Urban Development in the Information Age

Issues, Elements, Perspectives

Barbara Saringer-Bory

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Education:

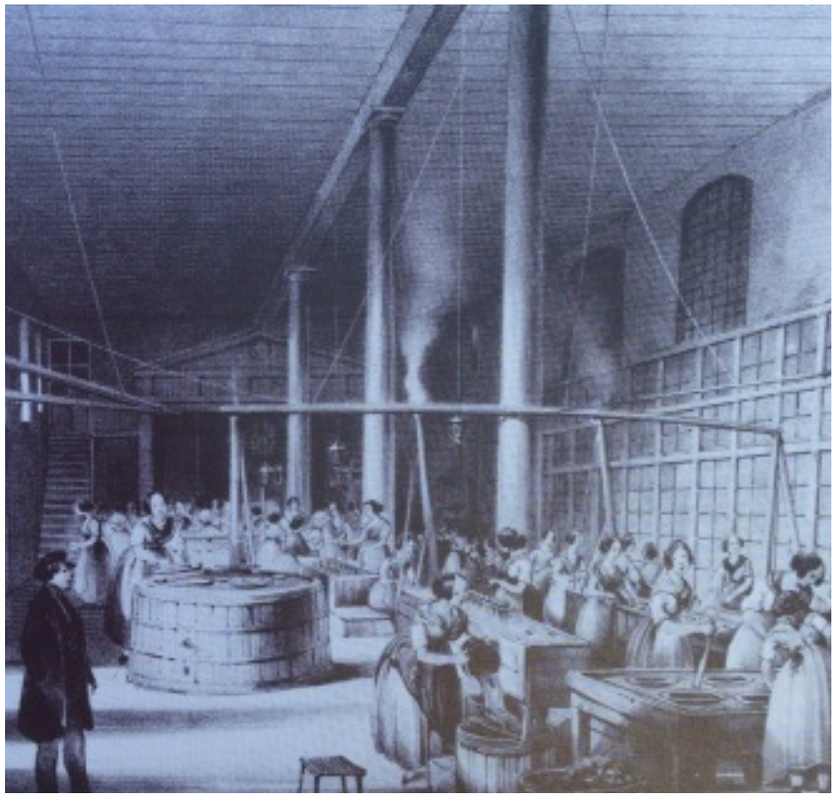
- spatial planning (Vienna University of Technology, 1992-1998)

Professional career:

- urban design (dSV Rotterdam, HAC Rotterdam, 1999-2000)
- real estate development (BAI 2001, Redserve 2007)
- project management, regional planning, spatial assessments (Regional Consulting ZT GmbH, 2001-2006)
- urban research, moderation, project management (ÖIR - Austrian Institute of Regional Studies and Spatial Design, 2008-to date)

what will you hear during the next 30 minutes:

- urban development in the past
- urban development today
- urban development challenges of tomorrow
- perspectives for urban technologies

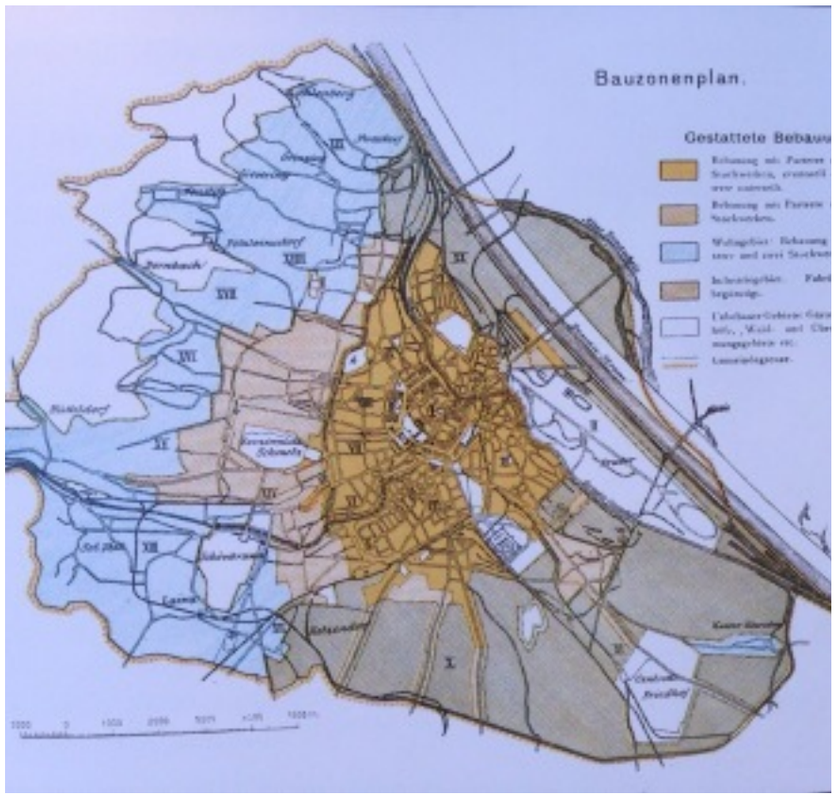


1800-1870

urban extension ->

ring road instead of defensive wall

Source: Situationsplan 1835, Kerzenfabrik 1845, Pawlatschenhaus Ulrichsplatz: Wien 1815-1848, S.51, 91, 152
Luftbild Spittelberg © 2012-1013 Apple Inc.



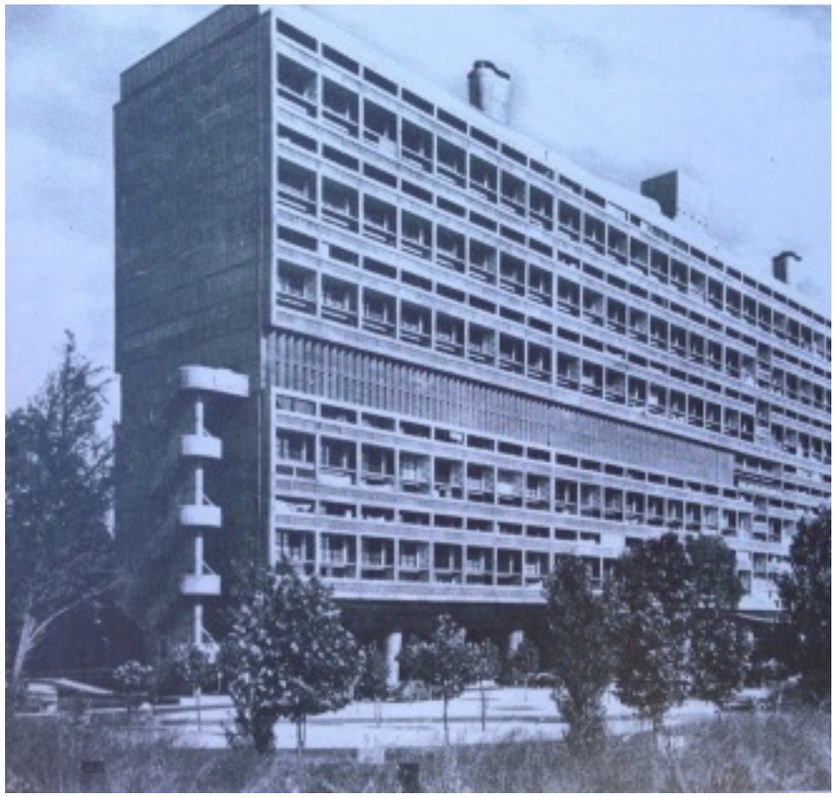
1870-1918

massive real estate development

Source: Bauzonenplan 1904: MA18, STEP94, S.67 / http://www.neheleniapatterns.com/html/body_grunderzeit.html / Bassena: MA21, 1984, S.94
Luftbild Hasnerstraße © 2012-1013 Apple Inc.

