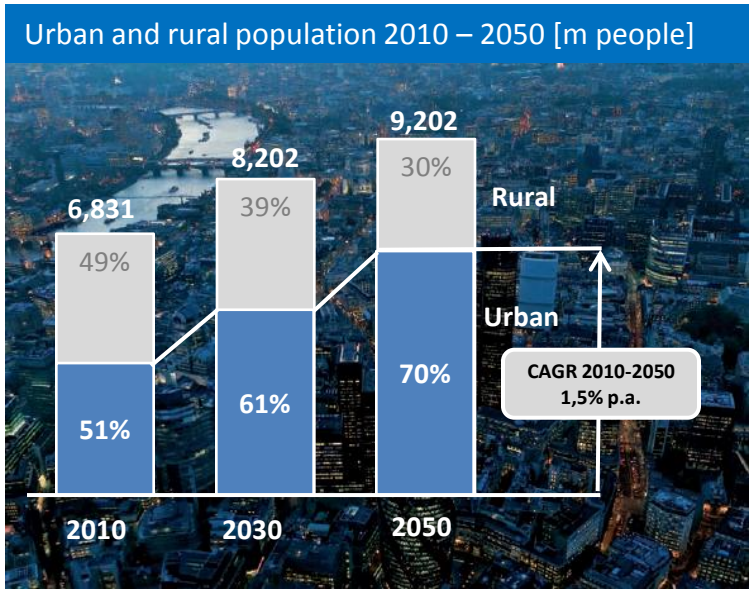
The future of electric mobility – integrated mobility solutions

Dr. Frank Wolter

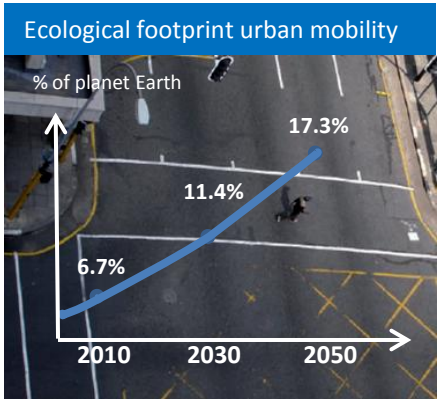
Rio, June 18th 2012

Rising Challenges for Urban Mobility Systems

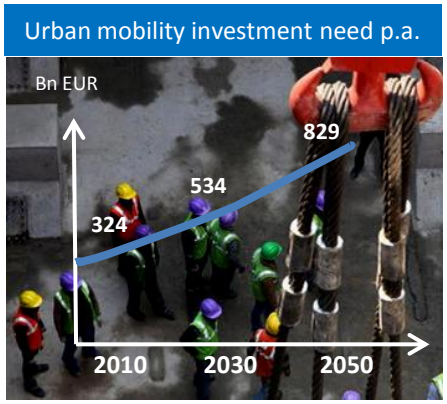
Challenges



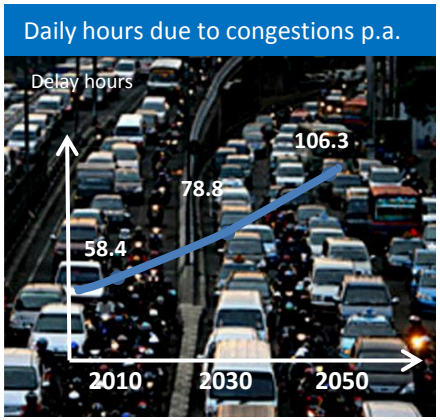
- Rising challenges for urban mobility systems due to …



… ecological impact



… financial needs



…over use

Source: UN Population Division, Urban Age, Arthur D. Little Lab

Electric Mobility - Part of the Solution

Can electric mobility be part of the solution?

