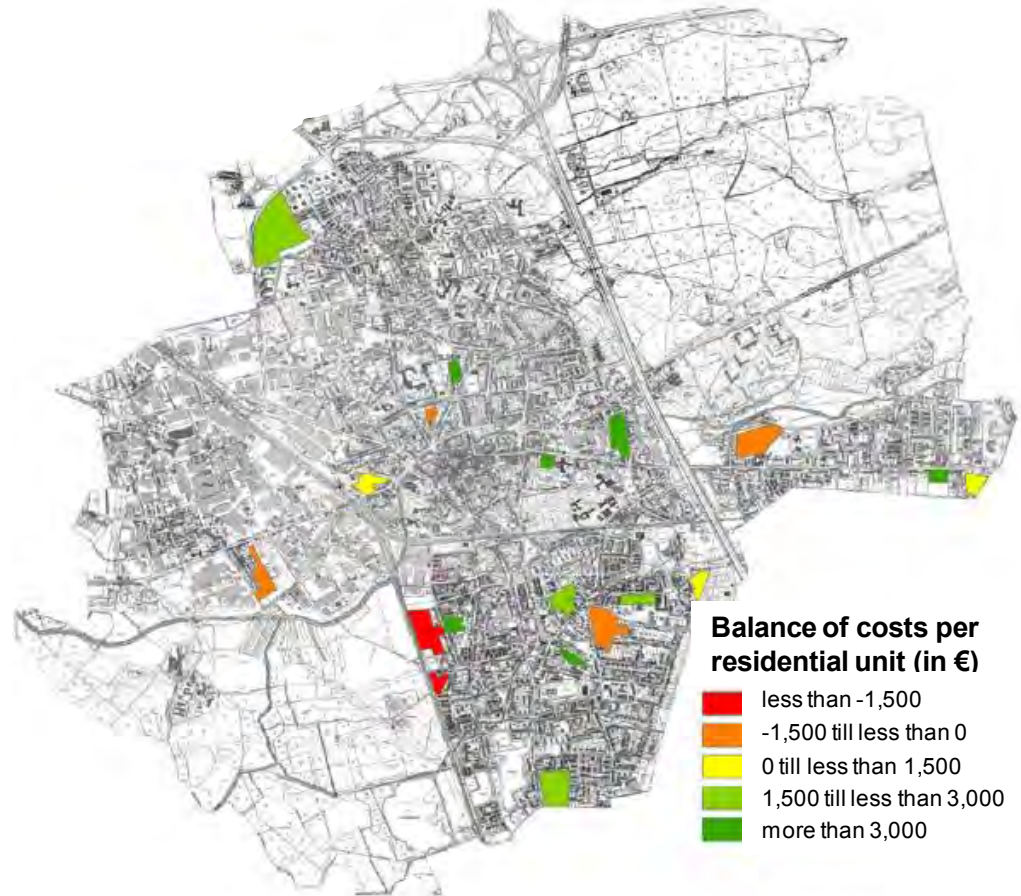
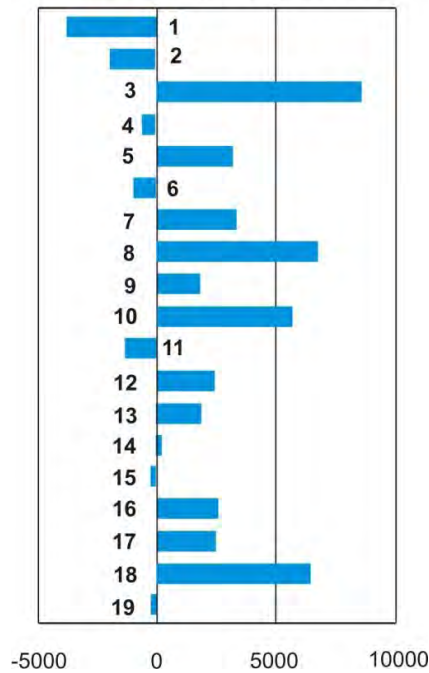
planning variant  
„low density“  
(15 dwelling units/ha)