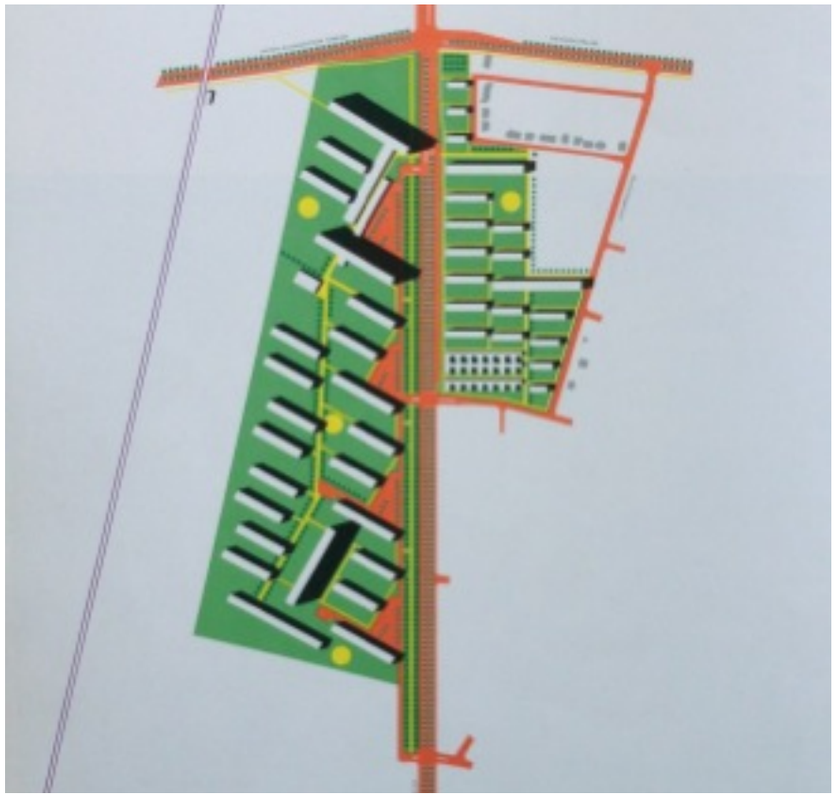
1920-1938
social housing
Luft, Licht, Sonne

Source: Town and Country Planning / J.J.P: Oud Rotterdam zuid 1925: Benevolo, S.922ff / Mareschplatz, Barbara Saringer-Bory, 2014
Luftbild Mareschgasse © 2012-1013 Apple Inc.



1945-1959
reconstruction

Source: Unité d’Habitation, Le Corbusier 1951 für 1.400 Menschen: Benevolo, S.931 / Wiederaufbau Staatsoper: StadtChronik WIEN, S.459,
Luftbilder Per Albin Hansson Siedlung West ,Justgasse © 2012-1013 Apple Inc.

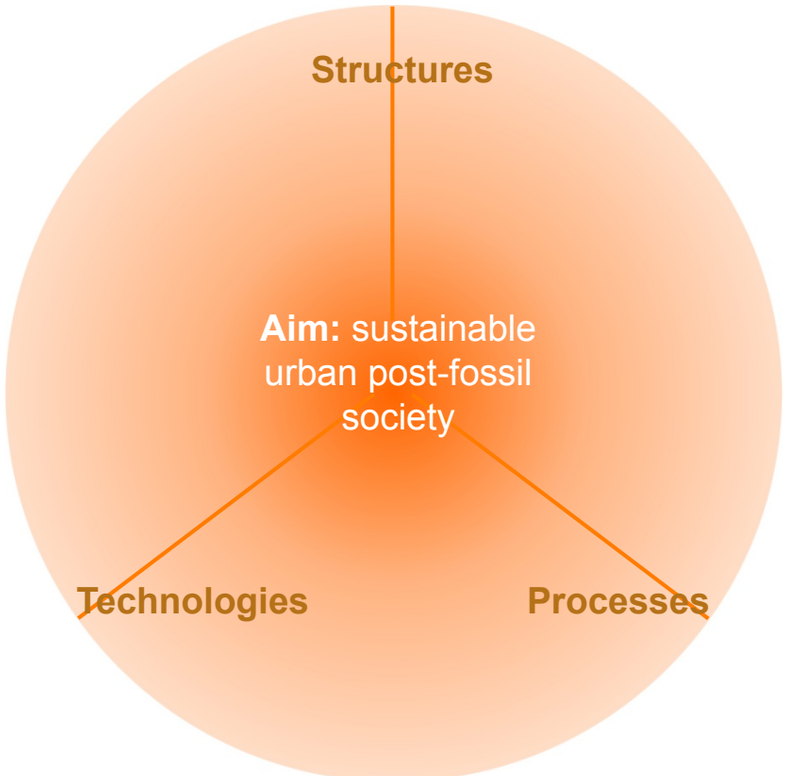


1960-1979
prefabricated, functional segregated big forms

Source: Bebauungsvorschlag Laxenburger Allee: Rainer, 1961 / U-Bahn Baustelle Stephansplatz: MDBD, 1985, S.150
Luftbild Altmannsdorferstraße, Neilreichgasse © 2012-1013 Apple Inc.

1980-1999
sustainable development,
urban renewal

Source: Stadterneuerungsgebiete: MA18, STEP84, S.62 / Europan Essling: MA18, 1999, S.86 / Luftbild Wienerberg © 2012-1013 Apple Inc.