Infrastructure needs

Ecological footprint

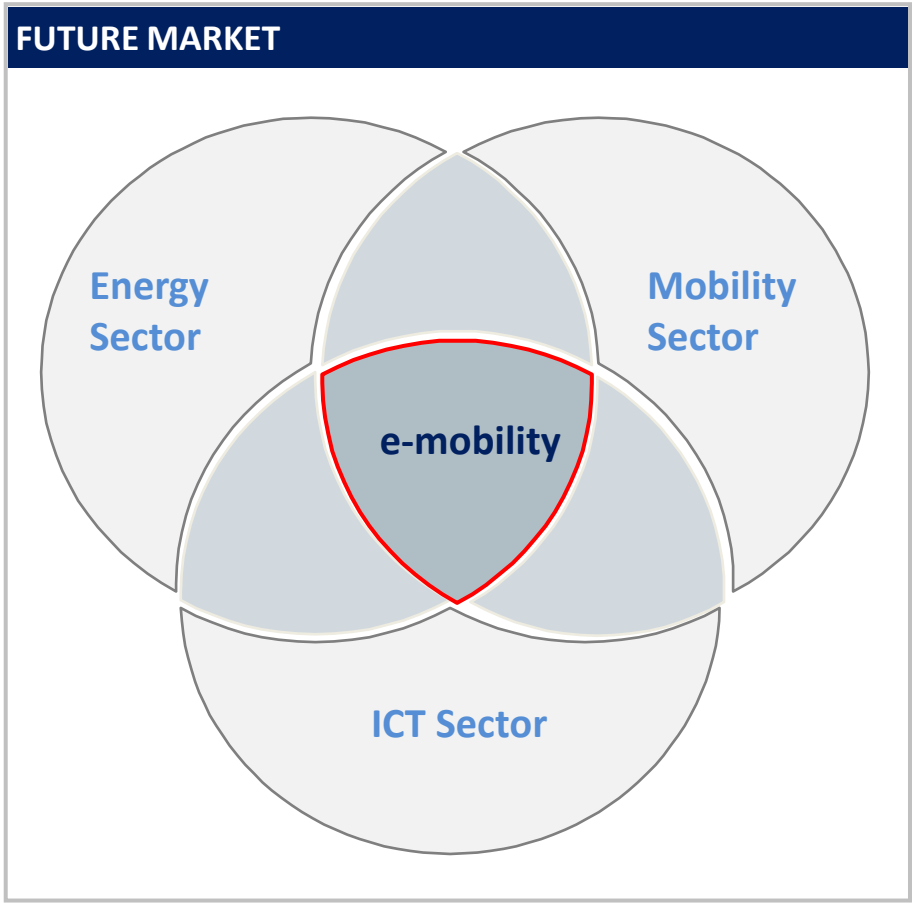
Limited range

High costs

Yes, within an systemic, interconnected approach!

Systemic Approach - Collaboration of Different Partners

Collaboration within BeMobility



Leader of consortium

Project coordination

Core partners

BOSCH Technik fürs Leben, DB BAHN, choice, CONTIPARK Interparking Group, DAI-Labor TU Berlin, DAIMLER, HaCon Traffic • Software • Service, Buro Happold, inno, Schneider Electric, SENSE

Associated partners

Alcatel·Lucent, DB Energie, DB Bahn Park, BVG, GASAG DIE BERLINER ENERGIE, hiriko driving mobility, INFRAWIND eurasia, LSE, NETZGESELLSCHAFT BERLIN-BRANDENBURG, RLI REINER LEMOINE INSTITUT, SOLON, TOYOTA, VATTENFALL, VBB Verkehrsverbund Berlin-Brandenburg Alles ist erreichbar.

Funding and coordination

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E-Cars are a Perfect Addition for Urban Car Pools

e-car sharing in Berlin (2011)

40 e-cars

100 % green energy

17 e-car sharing stations

Shared E-Cars as Part of a Holistic Urban Mobility Concept

Connected mobility – mobility card (2011)

1 mobility card

~240 cars

~1.250 bikes
(75 bike stations)

~13.000 stops
(bus, tram, underground, rapid transid railway)

Tried and Tested: A Mobility Card for Berlin

Results of the test of the mobility card (2011)

135 test users / **3** months test

- **10** % personal car use (day)
+ **20** % bike rental (month)
+ **30** % car sharing (week)
+ **11** % public transport (day)

BeMobility Suite - One App Family for „Metromobiles“

BeMobility Suite – information and multimodal navigation (2011)

