



SMART CITY Vienna

and the role of the “Wiener Stadtwerke”

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ORGANIZATIONAL STRUCTURE OF THE WIENER STADTWERKE



100% OWNED BY THE CITY OF VIENNA

VIENNA WAS RANKED NR.1 IN A GLOBAL SMART CITY COMPARISON

#1 Vienna

- innovation city (5) *)
- regional green city (4)
- quality of life (1)
- digital governance (8)

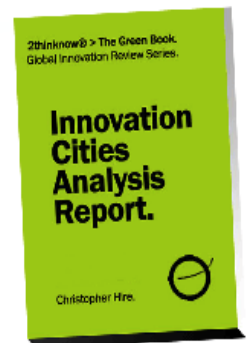
The Top 10 Smart Cities On The Planet

WRITTEN BY: Boyd Cohen

*) in bracket Vienna's position in each category

<http://www.fastcoexist.com/1679127/the-top-10-smart-cities-on-the-planet>

IMAGE: Sergii Vozniuk/Shutterstock



Viennese starting Point/Challenges - energy

Share of renewable energy

- 14% of the consumption

Energy mix 2011/2012

- 53% of the electricity sales is self-generated
difference is bought on national and international market
Wien Energie 100% nuclear power free
- 83,5% of the produced electricity is generated with gas (or coal) power plants
- 16,5% is produced with renewables
 - 12,4% hydropower
 - 2% wind + photovoltaic
 - 2% wood- biomass
 - 0,04% waste incineration

Viennese starting Point/Challenges - energy

Generation of district heat 2011/2012

- 58% cogeneration of heat and power (gas)
- 24% waste incineration
- 5% biomass
- 13% additional

→ Product portfolio is based on mainly one technology (cogeneration of heat and power)

→ Increasing the share of renewables in city like Vienna is difficult

Strategies/(Research)Projects

Energy:

- Environmental friendly high pressure heating storage
- Further development of wind power
- Funding for photovoltaic
- Operation respectively involvement in water power plants in Austria

→ Diversification of the portfolio

High pressure heating storage Simmering

Facts an figures

- Storage quantity: 11.000 cubic meters of water
- Altitude of the two heating storage towers: 45 meters
- Water absorption capacity: 850 MWh
- Provides heating for 20.000 households per year
- Investment: 20 Mio. Euros



High pressure heating storage Simmering



Zeitraffer_wa_mespeicher_kurz.mp4



Citizens' solar power plant

Facts an figures

- To date 6 citizen solar power plants are realised within Vienna
- One panel costs 950 Euros
- The citizens are renting out the panels to Wien Energie an get an yearly interest rate of 3,1% on their investment
- After 25 years Wien Energie buys back the panels and the citizen gets back the invested sum.
- The Viennese citizen solar plants produce electricity for roughly 800 households

Citizens' solar power plant – Wien Mitte



Viennese starting Point – mobility/population

Modal Split (2012)

- 39% public transport
- 6% bike
- 28% pedestrian
- 27% PMT

CO2 emissions (2009)