2000+

smart city, governance

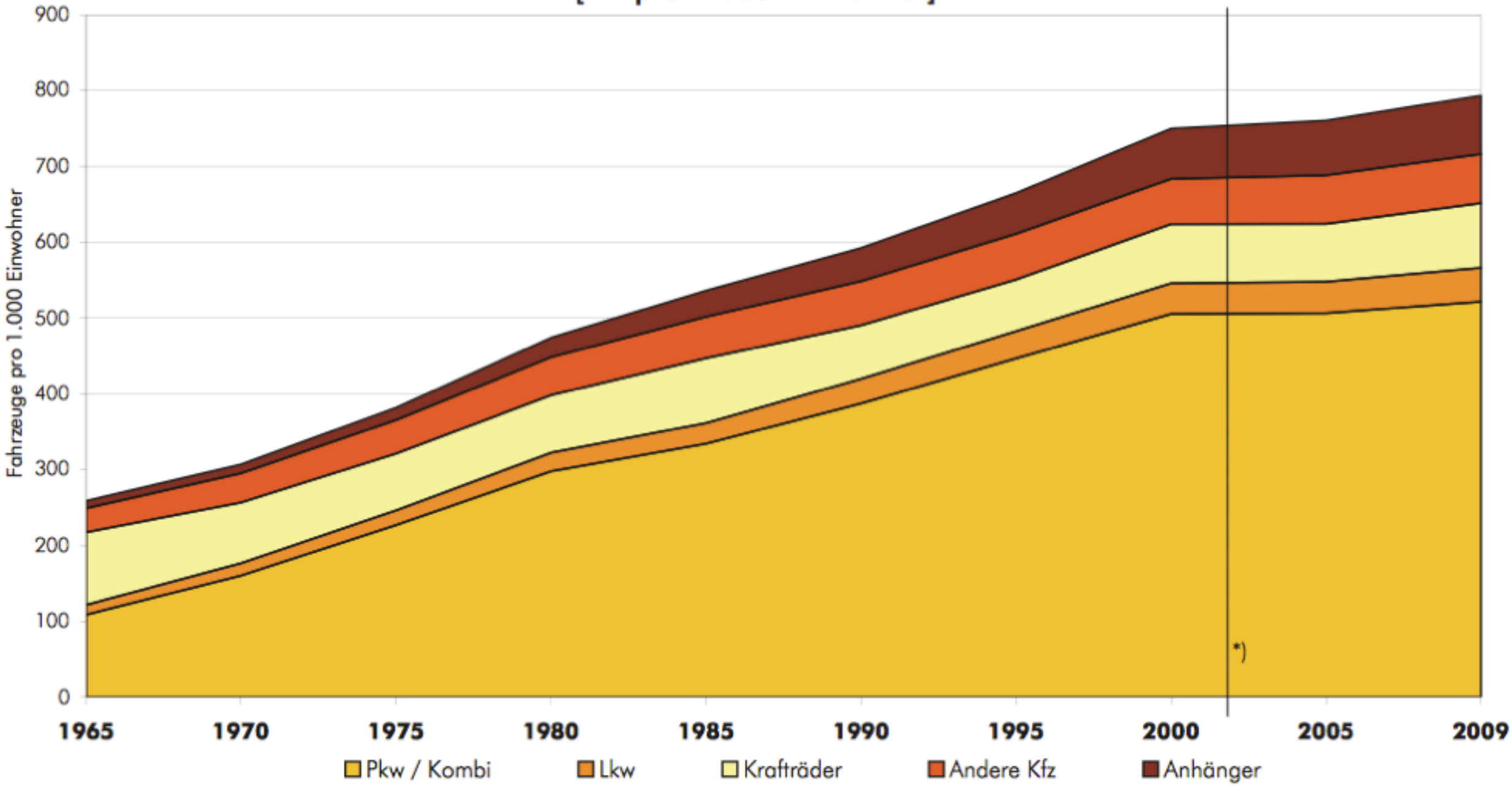
project based development,

engagement

Source: SmartCitiesNet / Leo Saringer, 2014 / Kabelwerk: Perspektiven 2004, S.78, 108

Entwicklung der Motorisierung 1965 - 2009

in [Kfz pro 1.000 Einwohner]



*) Vergleiche zu 2001 sind durch den mit Stichtag 31.3.2002 durchgeführten Bestandsangleich nur bedingt möglich.

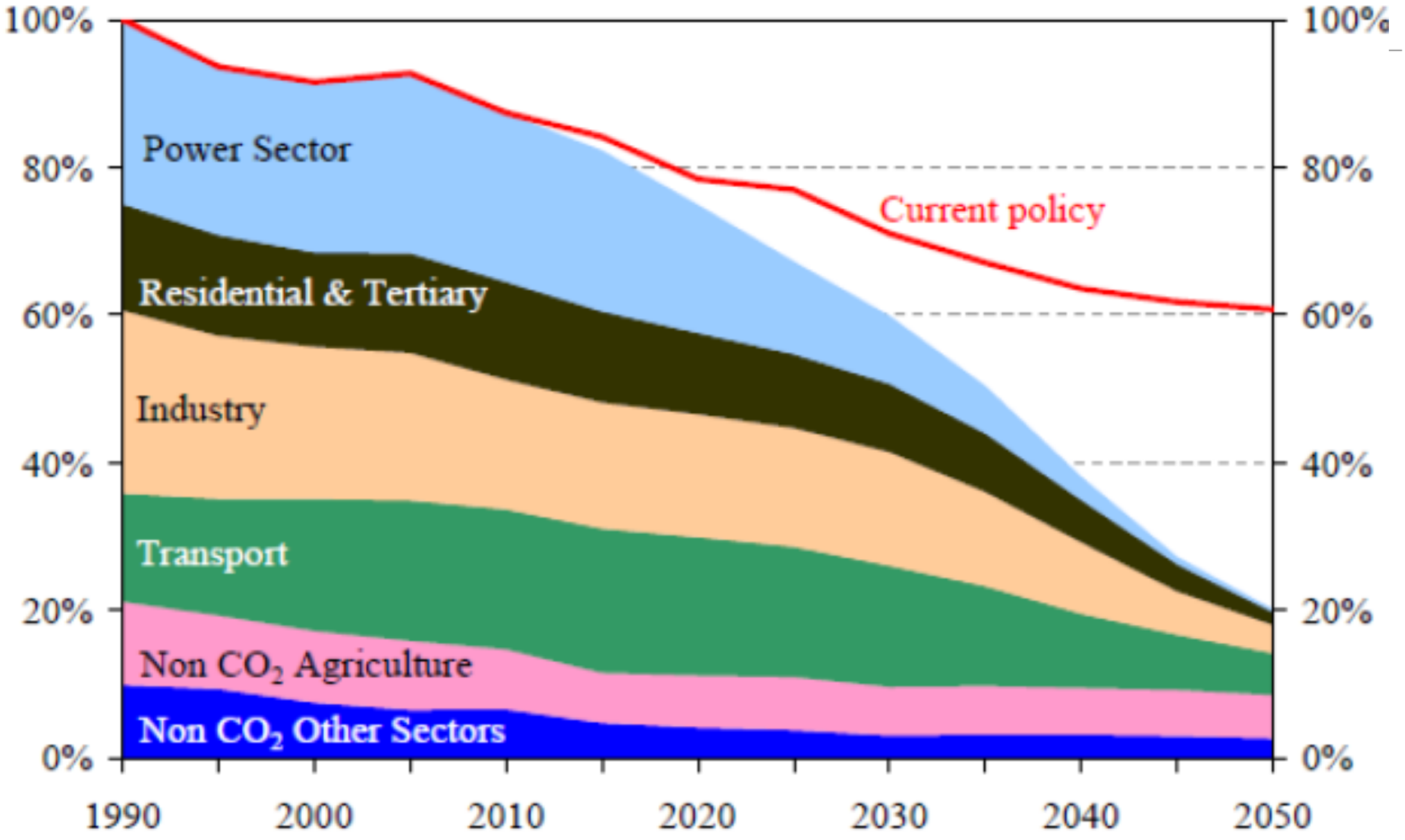
Quelle: Statistik Austria, Statistik der Kraftfahrzeuge 2009

HERRY 2010

Source: Herry Consult; Verkehr in Zahlen Österreich 2011, Studie im Auftrag des BMVIT, S.83
Link: http://www.bmvit.gv.at/verkehr/gesamtverkehr/statistik/downloads/viz_2011_gesamtbericht_270613.pdf

