



CiViTAS
Cleaner and better transport in cities



Development of future mobility scenarios in a SUMP process using a simulation game

ISB - RWTH Aachen University

Daniel Horn

22.05.2014



THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION



Civitas Dynamo

- Project co-financed by the European Union
- Goal: implement sustainable mobility planning in four cities/regions
- Started in 2012



- Each city/region is going to implement a SUMP / SUTP
- The simulation game will be considered in the SUMP-process



Background

Context

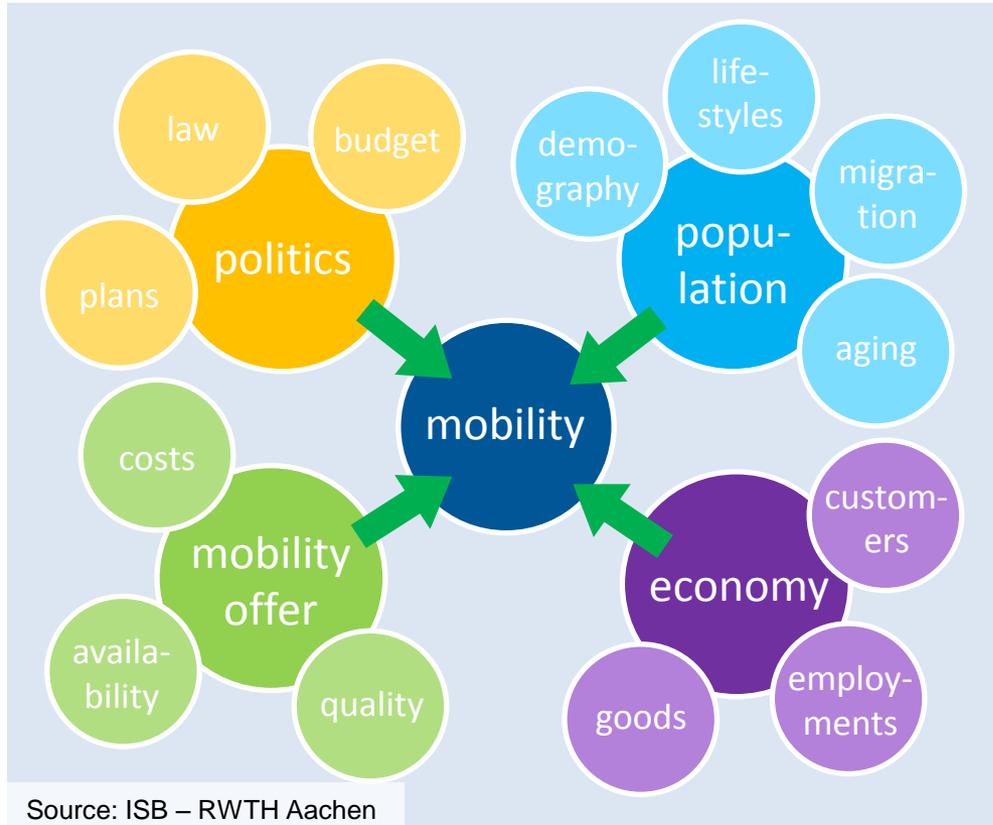
Content and functioning

Results and analysis

Conclusion



Need for the simulation game



- Complexity of prediction of future mobility
- Multiplicity of stakeholders



Background

Context

Content and functioning

Results and analysis

Conclusion



Need for the simulation game

Government / Authorities	Businesses / Operators	Communities / Local Neighbourhoods
European Union	National Business Associations	National Environmental NGOs
Ministry of Transport	Major Employers	Motorist Associations
Other National Ministries	Regional and National Businesses	Trade Unions
Regional Government	Private Financiers	Media
Local Authorities	Local Business Associations	Local Authority Forums
Neighbouring Cities	Town Centre Retailers	Local Community Organisations
Local Transport Authority	Small Businesses	Local Interest Groups
Other Local Transport Bodies	Transport Operators/providers	Cycle/Walking Groups
Other Local Authority Bodies	Transport Consultants	Public Transport User Groups
Politicians		Transport Users
Other Decision-Makers		Citizens
Partnership bodies		Visitors
Project Managers		Citizens in Neighbouring Cities
Professional Staff		Disabled People
		Landowners
		Transport Staff

