

Urban development and sustainable mobility from around the world

Volker Buscher | @vbuscher

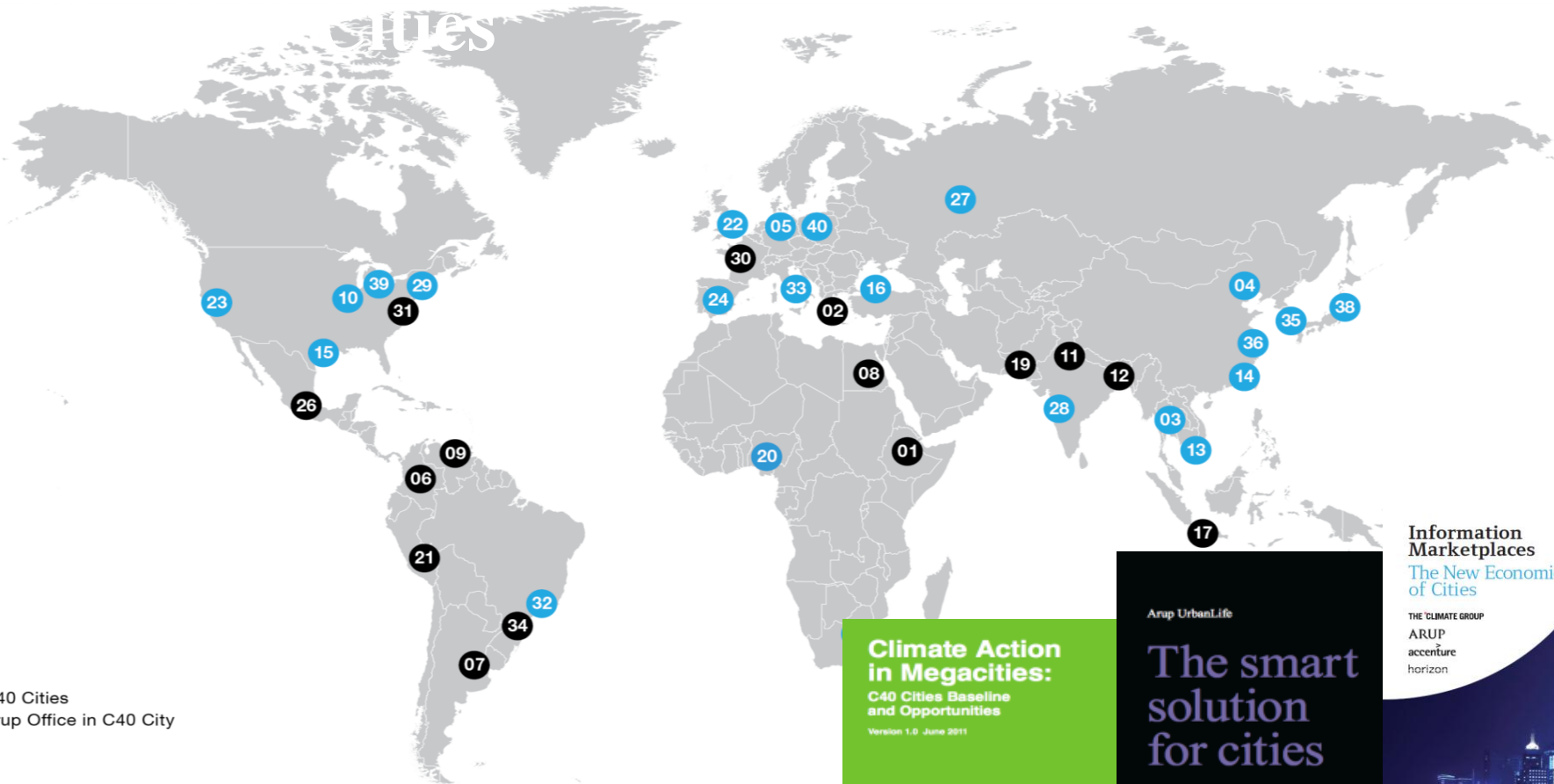
Director | Arup Practice Leader IT & Communications Systems

