Smart City

*Transforming the 21st century city via the creative use of technology*

Arup Consulting
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Objective

Who are and What do the Stakeholders Need?

What Strategies and Role can the City and Business play?
The City as a System

smart cities
Information that enables cities to be better managed, more resource efficient and maintain high quality of life.

“We shape a better world”
The Smart City System

Feedback on effective use of resources

Urban information

Systems architecture

Information

Leadership

Behaviour change through communication

Citizens

“We shape a better world”
The impact of Open Information

- Mitigate climate change risk
- Increase efficiency of resource use
- Enhance economic development and the creation of jobs
- Support communities and make cities a better place to live and work
- Run cities more efficiently
What’s been Driving Smart City & Buildings today?

- Technology maturity
- Tech Vendors entering market
- Sustainability, lowering Carbon footprint
- Population growth, Economic growth and Efficiency needed
- Consumer IT and Citizens expectations
Partnership is key - Stakeholder Collaboration

Society

Government

Enterprise

Citizen
Many influencing factors

- New technology
- Existing technology
- Cities facing challenges
- Better awareness & understanding

Urban Change

Smarter City

“We shape a better world”
What is a Smart City? It depends…

A Smart City is one that uses technology to transform its basic infrastructure & optimise energy & resource usage

Smart City provides convenience, reduces my travel time and lets me connect with my community…

Smart Building is a building that sells itself, increases profit and lowers costs!

Majority of Buildings are Existing, not new – transformation required
## Drivers & Benefits of Smart Cities

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<tr>
<th>Stakeholders</th>
<th>Drivers</th>
<th>Benefits</th>
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<tr>
<td><strong>Government</strong></td>
<td>• Economic growth&lt;br&gt;• Efficiency&lt;br&gt;• Safe City&lt;br&gt;• Citizen communication&lt;br&gt;• Sustainability</td>
<td>• Gain citizen’s support&lt;br&gt;• Better communication&lt;br&gt;• Reduce expenditure&lt;br&gt;• Improve city’s image</td>
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<td><strong>Business Enterprise</strong></td>
<td>• Profit &amp; Cost Reduction&lt;br&gt;• Efficiency&lt;br&gt;• Access to customers&lt;br&gt;• Generate market opportunity</td>
<td>• Improve corporate image&lt;br&gt;• Maximize profit and efficiency&lt;br&gt;• Better communication with employees / CSR</td>
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<tr>
<td><strong>Citizen</strong></td>
<td>• Convenient&lt;br&gt;• Informatic&lt;br&gt;• Life experience&lt;br&gt;• Sustainable living</td>
<td>• Improve daily life&lt;br&gt;• Easy access to services&lt;br&gt;• Save money &amp; time</td>
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Aim to enable a New Urban User Experience

Intuitive + User Centric + Immersive = Smart User Experience

“We shape a better world”
Smart Cities Strategies
Smart City reliant on Smart Systems – 3 interlinked components

Leadership & Strategy

Urban Infomatics

Instrumentation
1. Government Leadership recommendation
The Changing role of IT in City Administrations

Stage 1
Internal Focus
Provides IT service to City employees

Stage 2
CIO
City provides online services to citizens

Stage 3
CIO +
City-wide systems architecture to address major strategic issues

Primary layer is over-arching Strategy
Integration of Procurement, Design & Operation Model
Smart Vision from Government aimed at all Activities that can benefit
Need to Transform from ICT as an Infrastructure into a Strategic Asset and what is the role of the capital project in delivering this change, including, new business outcomes, people and skills, new technologies AND budgets.
Developer Leadership - Implementation options

- **Developer share of benefit/reward**
  - **Enabler only (e.g., duct provision)**
  - **Partner with provider/join existing consortium**
  - **Access and marketing only**

- **Developer share of control/risk**
  - **Own ICT company**
  - **Revenue/profit share**

ARUP
Case Study - Low2No, Helsinki – Public Displays

Information strategy and services to reduce carbon footprint include:

- In-street displays that report on personal and civic footprints in real-time
- Next generation smart meter that highlight patterns of production multiple platforms in the home and office
2. Urban Informatics recommendation

Aim is to Drive Citizen behaviour change

Deliver information to City Managers and Citizens

Includes, Web & Mobile data services, urban large displays, in-built to city architecture
Case Study - Barangaroo, Sydney

- Informatics services will address water use, energy use and other resource use
- Responsive public interfaces will display sustainable infrastructure patterns, real-time transit activity and community information
Instrumenting Resource Systems - Feedback Loops on Urban Activity
Case Study Ecomap, Amsterdam – Web based

- Urbanecomap.org is an interactive web service that displays environmental footprints:
  - CO2 emissions, waste and transportation activity broken down by postal code
What is Arup's strategic role in Smart Cities?

1. Strategic Technical Advisor & support to Chair of the C40
2. Support for CGI’s Climate Positive Development
3. Six C40 UrbanLife Workshops

“We shape a better world”
Arup Facilitator for the C40 Melbourne Information Technology Urban Life Workshop
March 2010
Arup Smart Cities – thank you

We Shape A Better World

To discuss your thoughts, ideas, comments or for more information please contact:

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... or take a look at the Arup Smart Cities white papers www.arup.com

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