Source: Guidemaps Consortium 2004, p. 11

- Complexity of prediction of future mobility
- Multiplicity of stakeholders



Background

Context

Content and functioning

Results and analysis

Conclusion



Goal of the simulation game

- Introduce involved stakeholders to complexity of mobility related forecasts
- Reduce prediction complexity by limiting considered factors and creating thesis
- Build up common scenarios of future mobility by analyzing and discussing the stakeholders simulation game results



Source: ISB – RWTH Aachen



Background

Context

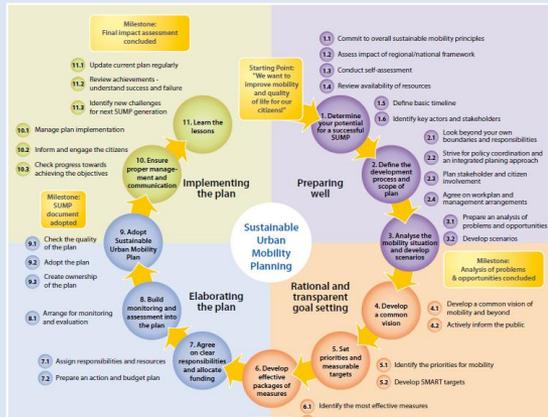
Content and functioning

Results and analysis

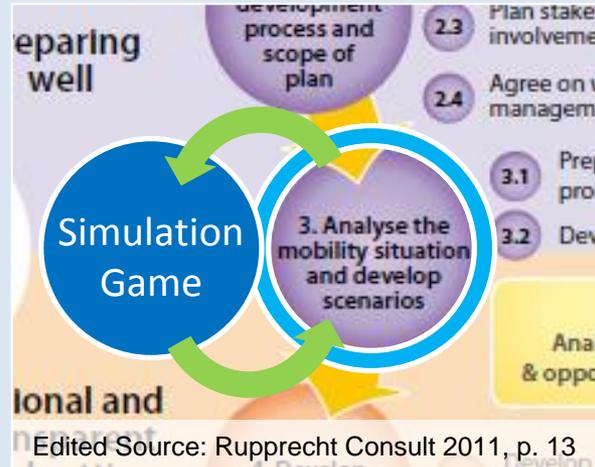
Conclusion



Use case of the simulation game



Source: Rupprecht Consult 2011, p. 13



Edited Source: Rupprecht Consult 2011, p. 13

- Game contains general thesis relating to future mobility
- During SUMP development process
 - Involved Stakeholders play game
 - Game results are analysed and used as base for building up future mobility scenarios



