Funding and financing strategies for smart cities

National Council of State Legislators

December 4th
Smart city | Need and Deloitte’s Framework

Infrastructure Shortfall & Congestion Impact

- Start with “why” – outcomes based
- Holistic view
- Focus on “who”

$1.2T could be lost in US gross domestic product by 2025 due to transportation infrastructure deficiencies, with cities being the most affected regions

73% of the metropolitan workforce commute for 90 minutes or more

30% of traffic in urban areas is caused by cars looking for parking

3.7
2.7
1.0

Demand  Supply  Gap

Annual (Average 2010-2030) (ST)
1.5 million people per week moving to cities

65%+ of world population living in cities by 2050

Paris Agreement—global emissions reductions

UN SDGs—clear, implementable plan

Public funding gap

UN SDG 17—Private sector participation

Citizens increasing use of technology

Mix of technology and traditional infrastructure

**Increasing urbanization**

**Sustainability focus**

**Public private mix**

**Technology-led citizen services**

Sources:
- Level of urbanization – 54%, Based on “WHO 2014 analysis”; Urbanization growth – 1.84%, Based on “WHO analysis for period 2015 to 2020”; United Nations
A smart city should engage various stakeholders, as applicable, to create a vision, implement a strategy, and plan for the future.
Financing challenge

Public infrastructure financing challenge

- Revenue models—beyond exchequer funding
- Value capture—joined-up thinking
- Financing structures
- Procurement structures
- Value for money

Smart city financing challenge

- Increased technology component—shorter-term infrastructure
- Varying attractiveness to lenders and investors
- Revenue models not clear
- Evolution from pilot to full roll out—different players required
- Determine value of data/IP asset created
- Blending private finance types together
Model for delivering a successful sustainable infrastructure project

<table>
<thead>
<tr>
<th>1</th>
<th>Understanding project and value</th>
<th>2</th>
<th>Consider funding &amp; finance options</th>
<th>3</th>
<th>Determine relevant procurement &amp; delivery method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand business model</td>
<td>Understand value generated</td>
<td>Public funding</td>
<td>Public provision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does funding gap exist</td>
<td>Direct value capture</td>
<td>Private financing</td>
<td>Operating contracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk transfer potential</td>
<td>Indirect value capture</td>
<td>Monetize value</td>
<td>Joint venture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return available</td>
<td>Asset recycling to fund investment</td>
<td></td>
<td>Long-term lease</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Public-private partnership</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Franchising</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Privatization</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Supply of infrastructure finance
Multiple sources and types of finance available.

**Funding**
- Government funding
- Grant funding
- Exchequer financing
- Sponsor equity
- Infra-structure funds
- Multilateral finance
- Mezzanine finance
- Alternative lenders

**Debt**
- Senior debt
- Bonds
- Export credit
- Vendor financing

**Equity**
- Sponsor equity

**Hybrid**

Alliance Approach – Key finance considerations

Funding and financing strategies for smart cities
Varied procurement solutions
Different levels of private sector participation

- Direct delivery
- Conventional Procurement
- Operate Contract/licensing
- Long-term lease
- Joint venture
- PPP
- Franchising
- Privatizations (sales)

Risk transfer
Innovation
The Alliance Approach
A more collaborative approach for urban financing, partnerships, procurement, and governance
The Alliance Approach
How to get started

Innovative Financing
• Although traditional models will remain central to Smart City programs, new models of Innovative Financing expand resourcing opportunities.
• These include: Vendor Finance, Innovation Funds, Mini-Bonds, P3s, Land-Value Capture, Tax Increment Financing, Guarantees

Collaborative Partnership
• Participation from multiple vendors and government agencies is the new normal, including new business models, gain-sharing agreements, and performance-based contracting.
• Partners should be fully involved, from the start, in planning and designing the project. And regulators, while assuring public safety, should seek to enable partnership and innovation.

Dedicated Governance
• A person or entity should be designated as Smart City program lead, with designated authority.
• This person or entity will work directly with leadership across the organization, breaking down siloes to develop a shared vision for planning, value creation, and partnership.

Nimble Procurement
• RFI s should include an outline for partnership memoranda of understanding (MOUs) and commitments.
• RFI s should encourage partnership, require the technology and solutions interoperability, and promote business models that focus on shared value creation with the public sector.
What are the objectives of the Connected Corridor?

- **Install the underlying broadband capacity** necessary to launch, test, and integrate the Connected Corridor in the region
- **Convene technology partners** to explore targeted applications derisked by public sector support
- **Demonstrate the expected value to stakeholders**, including the public sector, of implementing these applications
- **Solicit feedback and input** from stakeholders to enhance the impact of these applications
- **Validate specific application hypotheses**, testing the underlying connectivity requirements, bandwidth needs, technology interoperability and performance
- **Leverage pilot data to finalize “full deployment” cost and scaling assumptions and strategies**

What are priority focus areas for the pilot?

- Municipal Broadband (wired and/or wireless) to underserved areas
- AV and EV infrastructure
- Precision farming/agriculture
- Border optimization, including SecureAg (CBP)

**Current Fixed Broadband (25 Mbps/3Mbps) as of June, 2016 (FCC)**

A key consideration is defining the highest-potential “pilot” area and scope – what is the minimum viable product in terms of corridor length + technology deployment?
Contact information

Steven Hamilton
Senior Manager
Deloitte Transactions and Business Analytics LLP
shamilton@deloitte.com

Connect with me on LinkedIn

Rana Sen
US State Sector Smart City and Transportation initiative leader
Deloitte Consulting LLP
rsen@deloitte.com

Connect with me on LinkedIn

Michael Flynn
Global GPS FA Leader, Deloitte Global Partner, Deloitte Ireland LLP
micflynn@deloitte.ie

Connect with me on LinkedIn
This presentation contains general information only and Deloitte is not, by means of this presentation, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This presentation is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. Deloitte shall not be responsible for any loss sustained by any person who relies on this presentation.
About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (“DTTL”), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as “Deloitte Global”) does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the “Deloitte” name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.