- 5,5 t/inhabitant CO2-equivalent → +15% increase from 1990 – 2009

Population development

- +9,4% over the last 10 years → roughly +16.000/year

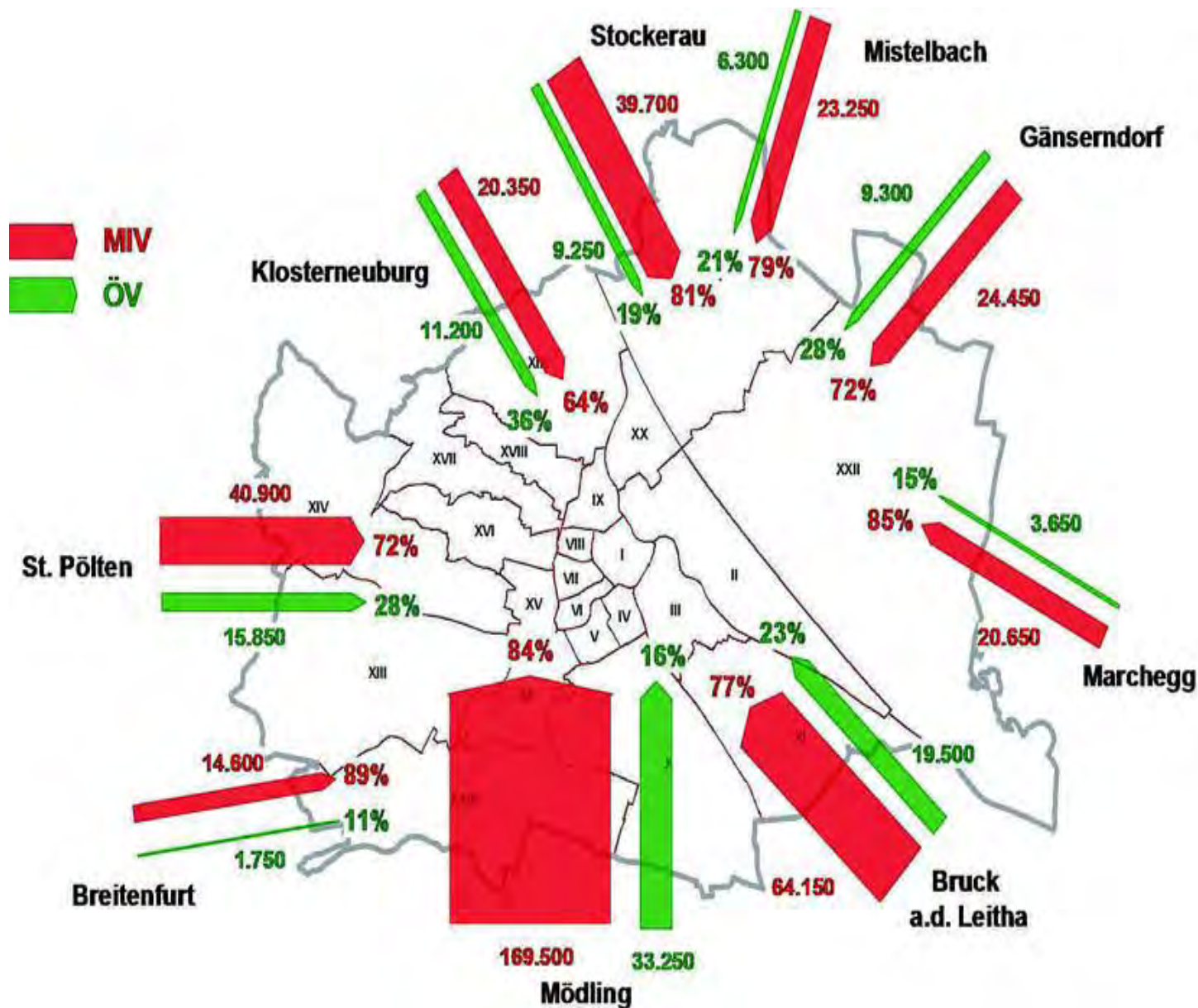
Viennese challenges - mobility

Target 2025	PT	Pedestrian+Bike	PMT
Origin/Destination Vienna	40%	40%	20%
Traffic crossing the city border	45%		55%

Starting Point 2012	PT	Pedestrian+Bike	PMT
Origin/Destination Vienna	39%	34%	27%
Traffic crossing the city border	31%		69%

- Within the city → focus on pedestrians and bicycle
- For the traffic crossing the city borders massive investment in infrastructure is necessary
- 40% share with a population of 2.Mio. results in 130 Mio. Passengers/Year more within the PT!!

Modal Split passenger transport (5 to 24 o'clock; 2010)



Quelle: PGO (Jahresbericht 2010)

Strategies/(Research)Projects

Mobility:

- Progression of the WSTW mobility companies towards an integrated multimodal mobility services provider
 - Increasing the supply of “classical” public transport: new metro + tramway lines
 - E-mobility model region Vienna
 - Fully electric busses operating on two inner city lines
 - SMILE – development of a multimodal transport assistant
- Preparing for a multimodal mobility future where the ownership of an own car is not necessary any more!!

Electro-mobility strategy (2012) for Vienna

Target PMT < 20% till 2025

- Electric cars to cover commercial transport
- Electric cars for fleet use (e-car-sharing, taxi,...)