Background

Context

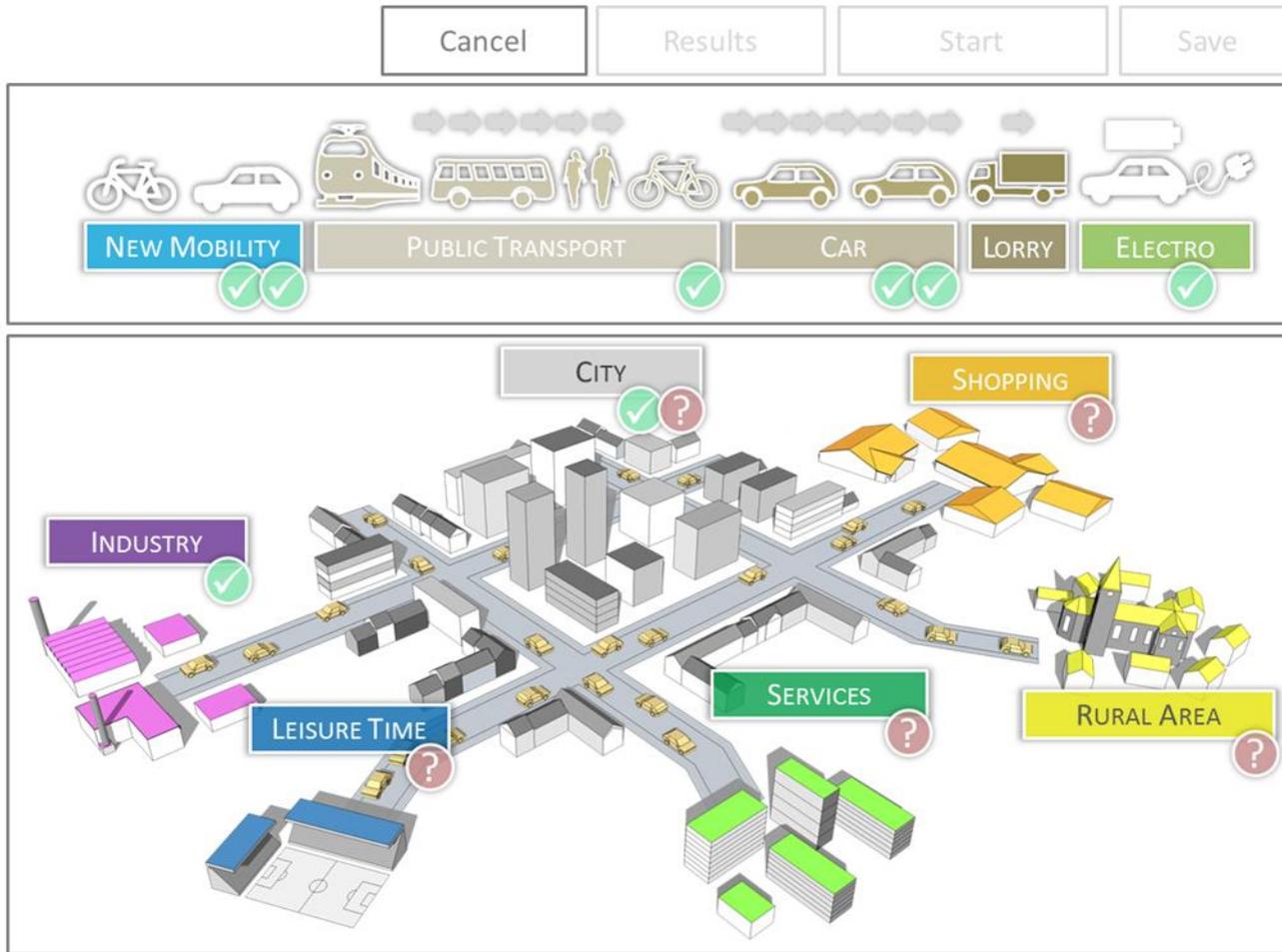
Content and functioning

Results and analysis

Conclusion



Game structure



Background

Context

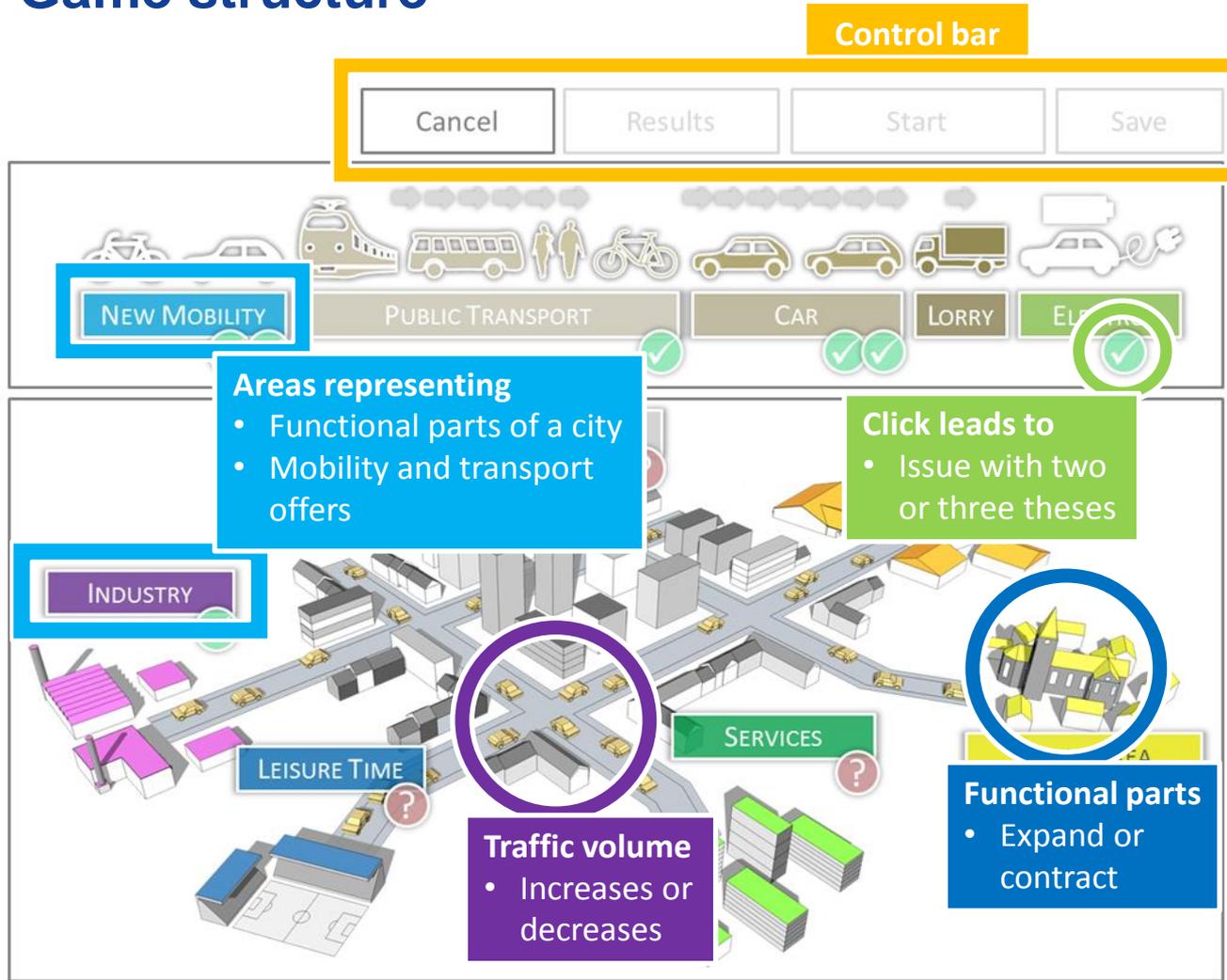
Content and functioning

Results and analysis

Conclusion



Game structure



Background

Context

Content and functioning

Results and analysis

Conclusion



Thesis

- One thesis after the other the user can make his choices
- The user has to complete the game by editing all thesis

SHOPPING

- The popularity of online commerce continues to increase. In response to this increase, freight transport throughout the city also increases. Private shopping traffic decreases.
- The popularity of online commerce does not increase. Freight and private shopping traffic stay roughly the same.
- The popularity of online commerce increases. Customers, however, still travel to shop. The result of this is that freight and private shopping increase.