Europäischer SET - Strategic Energy Technology Plan

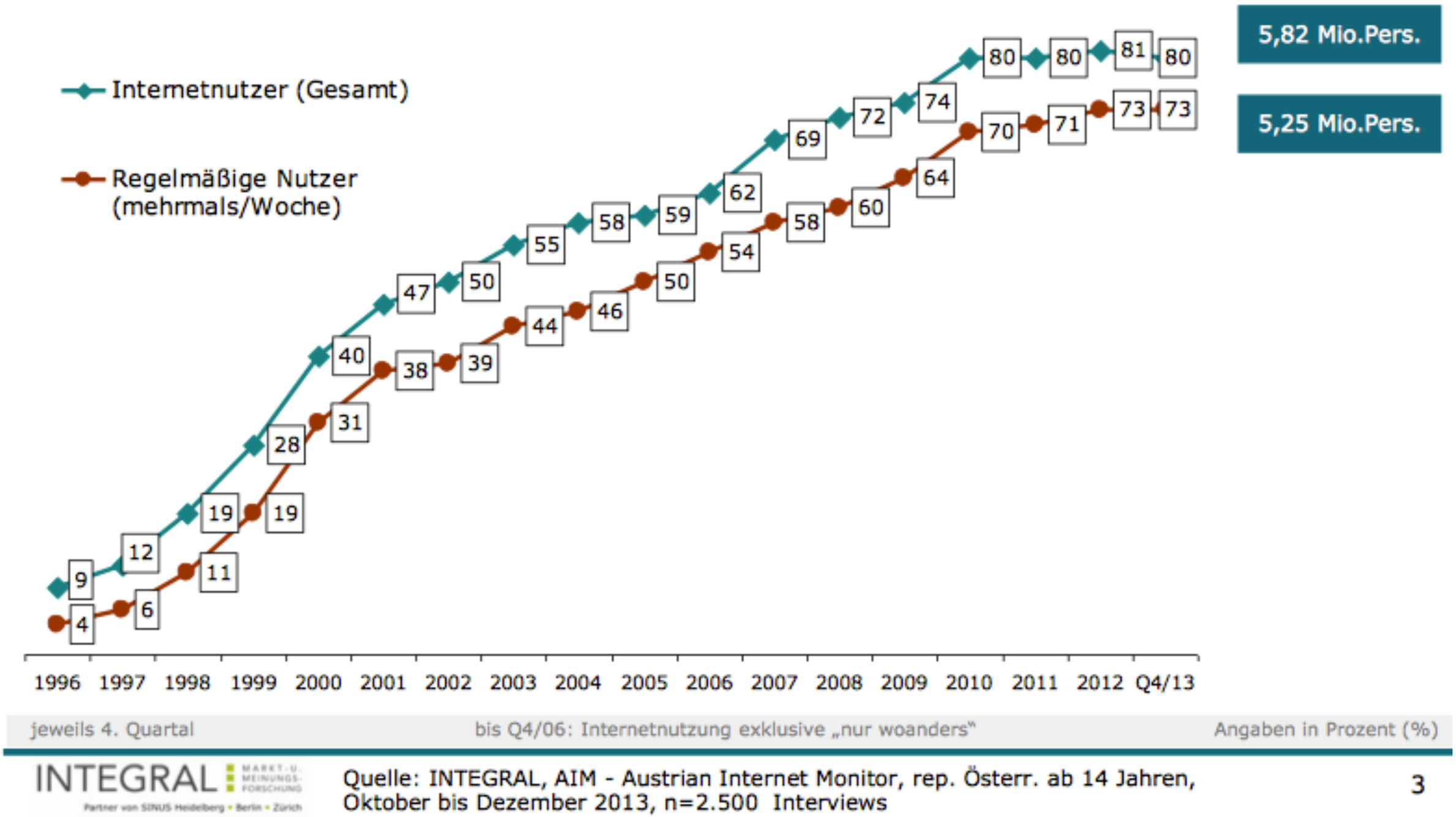
EU GHG emissions towards an 80% domestic reduction (100%=1990)



A Roadmap for moving to a competitive low carbon economy in 2050.

(Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions; 8.3.2011)

internet use development 1996-2013 in Austria



Source: http://www.integral.co.at/downloads/Internet/2014/02/AIM-Consumer_-_Q4_2013.pdf

CORP 1996

First symposion on computer-aided spatial planning

The first CORP in 1996 takes place on the background of the enormous interest from almost all fields of planning to exchange knowledge regarding possibilities and experience with new, computer-aided tools. Therefore, we organised a symposion in the hope to meet these expectations.

The main topics of the first CORP were:

- spatial planning as a whole: the influence of computers and information technolgy as spatial planning instrument
- local planning: CAD and GIS as administration and planning tools
- design and animation – digital 3D models of cities and urban places
- landscape and environmental planning – GIS as an instrument to support planning processes and computer use in landscape planning and environmental impact assessments
- transport planning: accessibility models and GIS-aided traffic noise analyses

14-16 February 1996, Vienna University of Technology

Source: www.corp.at

Smart City Planning

Structures – build environment

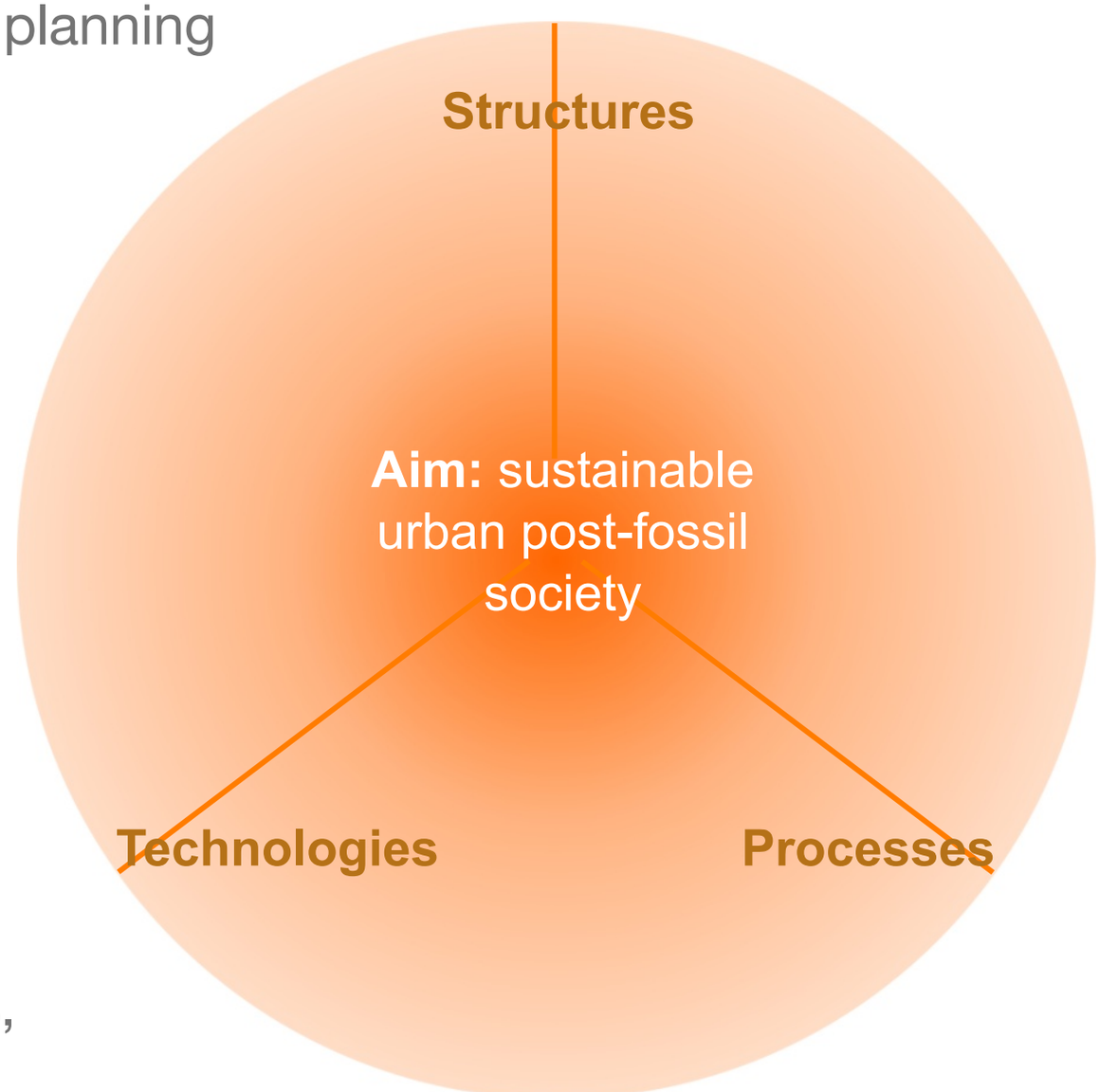
- Integrated spatial, urban, mobility and energy planning
- Assessment, modeling and planning tools