10th December 2012,

Sustainable Urban Mobility – responding to the challenge

LowCVP and Institution of Mechanical Engineers

Cities



Key
 ● C40 Cities
 ● Arup Office in C40 City

- C40 Cities
- | | | | |
|-----------------|---------------------|----------------|-------------------|
| 01 Addis Ababa | 11 Delhi NCT | 21 Lima | 31 Philadelphia |
| 02 Athens | 12 Dhaka | 22 London | 32 Rio De Janeiro |
| 03 Bangkok | 13 Ho Chi Minh City | 23 Los Angeles | 33 Rome |
| 04 Beijing | 14 Hong Kong | 24 Madrid | 34 São Paulo |
| 05 Berlin | 15 Houston | 25 Melbourne | 35 Seoul |
| 06 Bogota | 16 Istanbul | 26 Mexico City | 36 Shanghai |
| 07 Buenos Aires | 17 Jakarta | 27 Moscow | 37 Sydney |
| 08 Cairo | 18 Johannesburg | 28 Mumbai | 38 Tokyo |
| 09 Caracas | 19 Karachi | 29 New York | 39 Toronto |
| 10 Chicago | 20 Lagos | 30 Paris | 40 Warsaw |

Climate Action in Megacities:
 C40 Cities Baseline and Opportunities
 Version 1.0 June 2011

40 cities
 297 million residents
 4,734 climate actions

ARUP

Arup UrbanLife

The smart solution for cities

Transforming power-hungry urban areas into low-carbon smart cities via the creative use of technologies