Source: ISB – RWTH Aachen

CONTINUE 



Background

Context

Content and functioning

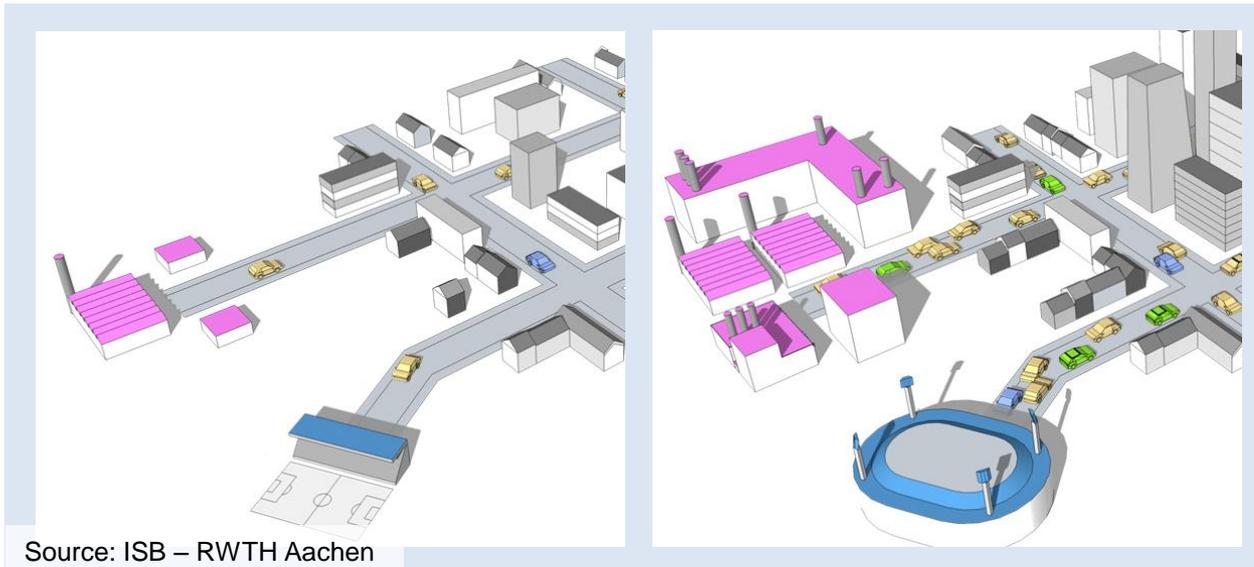
Results and analysis

Conclusion



Choice and consequences

- Each choice influences
 - The later analysis
 - The image of the city
 - Districts grow or shrink
 - Traffic increases or decreases
 - New mobility options appear



Source: ISB – RWTH Aachen



Background

Context

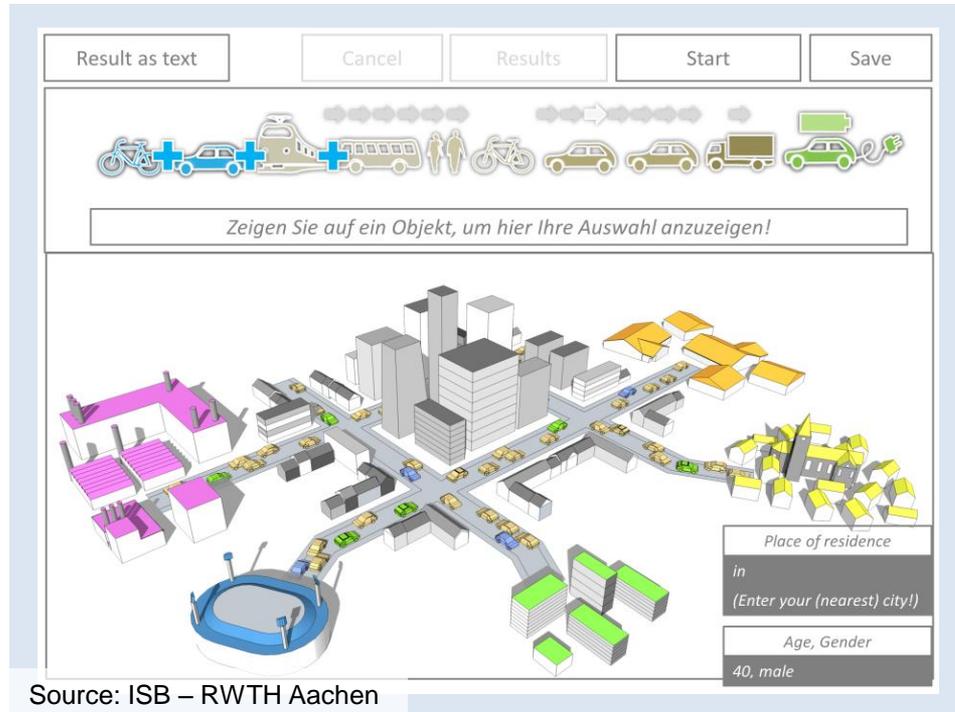
Content and functioning

Results and analysis

Conclusion



Output



- Image file with final state of the edited city and user data for visualization of the results
- Data set with user choices and user data is saved in a data base for aggregate analysis of the results



