

# Smart Cities – Policy Considerations

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# Part I -- What is a smart city?

- ➔ Funding sources
- ➔ The role of government policy

# Elements of a Smart(er) City

- ➔ The application of a wide range of electronic and digital technologies to communities and cities
- ➔ The use of Information and Communications Technologies (ICTs) to transform life and working environments within the region
- ➔ The embedding of such ICTs in government systems
- ➔ An organized way of bringing ICTs and people together to enhance the innovation and knowledge that they offer

\* Deakin, Mark; Al Waer, Husam. "From Intelligent to Smart Cities." Journal of Intelligent Buildings International: From Intelligent Cities to Smart Cities. 3 (3).

## In other words, a Smart City...

- ➔ has adopted a strategic approach to use of data and digital technologies to deliver services.
- ➔ employs electronic data collection sensors to supply information for efficient management of assets and resources, including real-time responses.
- ➔ integrates information and communication technology – various physical devices are connected to the Internet of Things (IoT) to optimize efficiency of city operations and services, and to connect to citizens.
- ➔ (The IoT is a network of interconnected devices that collect, transmit, analyze, and communicate data.)

# Funding Sources for Smart Cities

- ➔ Public-private partnerships (“P3s”) – often in combination with sources below
  - ➔ Government bonds and financing
  - ➔ Special taxing districts and tax increments
  - ➔ Grants, financing & loans for innovation and energy
  - ➔ Economic incentives for business attraction

# Why might Smart Cities need P3s?

- ➔ Uncertain federally-funded incentives for smart connections and possibly unclear state-funding incentives. So, cities are asking... ***How will we fund smart connections for economic growth?***
- ➔ An important measure of a city's and city leader's success is the ability to quickly and reliably deliver resources, amenities and commerce to citizens.
- ➔ New revenue sources may need to be created through partnerships like P3s. A P3 may be one of the ways your city will fund smart connections for economic growth.

## Why might Smart Cities need P3s? (cont.)

- ➔ Increasing costs for infrastructure and improvements...
- ➔ Coupled with the need to leverage smart connections for reliable delivery of amenities and utilities to citizens...
- ➔ A P3 may help relieve some of the financial burden of improving or building public infrastructure.

# P3s Can Bring a Cutting-Edge

- ➔ A P3 represents significant private sector participation in a city's growth and innovation – such participation is a community asset.
- ➔ A P3 may allow a municipality to access cutting-edge technology and enhanced operations that may not otherwise be available due to budget constraints.
- ➔ Private sector technology expertise can support infrastructure or transportation projects that are designed to leverage smart connections.
- ➔ A P3 in a Smart City allows a municipality to leverage the private sector's expertise and resources while freeing up some finances and potentially improving performance with advanced technologies.



# Examples of P3s in Smart Cities

- ➔ Smart metering systems and sensor technology for improved water delivery
- ➔ New-build municipal infrastructure – libraries, justice facilities, etc.
- ➔ Monetization of aging public buildings with environmental remediation exposure
- ➔ Intelligent transportation, including connected vehicles and self-driving or autonomous cars, is an element that has been incorporated into several “Smart City” deployments. Might be enhanced by development and integration of fiber and wireless network planning for transportation needs.

# Geographic Examples of Smart City P3s

- **Ohio Department of Transportation (ODOT) / US-33 Smart Mobility Corridor:** slated to be the longest autonomous/connected vehicle testing corridor in the world. The project includes: (1) leasing excess fiber capacity, (2) utilizing excess fiber capacity for economic development purposes, (3) leasing wireless infrastructure to cellular companies, and (4) collecting and monetizing CAV data.  
***Led by Ice Miller LLP***
- **City of San Jose, CA** – Intel and City of San Jose collaborating on a P3 project which implements Intel’s IoT Smart City Demonstration Platform to further the City’s Green Vision initiative – installing a network of Air Quality, Sound & MicroClimate Sensors; city management will use this information to drive improvements in air quality, noise, transportation efficiency, environmental sustainability, health and energy efficiency.
- **City of Dallas, TX** - The Dallas Innovation Alliance (DIA) is working to turn Dallas into a smart city through the use of IoT technologies. The DIA has 30 public-private partners in their smart city project, including AT&T, Cisco, IBM, Microsoft, AECOM, ParkHub, GE, CIVIQ Smartscales, Schneider Electric, Philips and the United Way of Metropolitan Dallas. Specific projects include: Intelligent LED street lights; sensors measuring environmental impact; smart parking; smart irrigation.