Technologies

- Building- energy-, transportation- and communication technologies, components

Processes

- Stakeholder processes (politics, economy, decision-making), interfaces
- Process analysis and optimisation, develop-ment of business models
- Consideration of lifestyles and social changes, quality of life and user behavior



Source: SmartCitiesNet

urban development tomorrow

1. Long-term smart city vision
2. Urban energy databases
3. Urban energy performance assessment
4. Strategic integrated spatial, urban, mobility and energy planning

Strategic planning and fundamentals

5. Optimisation of urban morphology and neighbourhood planning
6. Mixed use planning and compact city concept
7. Micro-climate modelling of public and green urban spaces

Urban planning

8. Building integrated renewable energy technologies
9. Technologies for industrial symbiosis
10. Intelligent energy distribution networks
11. Storage of heat and matter

Energy technologies

12. Integrated multi-modal transport systems
13. Demand-driven mobility services
14. Alternative drive systems
15. Market introduction of alternative drive systems
16. Passenger awareness and mobility management

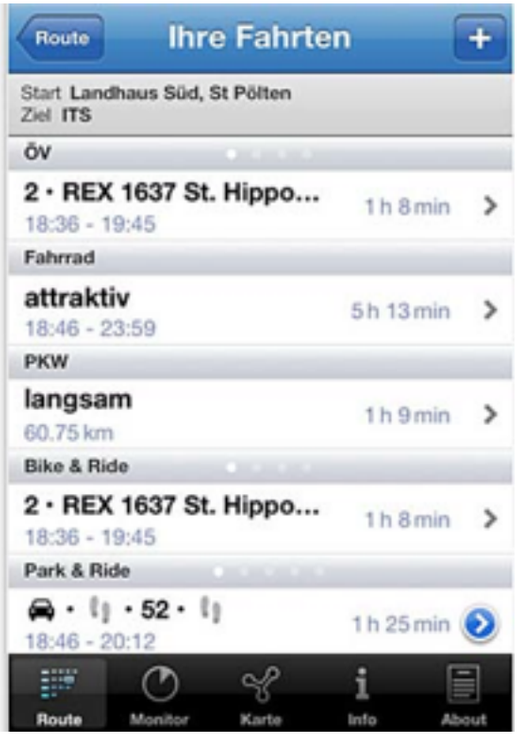
Mobility and transport

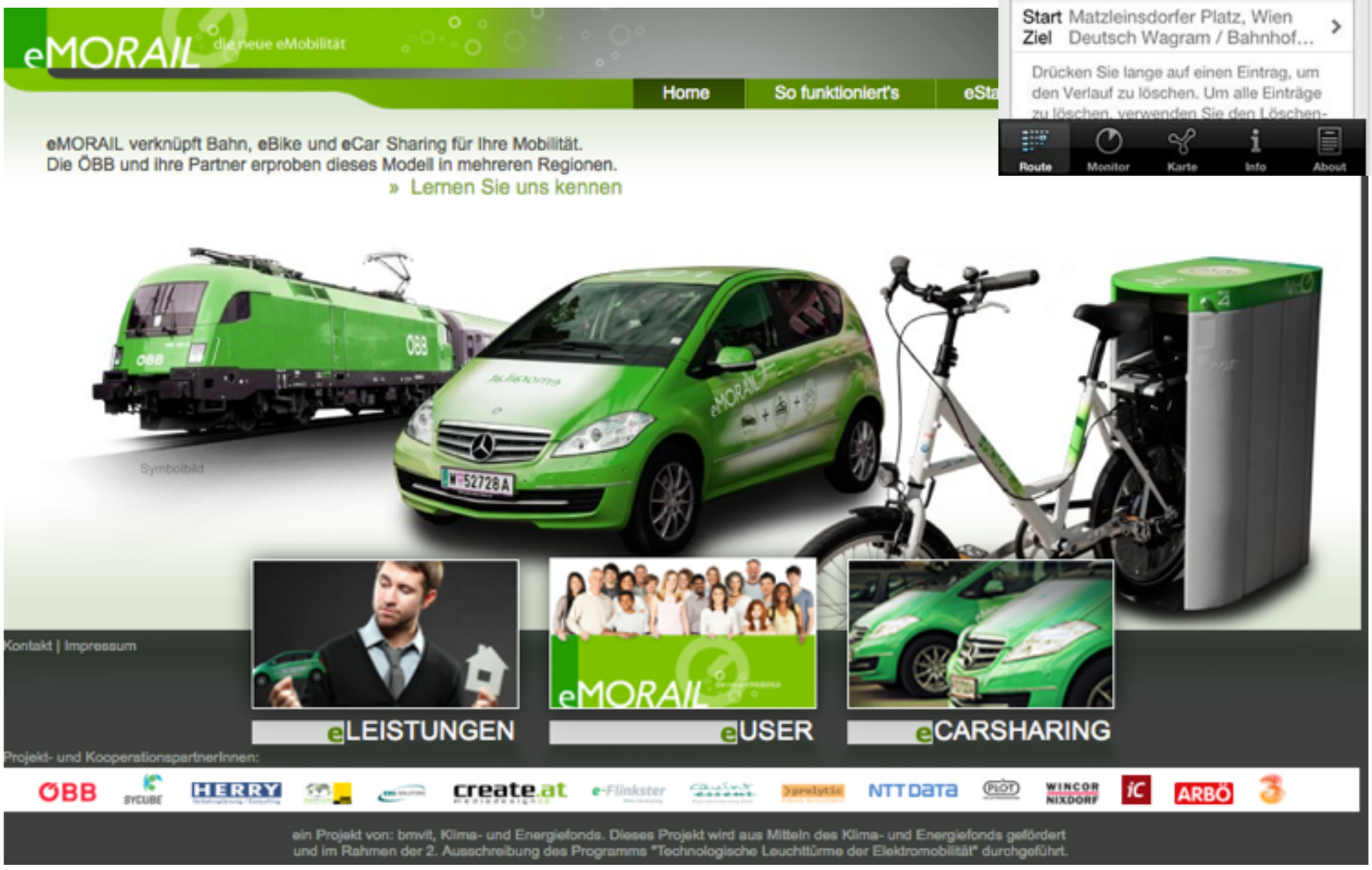
17. Socio-demographic changes and user behaviour
18. Integrated policy instruments and awareness measures

User and implementation

Source: SmartCitiesNet

Integrated multi-modal transport systems





Source: http://www.emorail.at, https://www.wien.gv.at/verkehr-stadtentwicklung/anachb-app.html,