Background

Context

Content and functioning

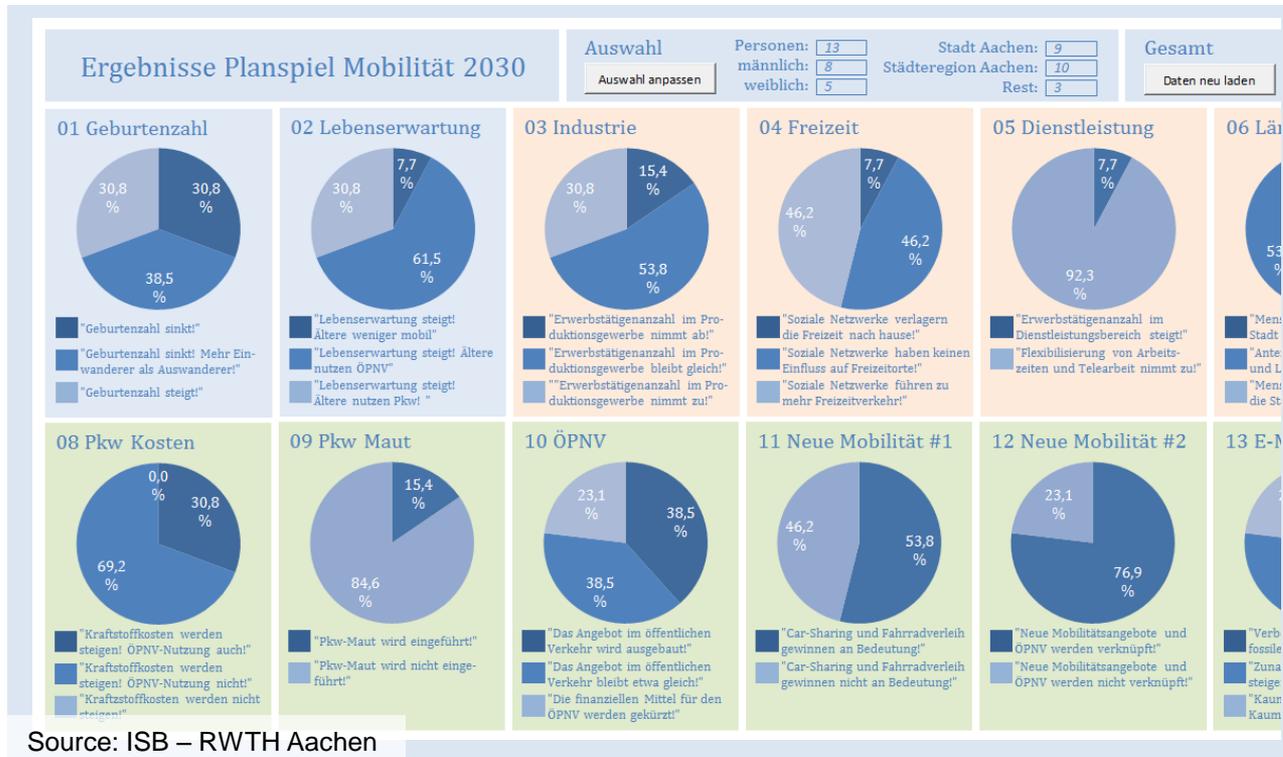
Results and analysis

Conclusion



Analysis

- Choices of user and additional user data (e. g. job / function; role in process, are saved on a web server)
- Data is evaluated automatically

