Transforming our Cities to foster responsive, affordable Mobility
Lessons from Detroit and Berlin

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Introduction

Mobility systems often struggle to keep pace with rapidly changing cities – delivering too limited benefits at too high cost.

This presentation looks at:

• An Integrated Framework to mobility
• Practical Examples from contrasting projects in Detroit and Berlin
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World leading multi-disciplinary engineering and environmental consultancy

Happold Consulting
Strategic Consulting for City Development

Strategy

Organisational Development
Procurement
Project Management

Economic Development
Economic Infrastructure
Integrated Development Planning
Regional Planning
Sustainability & Environment

Delivery
Mobility Challenges
Mobility Challenges…

- Societies, economies and governments can change faster than physical cities

- Transportation systems and networks must constantly rediscover their relevance and optimise their value to the changing city.
...in Different Environments

Urban Growth… Berlin, Germany

Urban Decline… Detroit, USA

2013

Changing economic base

City Financial Challenges

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Current Factors Driving Demand and Supply Side

**Economic Transformation**
Global and national economic shocks, industrial restructuring and deindustrialisation

**Social Change**
Demographic change, new role of civil society, social and political movements

**New Role of Governments/Governance**
Increased demands for transparency, strained public finances, decreasing steering capacities

**Transport Systems and Vehicles**
Cleaner transport systems, smart grids, EV charging infrastructure, mobile internet.

**Transportation systems and networks configuration and organisation**

**Personal Car**
Increasing cost for purchase, operation and maintenance, congestion in city centres.

**Public Transport**
Restricted availability, limited flexibility, increasing costs

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Widening timeframes

It is easy to imagine change in particular areas - but visions rarely cross time cycle silos.

- **City form**
  - 100+ yrs

- **Infrastructure Investment**
  - 20 yrs

- **Economic Cycle**
  - 10 yrs

- **Product cycle** (varies IT through to mobility technology)
  - 0.25 yrs

City decision-makers struggle with the mismatch between cycles and the resulting unintended consequences.
City Leaders are expected to balance multiple factors simultaneously to meet stakeholder objectives.
Emerging Mobility Strategy

Set within a feedback driven framework - maintains speed and relevance of strategic interventions…

STAKEHOLDERS
• Government Authorities
• Citizens
• Business/ Investors

NATIONAL ASPIRATION
• National Vision
• National Policy

PARAMETERS
• Existing Opportunities
• Existing Plans
• Existing Capability

City Mobility Vision & Objectives

Demand Parameters
• Economy
• Demographics
• Social Change

Emerging Mobility Strategy
• Strategic Objectives
• Planning Frameworks
• Implementation

Supply Parameters
• Urban form
• Systems
• Governance

Initiatives & Projects
• Long Term
• Medium Term
• Short Term

A timely answer which is 60% right and on time (within 6 months) is better than 95% in 3 years time

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Modelling allows better understanding of the complex links between parameters and strategies.

Understanding connections between silos
Making complexity explicable
Supporting better informed decision making

…Big data provides ever broader ways to map mobility
Outcomes

Gives a practical, whole system, understanding of which factors are key to optimum change.

**MOBILITY TARGETS**

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**LOCATIONS & NETWORKS**

What real outcomes should mobility deliver?

Change locations of activity or change networks?

**OPERATION & FUNDING**

Should management change rather than system?
Shrinking City, Transforming Economy

One of the largest metros in the US
Wealthy and growing rapidly
Industrial power house of the US

NEGATIVES
Loss of key industries
Collapsing population 1.9m – 700k
High unemployment – 50% in some groups
High poverty rate
High levels of vacancy

POSITIVES
Fast growing new sectors
Dynamic new migrant groups
Rising visitor numbers
The Key Challenge is to realign the city behind its opportunities - affordably

Detroit’s systems are:

- Too large
- Misaligned to location and type of need
- Fixed costs too high
- Revenues too low
- Budget shortfalls lead to uncoordinated/uncontrolled disinvestment

The Key Challenge is to realign the city behind its opportunities - affordably
Detroit Future City Project

Sets unified objectives:
- Economic Growth

Backed by:
- Land use change
- Systems change
- Governance change
Changing urban structure

Extensive modelling used to identify potential for population and land use change

Multi-criteria Analysis Framework

Resultant Land Use Plan

Land use change:

- Economic activity and population guided over time to locations where they can be best supported.
- Land use differentiates areas of increasing activity and areas where it will decline/cease.
- Allows much more efficient service patterns.
Realigning networks: Reducing costs and increasing performance

Agreement provided basis for pragmatic multi year planning for all transport systems

**System change:**

- Fundamental realignment of city network
- Years 1-5: cost saving transformation – reorienting existing fleets to serve new city
- Year 5 onwards – targeted investment to meet new city needs
Demand and supply shifts lead to mobility gaps in Berlin’s City Centre

Demographic Change
Growing Population, young, lower income residents

Economic Change
Changing work patterns

Social Change
Further Individualization
Smaller travel Budgets

Transportation Change
Decreasing Motorization
Increasing use of PT

New Transport Offers
eCar Sharing

Emerging Mobility Gaps
Emerging Mobility Gaps

Demand Side Shift

Affordable, flexible, spontaneous short trips at different times (day/night) and locations.

Public transport unable to deliver such service cost effectively.

Supply Side Shift

New development in transport, energy and ICT as well as emerging car sharing offers allow for new transport approaches.

eCar Sharing can address a niche but needs to part of integrated systems.
Matching Supply and Demand to Identify Implementation Areas

Supply Side eCarSharing
- Low Range
- Relatively High Costs
- High Availability in City Centre

Use of eCarSharing
User Groups
- Young, male, educated
- Combines car sharing with PT
- Low rate of Car Owners

Travel Pattern
- Spontaneous, short and irregular trips

Demand Side eCarSharing
Socio-economic Parameters
- Growing population
- Young, international with low income
- Decreasing transport budget

Transport Parameters
- High Share of PT
- Low Car Ownership
- Short journeys
- Low car ownership
- Growing Car Sharing offer

Strategies for eSharing in the City
- Intermodal: Supplement local public transport with Car Sharing
- Flexible: Provide Mobility for irregular, short trips at day and night
- Green: Use renewable energy
- Open: Implement public, non discriminatory infrastructure

Potential areas and typologies
**Intermodal Train Stations**

eCar Sharing for short, spontaneous trips from and to station

Potential users: Business travelers, visitors, infrequent PT users

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**Inner City Residential Areas**

eCar Sharing for short, spontaneous trips and infrequent shopping/leisure trips

Potential users: Residents, Visitors

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**Universities and Science**

eCar Sharing for internal transportion and infrequent commuters

Potential users: students, staff, visitors

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**Suburban Train Stations**

eCar Sharing for first and last mile to station

Potential users: residents, infrequent PT users
Recommendations for Intermodal Train Station: Case Study Gesundbrunnen

- Install charging stations for eCar Sharing next to station
- Provide power from PV on station roof to power EV in SMG
- Use installation of charging points to upgrade urban realm
- Access new sources of funding to set up infrastructure

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Taking an integrated approach to understanding mobility can make a real difference to developing solutions which are:

- Better adapted to city changing city needs
- More affordable – able to better define demand parameters and to identify full range of measures that can meet these needs – rather than just requiring more system investment
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- Buro Happold is one of the world's leading multi-disciplinary offering buildings, environment and infrastructure and consulting services.
- Happold Consulting is part of Buro Happold and a strategic management consultancy operating internationally.