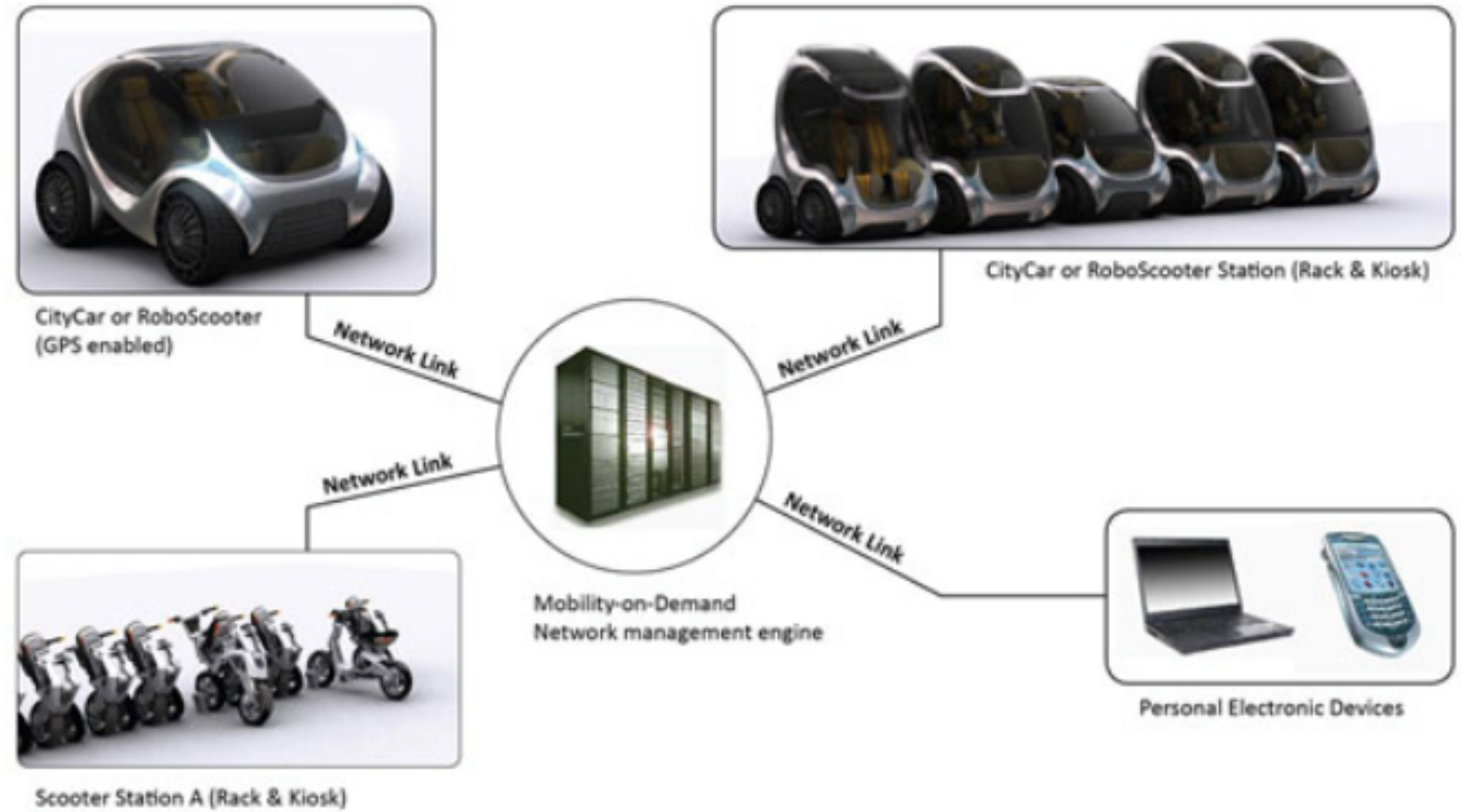
Demand-driven mobility services

Tagesausflug	hohe Bequem-lichkeit	kurze Reisezeit	niedrige Kosten	gute Mobilität vor Ort	niedrige Umwelt-belastung
hohe Bequemlichkeit		2	2	0	0
kurze Reisezeit	0		1	0	0
niedrige Kosten	0	1		0	0
gute Mobilität vor Ort	0	2	2		2
niedrige Umwelt-belastung	2	2	2	0	
Summe	2	7	7	0	2
Postion	3	1	1	5	3
%	11%	39%	39%	0%	11%

Abbildung 1: Auswertung Bedürfnisse der Nutzergruppe Tagesausflug

Source: http://www.salzburgresearch.at/projekt/ways2navigate/, Last Mile Link, Schubert, Schinagl, Endbericht, AP4, Seite 6: http://LML.netwiss.at

Alternative drive systems



Source: MIT, TU Wien, Mobility on Demand, http://www.stb.tuwien.ac.at/index.php?id=333

Passenger awareness and mobility management

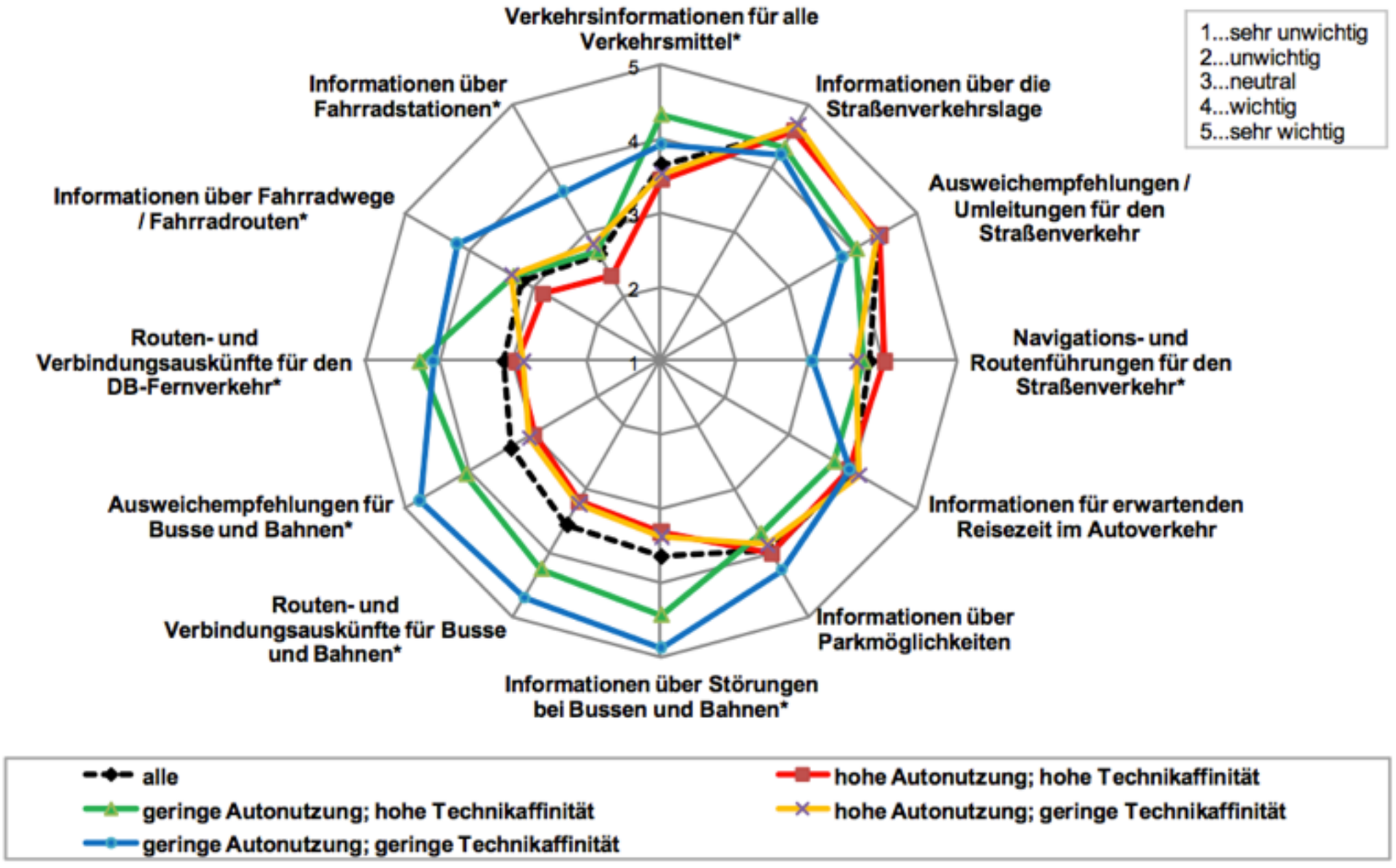


Abbildung 5-9: Wichtigkeit von Informationsdiensten in den Zielgruppen.