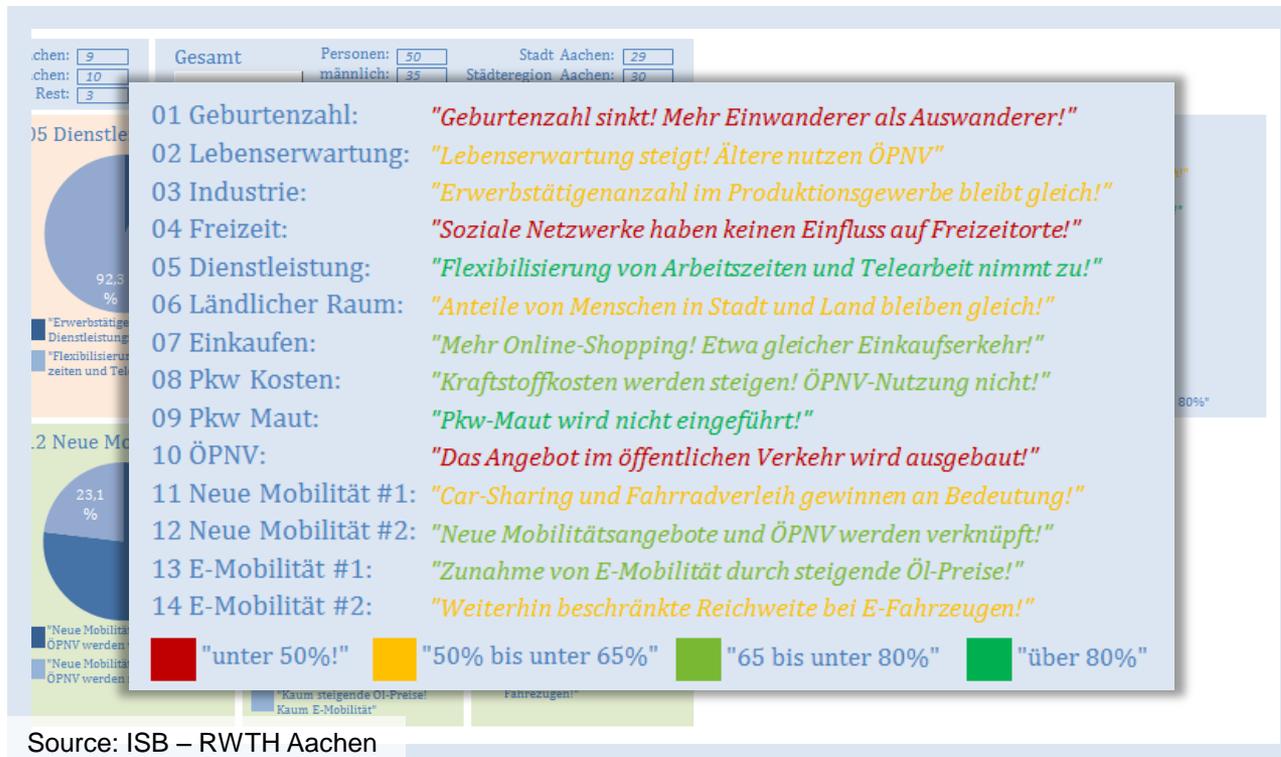


- Background
- Context
- Content and functioning
- Results and analysis
- Conclusion



Analysis

- Choices of user and additional user data (e. g. job / function; role in process, are saved on a web server)
- Data is evaluated automatically



Background

Context

Content and functioning

Results and analysis

Conclusion



Conclusion

- Sim. Game developed for use within SUMP process
- Goals: introduction in complexity of mobility based forecasts | basis for compiling common scenarios
- Choices of all participants are saved and can be evaluated automatically



Background

Context

Content and functioning

Results and analysis

Conclusion



Source: ISB – RWTH Aachen

Analysis and
discussion of
simulation
game results



Goal:
generating
,common
scenarios'



Bibliography

- **Guidemaps Consortium 2004** Successful transport decision-making: A project management and stakeholder engagement handbook: Volume 1: Concepts and Tools
- **Rupprecht Consult 2011** Guidelines: Developing and implementing a sustainable urban mobility plan; Cologne



Bibliography