C40 CITIES

Information Marketplaces
 The New Economics of Cities

THE CLIMATE GROUP
 ARUP
 accenture
 horizon

ARUP



Control Centres



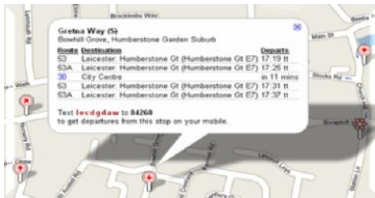
Traffic Light Priority



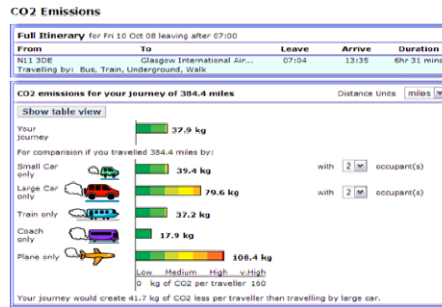
Walking & Cycling



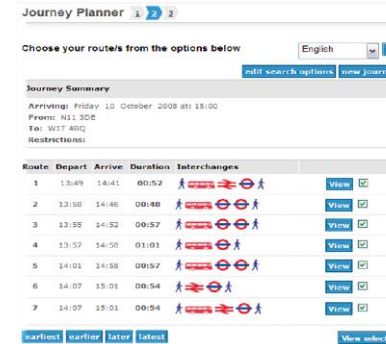
New Movement In Cities



Real-time Bus Info



Emissions Reporting



Journey Planner



New Movement In Cities



Wayfinding



Bus Rapid Transit



More Connectivity



Sensing movement



Hong Kong AR

Arup AR team

Underground Retail

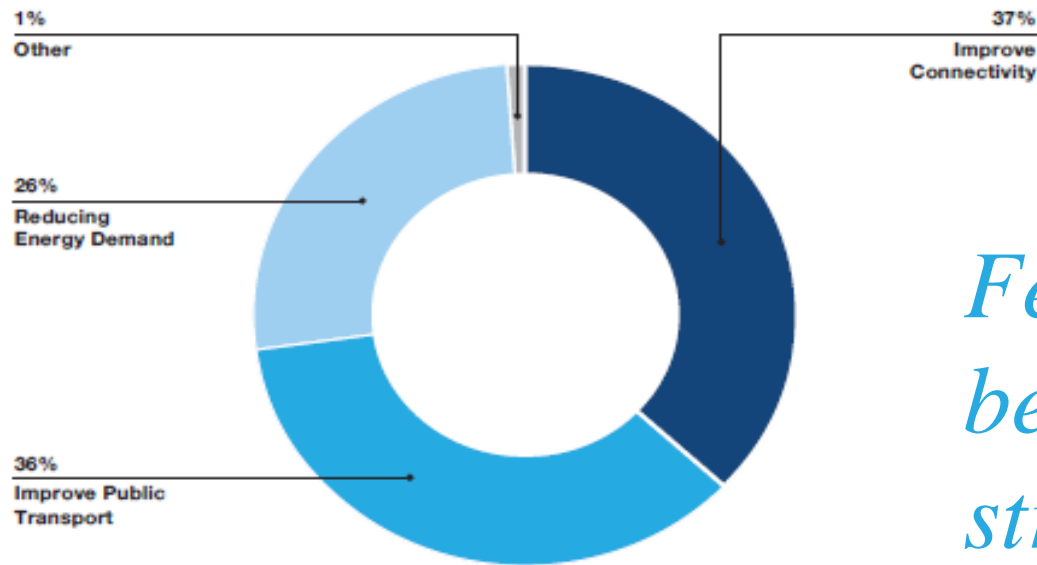
Tesco's Seoul



www.dailymail.co.uk/sciencetech/article-2021064/How-buy-groceries-virtual-supermarket--train-platform.html

more bottom up
than top down

*62% of “smart”
actions taken are
related to transport,
buildings and
connectivity.*