Source: x-sample, verkehrplus (2010): INFO-EFFECT. Zielgruppenspezifische Wirkungen von multimodalen Verkehrsinformationen auf individuelles Verkehrsverhalten Studie im Auftrag des Bundesministeriums für Verkehr, Innovation und Technologie, Graz-Wien, Seite 130, http://www2.ffg.at/verkehr/file.php?id =

telematics:
electronic
traffic control

T.I.G. VERKEHRSLEITTECHNIK

Verkehr erfolgreich managen!

Aktuelles
Unternehmen
Referenzen
Produkte
Downloads

Zutrittskontrolle
Mobileticketer
Ticketautomat
Bordcontroller
Bordprinter
Bordticketer
Contact
E-INK
Inbus
Infocenter
Scheduler
Planner

Contact

Verkehrsträgerübergreifende Anschlusssicherung wird durch das T.I.G. System Contact möglich. **T.I.G. Contact sichert die Bus-Bus- und Bahn- Anschlüsse fahrzeugautonom**, unabhängig von Leitzentralen.

GPS und Datenfunk sorgen für die Ortung der Fahrzeuge und den autonomen Datenaustausch. Verspätungen können dadurch gezielt ermittelt und an Anschlussbeteiligte weitergeleitet werden.

Über das **Anschlusssicherungsterminal** erfolgt die automatische Überwachung und Steuerung von Anschlüssen und deren Visualisierung für den Fahrer. Den Verkehrsunternehmen werden durch die Datenauswertungen aus dem laufenden Betrieb wichtige **Informationen zur Optimierung von Fahrplänen** zur Verfügung gestellt.

Source: http://www.tig-gmbh.at/de/produkte/contact.php
ASFINAG

Socio-demographic changes and user behaviour

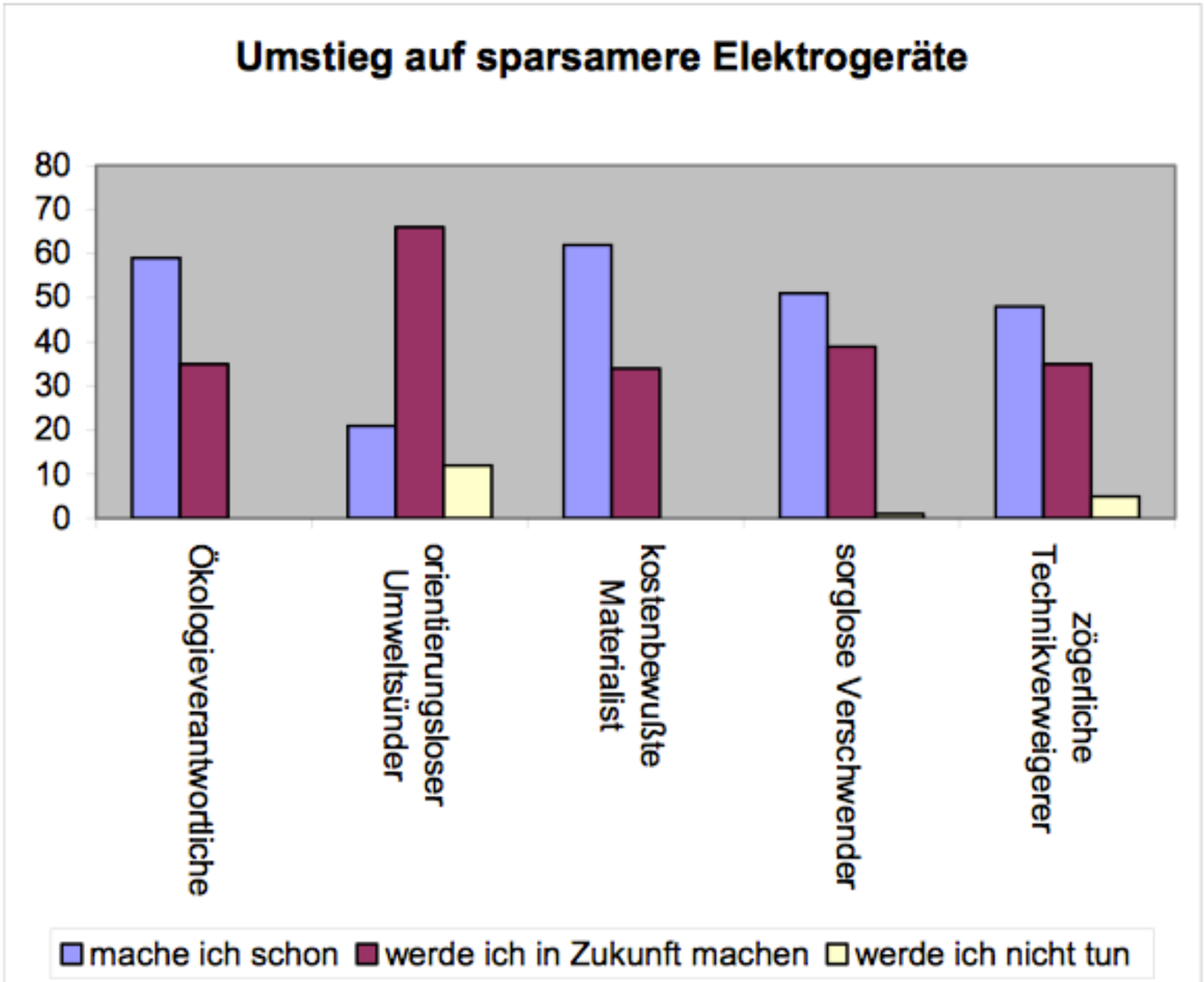


Abbildung 40: Bereitschaft zum vorgezogenen Umstieg auf sparsamere Elektrogeräte

Source: Austrian Energy Agency: Energy Styles - Klimagerechtes Leben der Zukunft - Energy Styles als Ansatzpunkt für effiziente Policy Interventions, S.94
funded by the Programme „NEUE ENERGIEN 2020“, http://www.energyagency.at/fileadmin/dam/pdf/publikationen/berichteBroschueren/EnergyStyles_Endbericht.pdf

powered by klima+ energie fonds

Integrated policy instruments and awareness measures

Powerdown - Diskussion von Szenarien und Entwicklung von Handlungsoptionen auf kommunaler Ebene angesichts von "Peak Oil" und Klimawandel

5 dialogue seminars

policy recommendations

Source: Powerdown, energieautark consulting gmbh et. al., http://www.powerdown.at, funded by the Austrian Klimate Fund