~ 14.490 access points for mobility

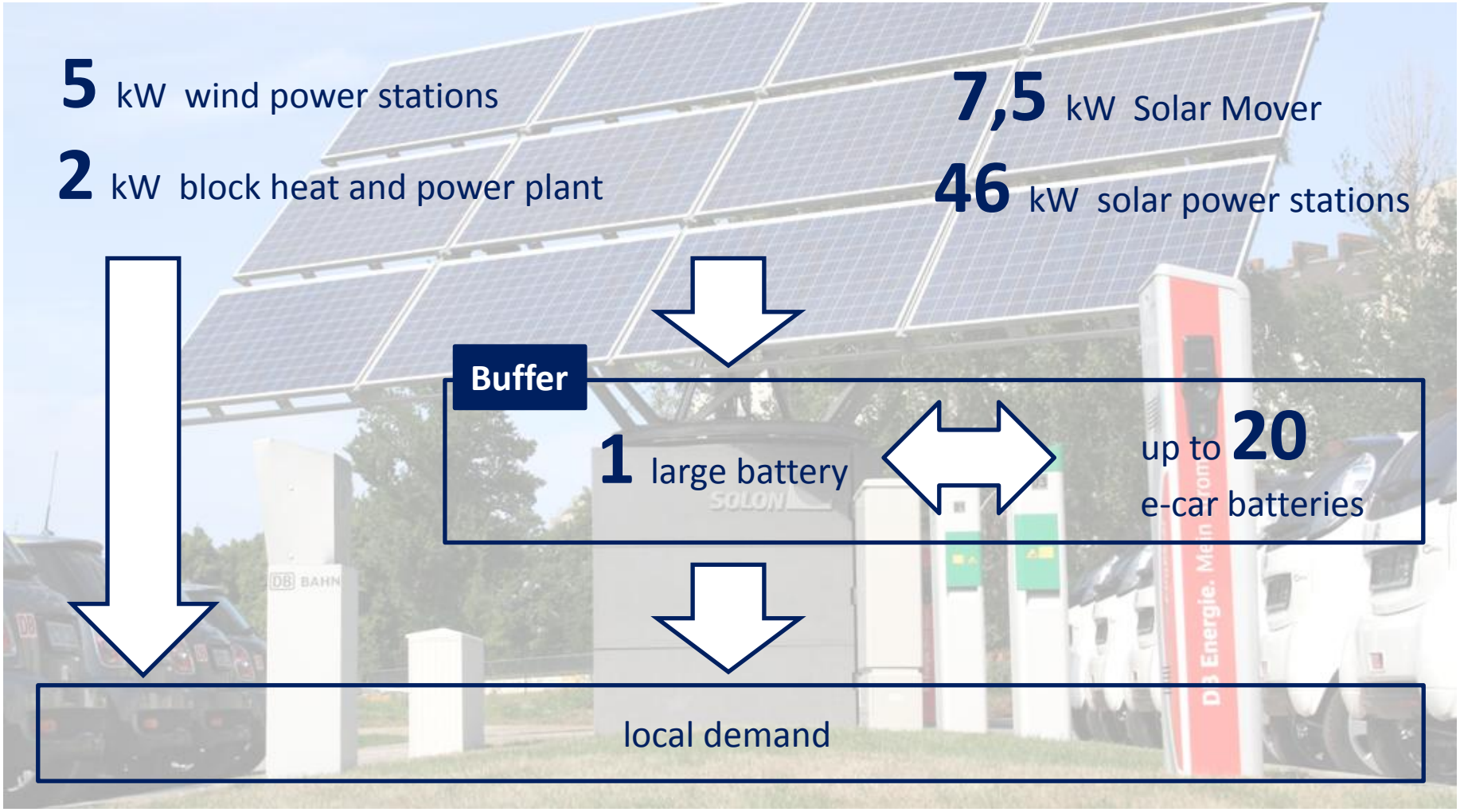
~ 100 public charging points

~ 20 gargages free of charge (Contipark)

numerous route ways

Electric Mobility – Part of the Smart Grid

E-cars integrated in a Micro Smart Grid at the „Plattform for electric mobility“ in Berlin (2011)



Systemic Approach - Threefold Integration

Threefold integration of electric mobility in Berlin (2011)