*Few leading cities are
beginning to invest in a
strategic framework.*



Great Place to Live & Work

**Information
Marketplaces**




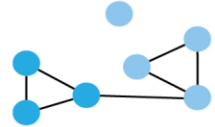
The New
Economics
of Cities

Economic Priorities

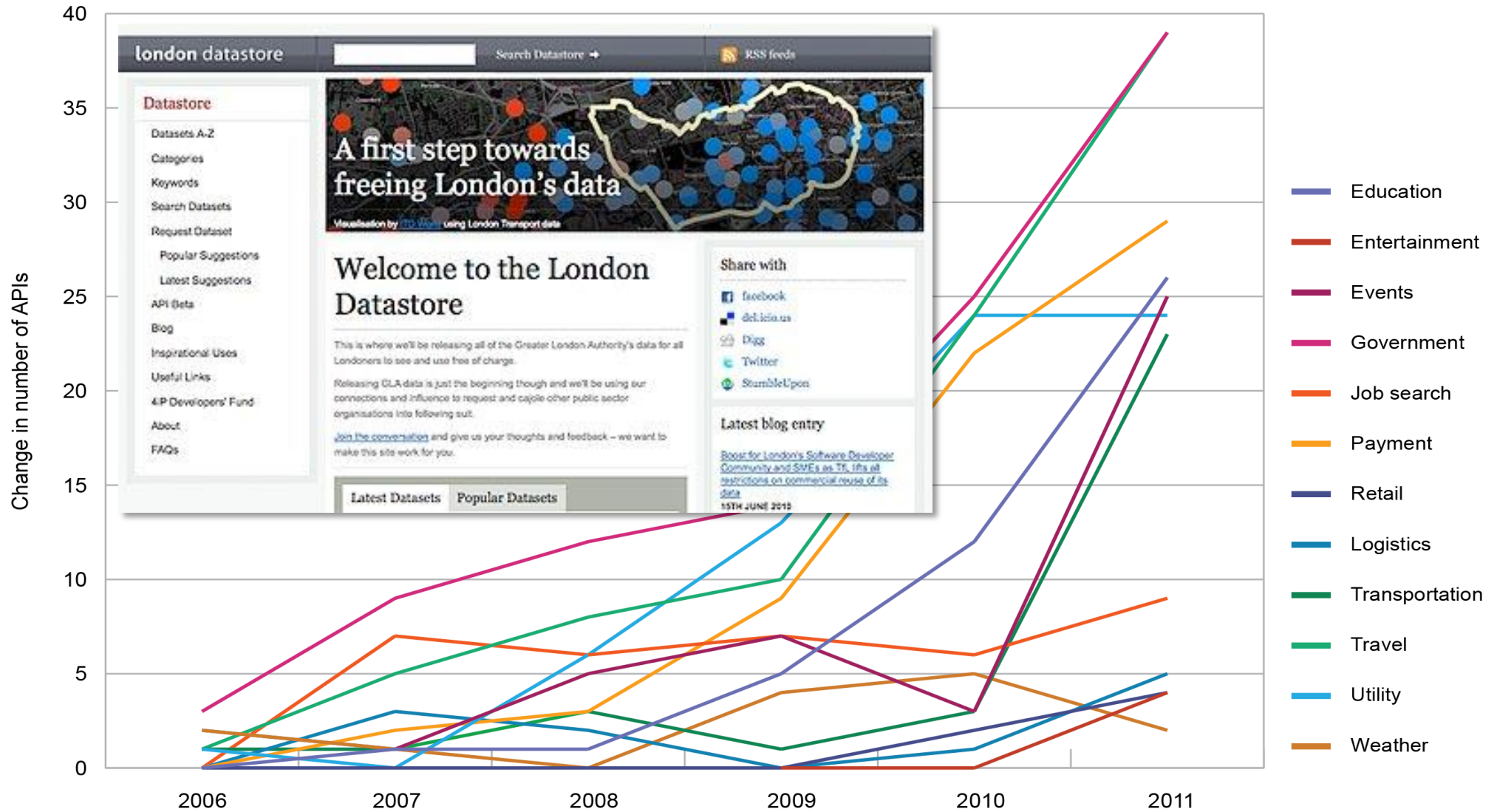
Ecological Age

The Climate Group
Arup
Accenture
Nottingham University

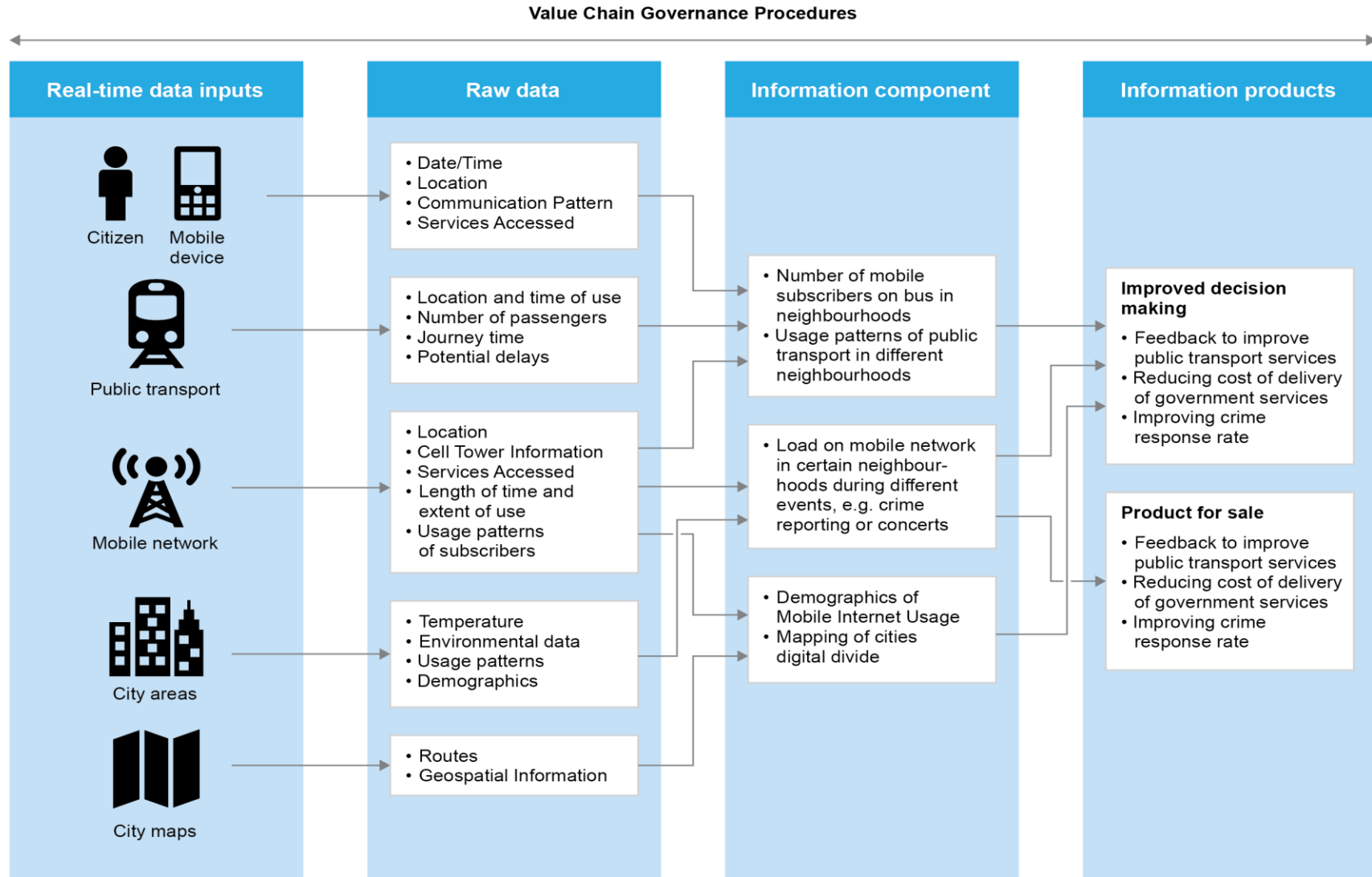
Focus on “Soft” and “Hard” infrastructures