Individual electric mobility only as support for the public transport

Charging infrastructure

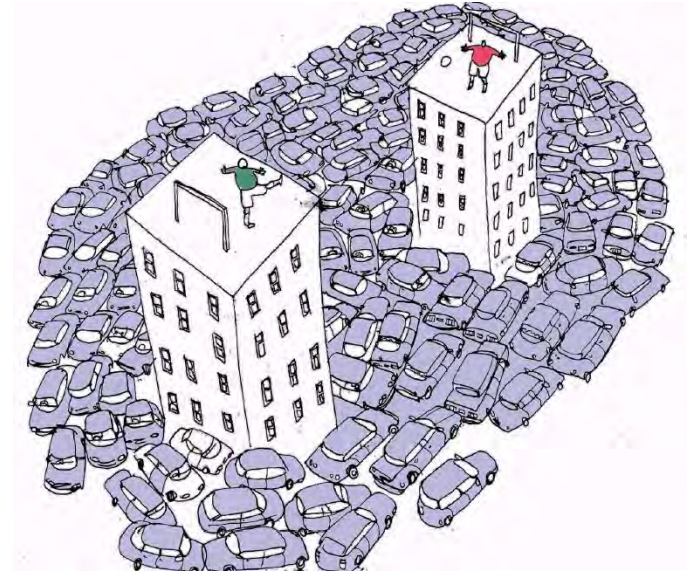
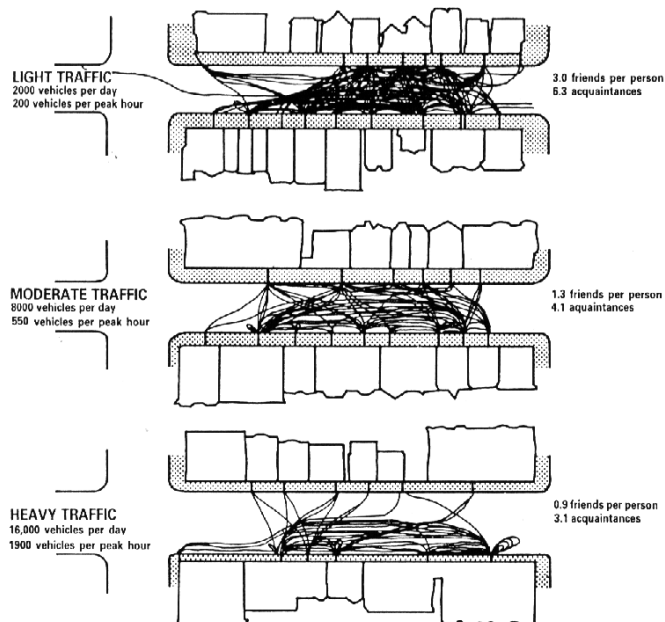
- Preferably in parking garages and semi-public spaces like parking places of supermarkets
- Restrictions in public space → shortage of public space within the city

Additional energy for the electric cars must be provided by renewable energy sources

Cars in cities are standing in the way of people

High densities in cities make public space a scarce good

- Space is too precious for parking places = charging infrastructure
- People need space for social interaction



With increased traffic in the streets the number of social interactions decline.

Appleyard (1981)

E-mobility model region Vienna

Technological change for the type of drive as starting point for a paradigm change towards a sustainable urban mobility.

- State funded research project “e-mobility on demand”

Project approach

- Use of e-cars with the premise of supporting the Viennese goals for a climate friendly mobility
- No 1:1 change of fossil cars to electric cars
- No renaissance of the own car in the city

E-mobility as complement to environmental friendly modes

➡ Reduction of fossil fuels without a general increase of PMT



E-mobility on demand

E-Car Sharing
E-Car corporate fleets
E-Bike

Mobility hubs

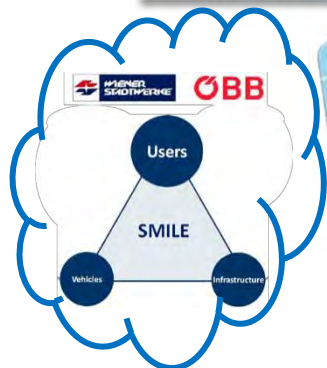
> 2 Million
people

Supply area



Mobility card

PT
integration



> 440
charging points

Charging infrastructure in
semi-public space
(Garagen, etc.)



> 175
e-cars

Target group
> Corporate fleets

Energy
100% renewable

PV, Wind

Project duration:
2012 - 2015

Electric bus Wiener Linien

Developed by Rampini and Siemens

100% emission free

Air conditioning and heating fully electric

Daily range 150 km

- Charged by the 600 volt direct current from the tramway
- Charger in the vehicle
- Charging time 15 minutes at terminal station

Capacity 30 persons

100% low floor bus





smile

einfach mobil

smile-einfachmobil.at

SMILE | Multimodality of tomorrow

Goal of the Project “**SMILE**” is to develop and try out a prototype for a **multimodal, integrated information-, booking- and payment system** (integrated mobility platform) which combines private and public transport systems.



**Personal
mobility
assistant**



**Integrated
mobility
platform**



**Information
Booking
Payment
Usage**

SMILE | Customers point of view today



Multimodal mobility needs a consistent system for information, booking and payment. The central requirement is the destruction of entry barriers to ease the switch to public transport.