U S stations

e-Flinkster e-car sharing

bike sharing

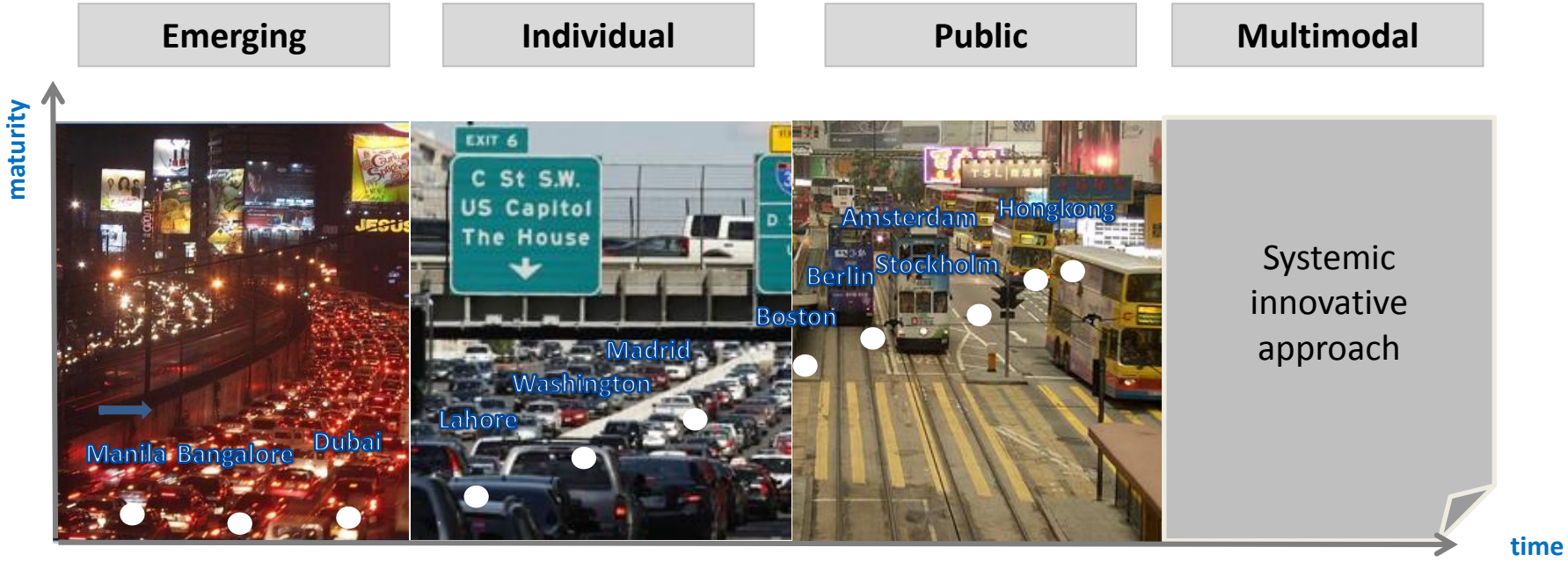
mobility card

multimodal application

smart grid integration

Path of Development of Urban Mobility Systems

The future is multimodal and needs systemic approaches



Photos: Manila – Manfred Günter Boffo; Washington - Jason Reed, Reuters; Hong Kong - Thomas Brauner
Sources: InnoZ, Arthur D. Little, Future of urban Mobility, 2011

Thank you for your attention – visit us in Berlin

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Cities Ranking worldwide

Quelle: Arthur D. Little, Future of urban Mobility, 2011

Criteria for the Ranking of Cities concerning Mobility

City	Share pubic transp. + walking/ cycl. in modal split [%]	Mobility strategy/ vision [points]	Car sharing performance [points]	Number of shared bikes per million citizens	Penetration of smart cards [cards / capita]	Transport related fatalities per million citizens	Transport related CO_2 emissions [kg per capita]	Vehicles registered per citizen	Average travel speed [km/h]	Satisfaction with transport [points]	Mean travel time to work [minutes]
1 Hong Kong	84%	10	1	0.0	2.9	23.0	378	0.08	25,1	12	39,0
2 Amsterdam	56%	10	5	305.1	1.0	27.0	1100	0.40	34,0	13	22,0
3 London	62%	10	5	695.1	2.3	39.0	1050	0.40	17,7	14	44,1
4 Stockholm	54%	10	4	1944.9	0.2	21.0	1430	0.40	28,6	13	29,1
5 Goteborg	48%	9	5	1220.4	0.6	48.0	1800	0.41	24,0	13	18,7
6 Singapore	55%	9	5	0.0	2.0	47.0	900	0.10	26,9	8	36,0
7 Vienna	69%	9	3	703.6	0.0	16.0	1250	0.39	26,7	13	27,6
8 Paris	56%	10	5	1964.7	0.2	91.0	950	0.39	31,0	14	35,0
9 Munich	63%	8	5	926.4	0.0	22.2	1390	0.42	32,0	14	30,2
10 Boston	55%	8	4	132.8	1.4	23.0	1028	0.63	29,0	12	30,4

Quelle: Arthur D. Little, Future of urban Mobility, 2011

New business models emerge

Upcoming business models in the mobility market

Transport	ICT	Infrastructure	Energy
Velo taxi	Navigation	Automatic parking garage operator	Green energy provider
Car sharing	Multimodal journey planning	Traffic infrastructure provider	Grid stabilization, peak shaving
Bike sharing	Location based services	Energy infrastructure provider	Energy management
Shared taxi	Location based information	Energy storage provider	
Waterway rental			
EV rental			
Personal rapid transit			
Holistic mobility manager	Mobility plattform provider	Integrated infrastructure planning	Energy management
Mobility / smart cards			

Management

* Project activities of the InnoZ