Smart City Project Implementation	 Level 1	 Level 2	 Level 3	 Level 4
Soft Infrastructure				
Value Assessment	Individual project business cases	Some non-financial value assessed	Holistic value assessment (social/environmental/financial)	Holistic value assessment supporting diversification of funding sources
Governance	Departmental governance structures	Some cross-departmental collaboration	Cross-departmental 'Smart City' management positions in place	City-wide governance structures and shared performance targets combined with international collaboration
Strategic ICT Focus	Limited ICT capability	Some strategic focus on ICT	ICT vision for the city	ICT vision and strategy overseen by dedicated City CIO
Citizen Engagement with Service Design	Limited citizen engagement	Project-level, basic needs analysis, pilots	Citizen feedback loops established	Citizen participation in integrated service design
Hard Infrastructure				
IT project focus	Little or no ICT projects	Targeted ICT project investments (e.g. Smart Grid)	Integrated ICT investments (including embedded sensing, control and actuation)	Real-time city operations optimisation
Integration of Data Streams	No data integration	Small scale data integration	Creative data mash ups pulling data to a common platform	Open data and crowd-sourcing initiatives
Digital Service Provision	Little or no digital service provision	Handful of digital services	Integrated digital services around the city environment	Diversity of cloud-based citizen services

A holistic view of data beyond silos



Manage information as a strategic asset





4 examples

Ticketing Systems



Deutsche Bahn Touch and Travel uses NFC technology and mobile platforms to enable a convenient and multi-modal travel, information and ticketing service

Command and Control Centres



CENTRO DE OPERAÇÕES
PREFEITURA DO RIO

Task specific command and control centres are being replaced / augmented with multi stakeholder, multi task urban control centres, supported by advanced data analytics capabilities.

Service Platforms

ParkSense

Retour

P ParkSense



ParkSense is an integrated solution based on specially designed sensors that are placed directly in the ground in parking areas. Drivers use an iPhone app to see what parking spots are available nearby.

Mobility as
a Service



Car-sharing services like Car2Go are re-shaping the way mobility services are accessed and consumed

Smart Urban Mobility

Recognising Information and Communication Technology as a key Driver of Change Shaping the Future of Mobility in Cities.

New Business Models

Mobility as a Service

Transport Analytics

Multi-Modal Providers

Service Platforms

NEW

Change within Verticals

Aviation

Rail

Bus

Metro

Tram

Car

Bike

Logistics

...