5 Different tickets
5 Touch points
4 Info services



A1 und A21 100 km, 1 Stunde



1 (Parking)ticket
1 Touch point
1 Info service

„PT use has to be as easy as driving with your own car...”



Research initiative with the Vienna University of Technology



urbem ^{DK}

Urbanes Energie- und Mobilitätssystem
Doktoratskolleg

→ Doctoral programme for 10 students working on smart city topics

The common plan.....

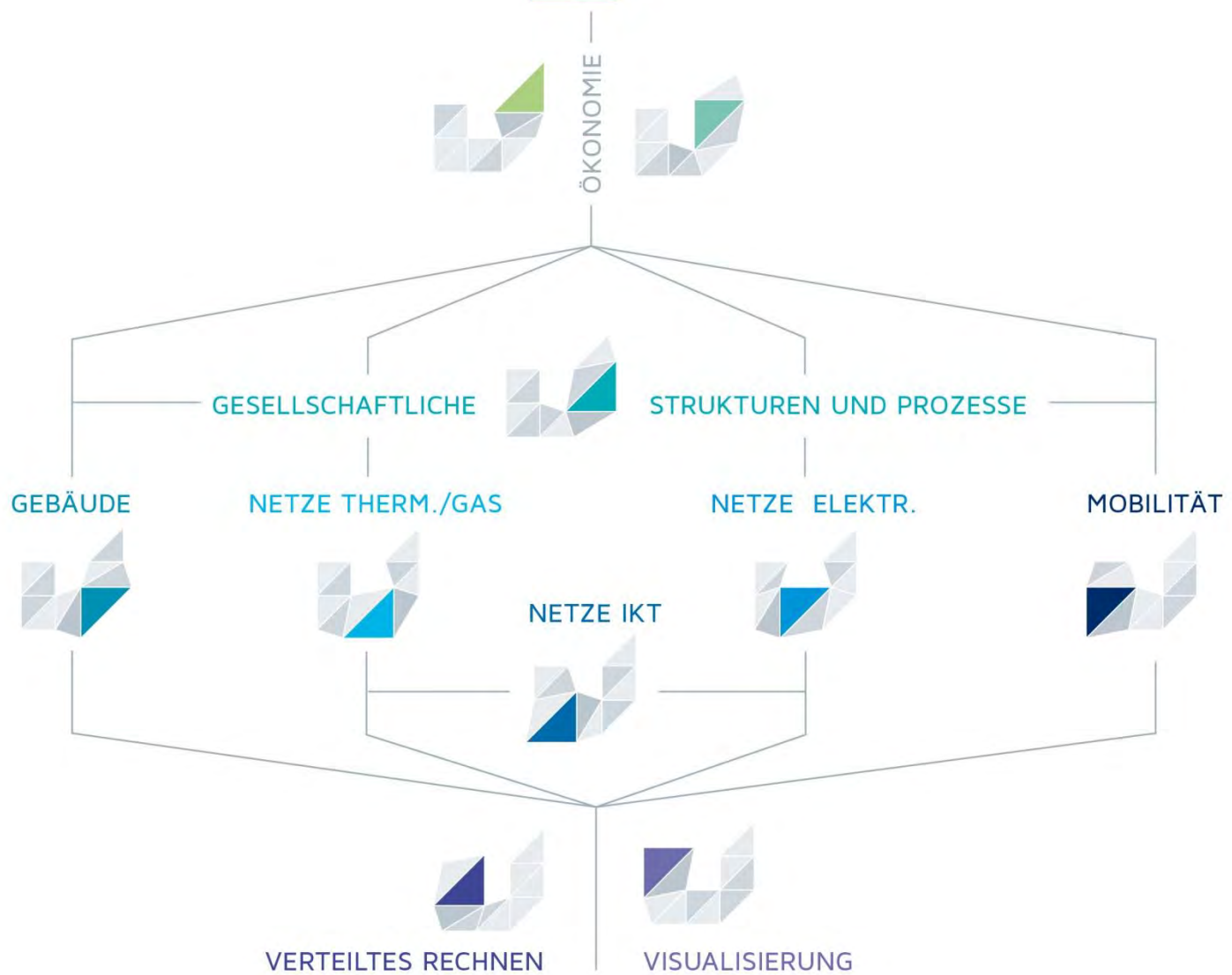
„A sustainable supply secure, affordable and liveable city“

Built
structures

Framework
conditions

System
approach

Inter-
disciplinary





<http://urbem.tuwien.ac.at/>



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