# Focus: sites in comparison

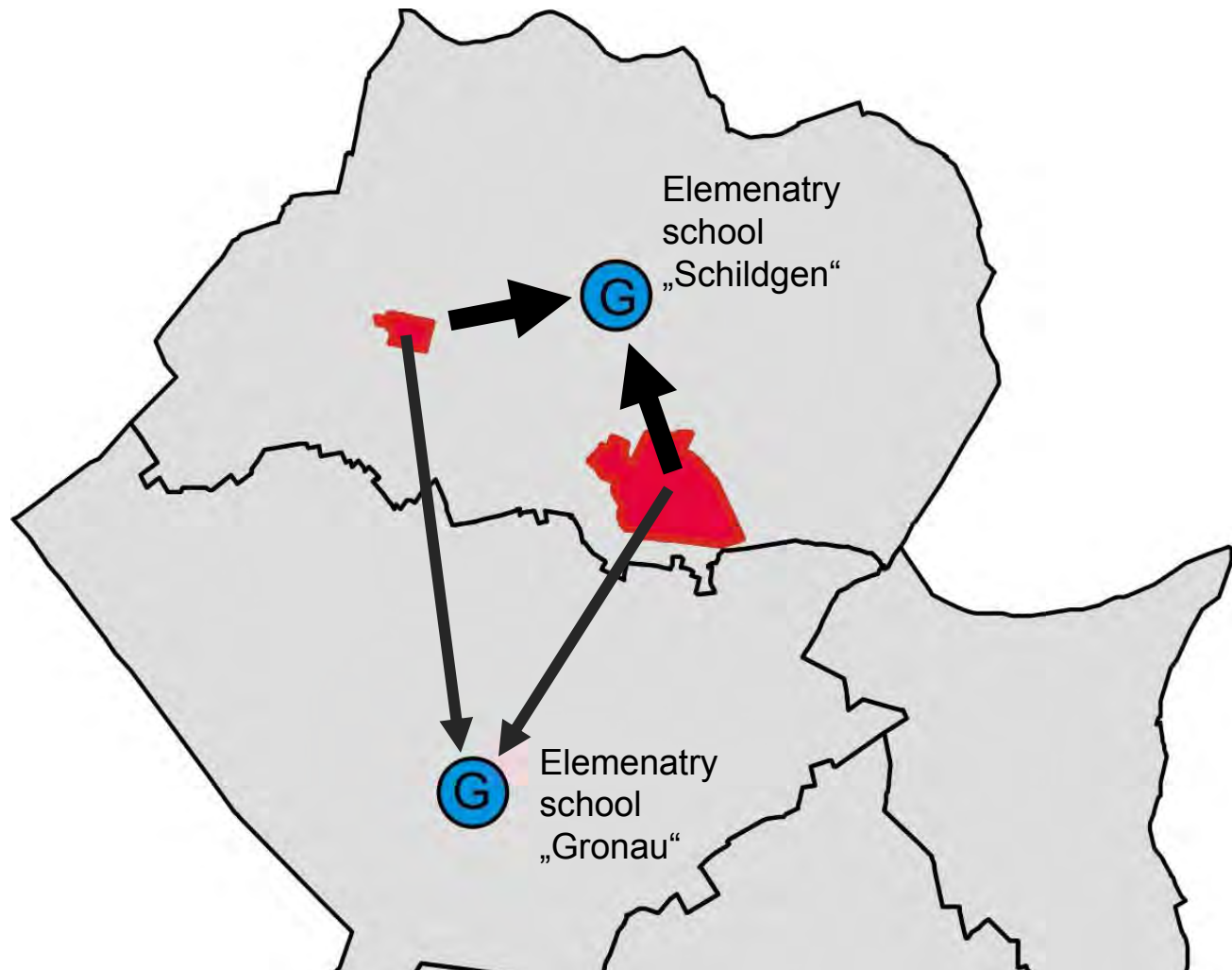
source: Planersocietät 2010

Balance of costs per residential unit

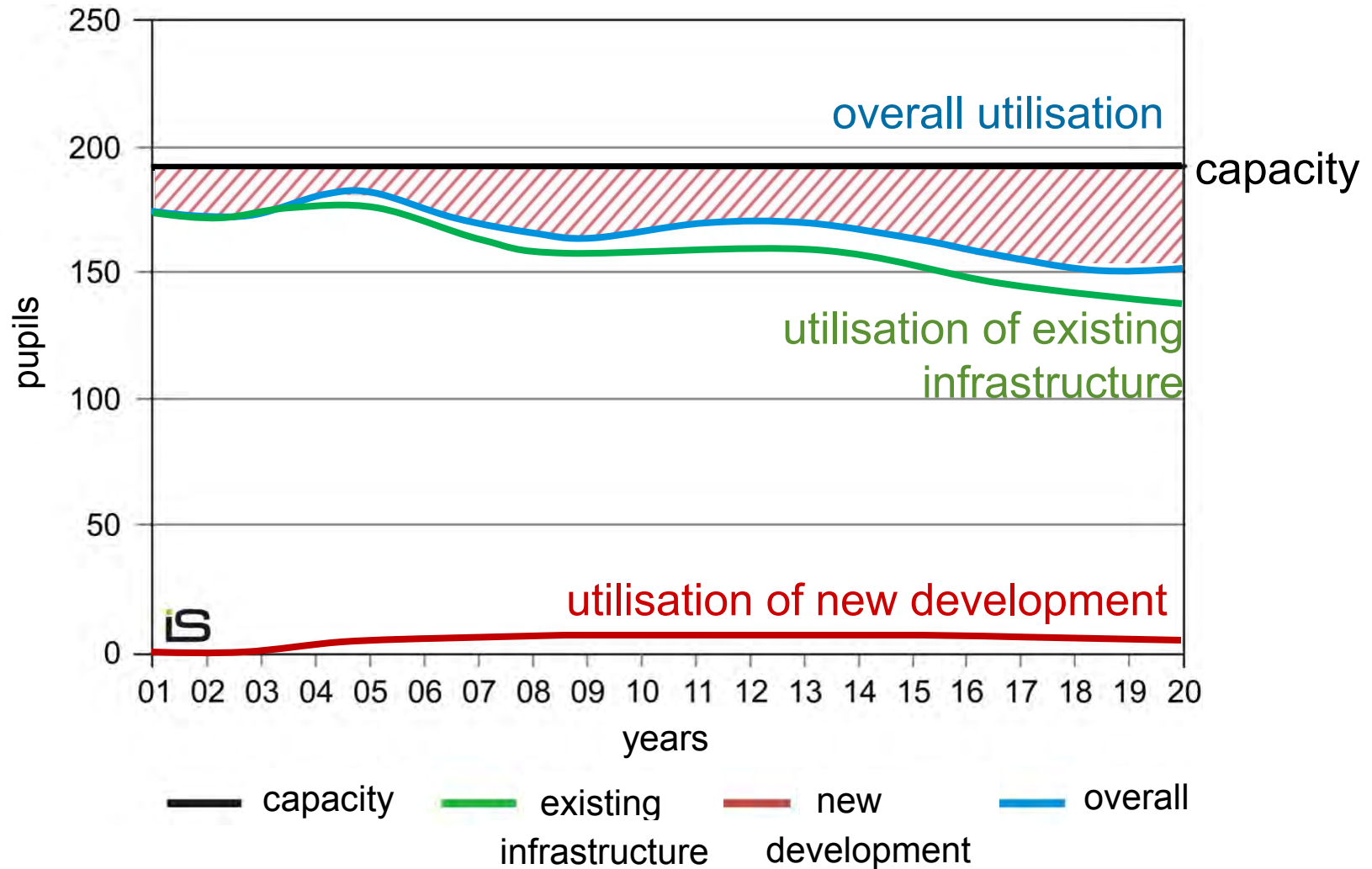


## Focus: utilisation of social infrastructure

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## Focus: utilisation of social infrastructure



## Density

### **Double density = half costs**

Features of the settlement structure such as density determine land consumption and costs for the internal transportation system.

## Location

### **Advantageous location means cost advantages**

Well integrated sites reduce land consumption and costs for the external transportation system, especially in small residential areas.

## Follow-up costs

### **Follow-up costs as a cost-trap**

In comparison to the production costs, follow-up costs of a residential area are rather neglected, although they are often eminent.

## Benefits

### **No general statement of financial benefits**

General statements about additional municipal revenues caused by a new residential area do not address the complex mechanism of the financial system

### **3. Overview and Outlook**

# LEANkom: recent know-how

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- demographic change as an „icebracker“
- transparency of financial effects of new residential areas
- enrichment (but not a replacement) in the consideration process in settlement planning
- a considerable (data) effort and period of vocational adjustment („a system for professionals“)
- of special interest: (small-scale) impact of demographic changes on social infrastructure



## new tools of cost-efficiency for planning in practice: an interim conclusion

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- there are usable tools of cost-efficiency (however: transparency and distribution are necessary)
- cost analysis has to be considered and used as an integrated component of sustainable land management.
- a regional dimension, industrial areas/ supply facilities and costs of existing residential areas have been hardly considered in the past (need for further development!)





## **Sustainable settlement development: What will the consideration of follow-up costs achieve?**

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