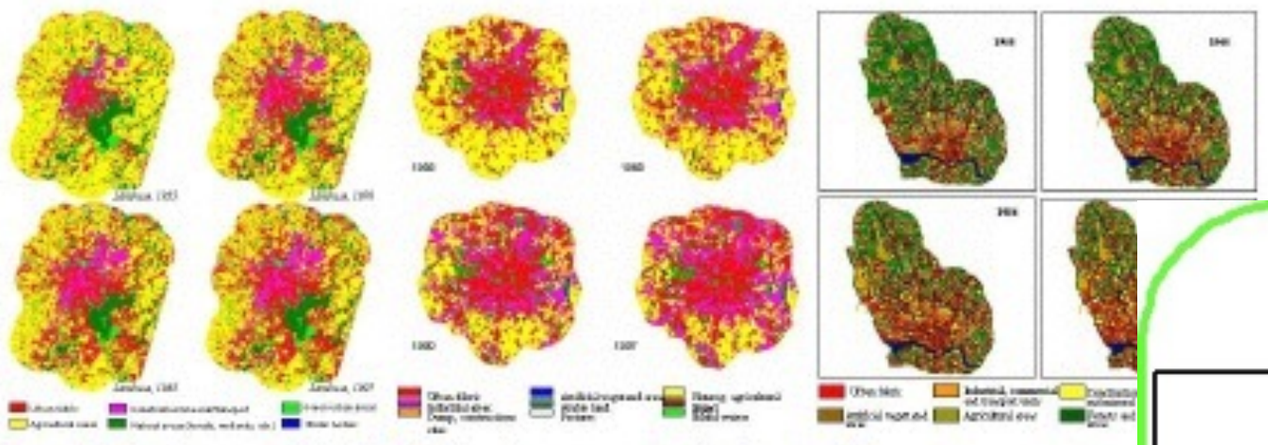
powered by klima+ energie fonds

Integrated policy instruments and awareness measures

SUME - Sustainable Urban Metabolism

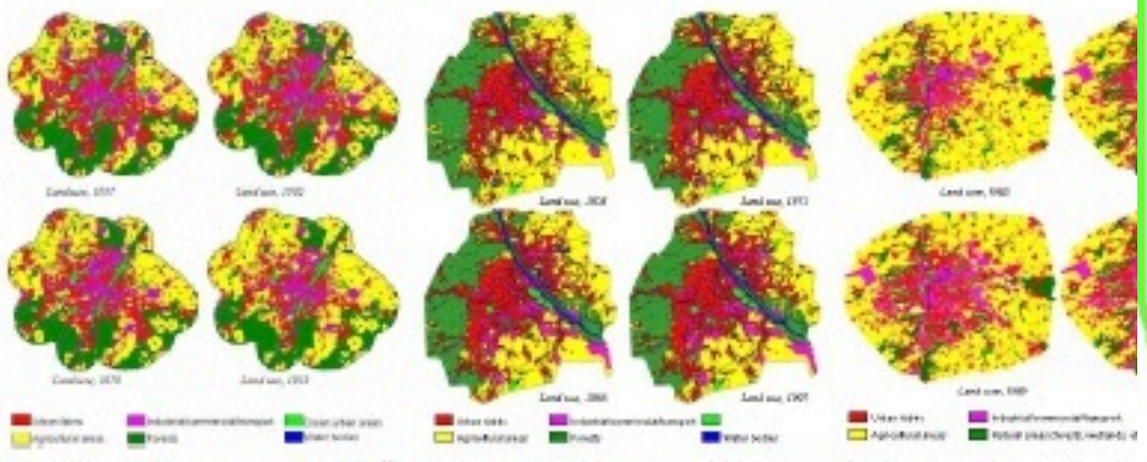
Urban development scenarios
Metabolic Impact Assessment
Policy recommendations

Figure 11 **Long term spatial development in Brussels, Milano, Oporto**

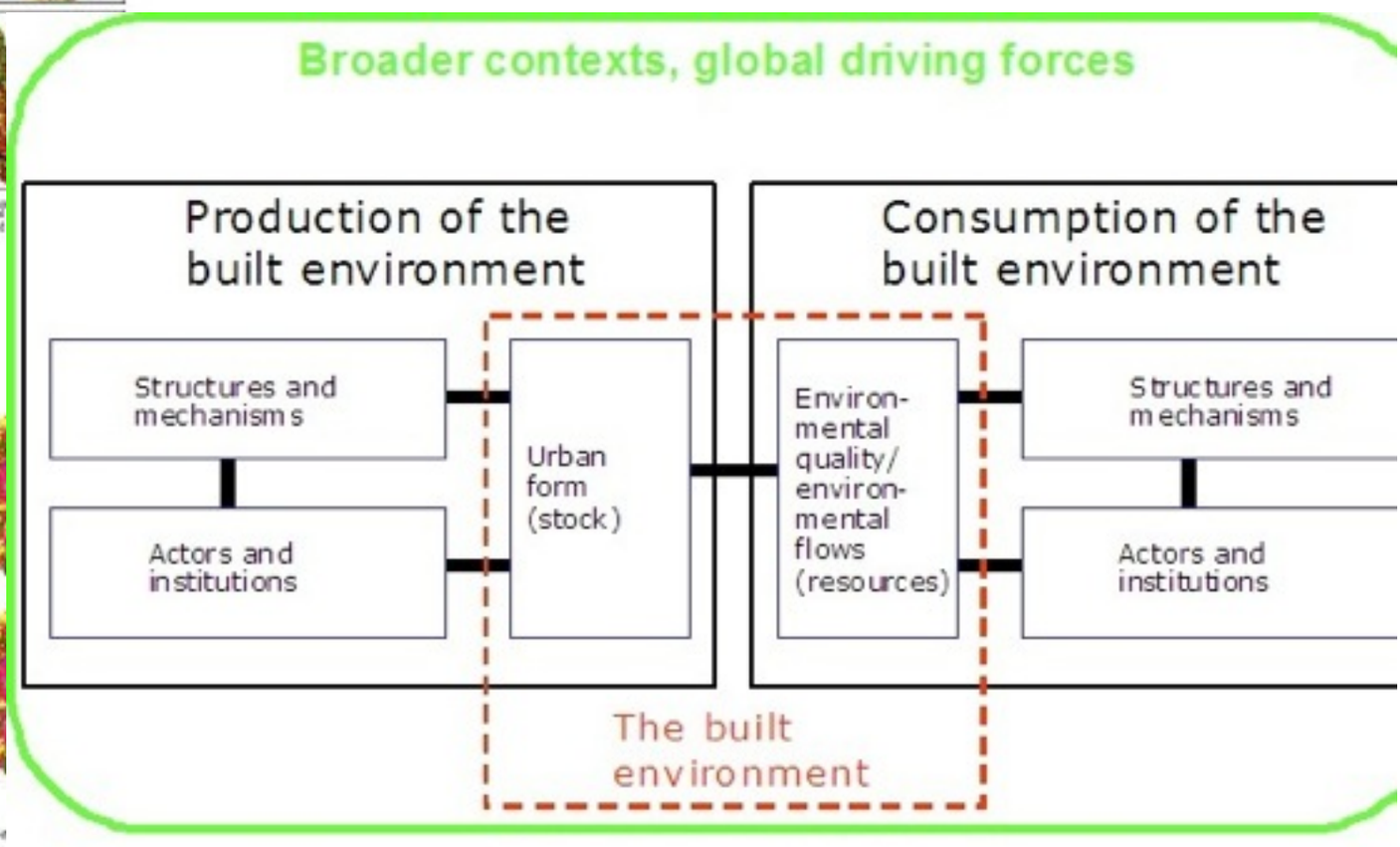


Source: Moland homepage 2009 (http://moland.jrc.ec.europa.eu/study_areas.htm)

Figure 12 **Long term spatial development in Munich, Vienna, Prague**



Source: Moland homepage 2009 (http://moland.jrc.ec.europa.eu/study_areas.htm)



Source: SUME, Working Papers 1.1, 4.1, ÖIR et.al., http://www.sume.at, funded by the European Commission, FP7

planning data processing possibilities

urban development simulation

interactive decision support

social media data processing

visualization, augmented reality

digital data platforms, data exchange

interactive citizen’s participation

assessment tools, analytical systems, evaluation and monitoring instruments

electronic traffic control (telematics), navigation

Literature

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SmartCitiesNet financed by: Federal Ministry for Transport, Innovation and Technology, Austria; Research programme "Haus der Zukunft plus"

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thank you for your attention!

contact for questions of (nearly) any kind: saringer@oir.at