80%

New Infrastructure Projects

Charging Infrastructure

Command & Control Centres

Consolidation Centres

Ticketing Systems

Congestion Charging

20%

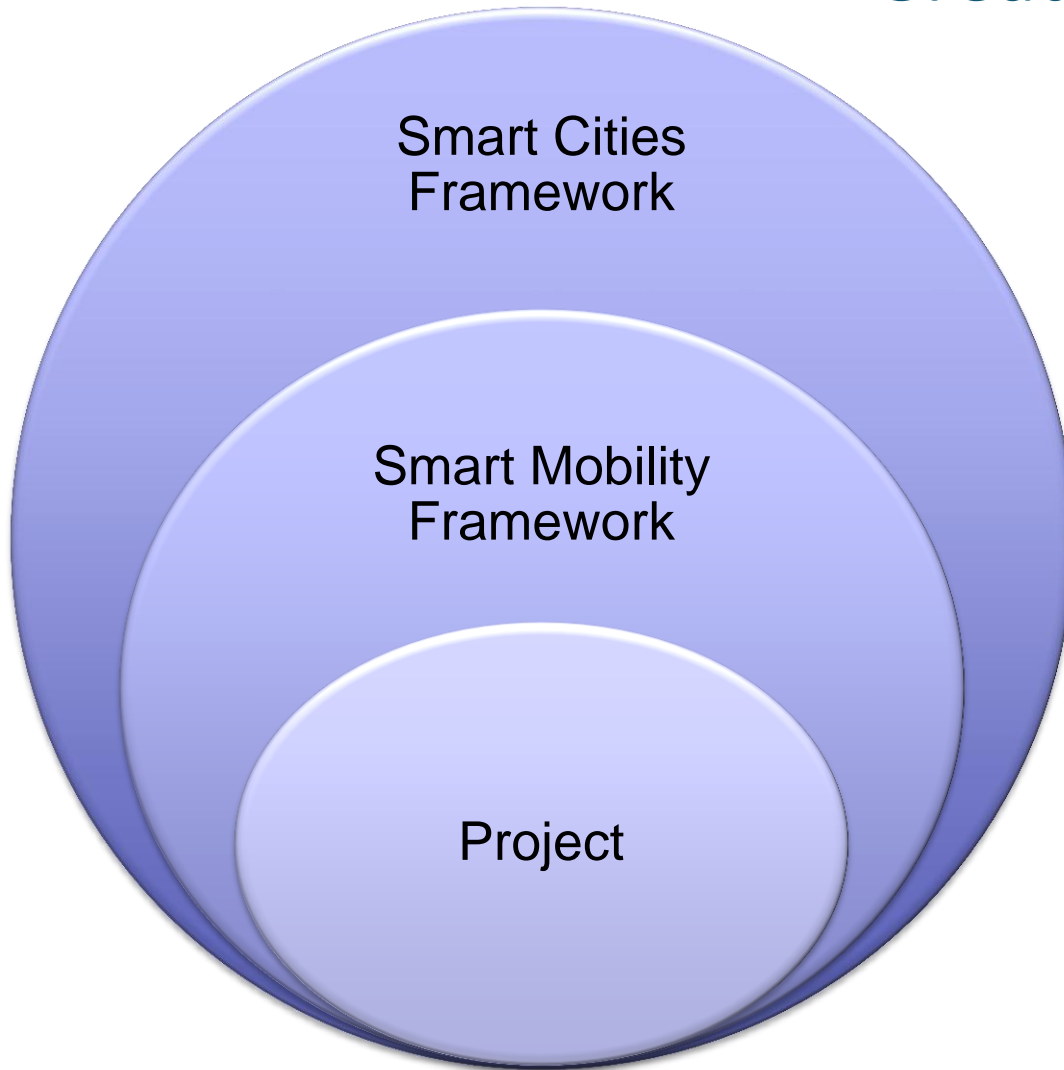
Great Place to Live & Work

Economic Priorities

Ecological Age

Congestion, Environment
& Transport System Cost

Multi Modal Ticketing or
Urban Command and Control



Information Marketplaces @ Arup

Smart Urban Mobility

Thank You

volker.buscher@arup.com

@vbuscher