# Concerns about P3s in Smart City Setting

- ➔ Delivery risk, depending on the delivery model – design, construction, financing
- ➔ Availability risk
- ➔ Demand risk
- ➔ O&M risks
- ➔ Political/legal risk
- ➔ Obsolescence
- ➔ Loss of public entity control of public asset /infrastructure

# The Role of Governmental Policy

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# Five Critical Elements Policy-Makers Need to Focus Upon:

- ➔ **Safety** – The potential to enhance our fellow citizens’ safety is broad, but it comes with an equally important responsibility to protect privacy.
- ➔ **Privacy** – Protecting data, personal information and law enforcement officials
- ➔ **Innovation** – Promote innovative solutions for city needs.
- ➔ **Level Playing Field** – State and federal leaders need to ensure no company gets an unfair advantage, and that consumers interests are considered.
- ➔ **Costs** – Getting the most “bang for the buck,” ensure no “milking” of taxpayers for private gain or “pin-stripe patronage.”

# To be a Smart City, Government needs to be ready for IoT

- ➔ To be a leader in IoT, policymakers may need to provide economic support in its early stages.
  - ➔ Economic development incentives, training money, and favorable tax treatment of research and development costs
- ➔ Being an economic catalyst will require legislative policy to encourage investment of IoT infrastructure, such as data centers, broadband, Wi-Fi and energy transmission.
  - ➔ Policymakers will need to choose where to make these investments and how.
- ➔ Becoming a leader in IoT is expected to generate job creation, investment and tax revenue.

# Uniform, Adaptable and Seamless Regulation

- ➔ The IoT industry will have unique needs regarding moving commerce and data freely without facing unnecessary constraints from all levels of government.
- ➔ Legislative policies and regulations should be drafted and approved in a way so as to allow regulations to be amended quickly in an attempt to keep current with the industry.
- ➔ State and local governments should work on model policies and interact with national groups to be relevant and impactful on their governmental policies.

# Strategic Steps - States and Cities

## ➔ **Catalog Primary Areas that will be Impacted**

- ➔ IoT policy is unique, as it touches almost every industry and all facets of life.
- ➔ Policymakers need to be strategic and anticipate common policy themes and issues created by IoT and consider creating an IoT leader to create a plan of action for each impacted part of government.

## ➔ **Establish IoT Policy Goals and Objections**

- ➔ Goals could include job growth, consumer protection, workforce development and uniformity in policy.

## ➔ **Create Stakeholder Working Groups**

- ➔ Identify and engage businesses and community organizations that will be impacted to implement goals as a group.

## ➔ **Understand your Assets and Programs to Support IoT**

- ➔ Assess whether existing infrastructure and programs are sufficient to remain competitive.

## ➔ **Create IoT Policy that Fosters Certainty**

- ➔ Uniformity is key.



# The Need for Connectivity

- ➔ Broadband is considered a “4th utility” in several markets.
- ➔ Transformative technologies driving major initiatives:

# 5G

*5<sup>th</sup> generation mobile connectivity*: the next wireless telecommunications standard; will support the proliferation of Internet of Things and Smart Cities

# smarter *cities*

*Smart Cities* bring intelligent transportation systems, traffic control, public safety, utility monitoring, and more



*Internet of Things (IoT)* will create unprecedented new uses for internet-enabled devices and heighten demands for high-speed connectivity

# The Need for Connectivity

## *Private Industry*



GPS soil mapping; seed & fertilizer counts; irrigation & grain-bin monitoring; precision-farming apps.

Agribusiness



Energy & Natural Gas



Transportation & Logistics



Manufacturing

Faster communication between operations centers & production sites; remote generation monitoring; energy savings sensors.

Just-in-time supply chain management; autonomous vehicles & transit; monitoring of traffic patterns and traffic data collection; product sensor-tags.

3D printing; design simulation; agile scheduling; real-time inventory management; optimal material handling; training (e-learning); sales management; social media product-marketing.

# The Need for Connectivity

## Community



Healthcare

Access to healthcare and telehealth services



Education

Equitable educational opportunities provide a more skilled workforce and better employee pool



Entrepreneurship & Entertainment

Connectivity allows for more entrepreneurial opportunities; increased access to home-learning; and bandwidth to utilize multiple devices



Food & Retail

Access to food and grocers; access to retail and increased retail & e-retail activity

# Samples of Past and Present Projects

- ➔ Develop broadband strategic plans for communities and executive-level broadband strategies for states
- ➔ RFP development for public technology efforts
- ➔ Telecommunications and technology contracting and service negotiations/ agreements
- ➔ Draft comprehensive rights-of-way ordinances
- ➔ Indiana recently passed SB 213, wireless support structures including concepts re: small cell infrastructure placement in local rights-of-way

**\*Rapidly becoming a national issue**

# Fulfilling Many Needs

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**Mayors** ask “What do our communities **need**, what should we do **first**, and how will we **pay** for this?”

**Developers** and investors ask “Where is the **return**?”

**Workers** ask “Where are the jobs and do I need **training**?”

**Citizens** ask “How does this truly make my **life better**?”

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THE  
**INTERNET**  
OF **THINGS**

# PART II - Best Practices – P3 Legislation

# Definitions

“P3s” in this context means:

- ➔ Public infrastructure projects
- ➔ Involving cooperation between public and private entities
- ➔ Using alternative means of
  - ➔ Project delivery,
  - ➔ Procurement,
  - ➔ Financing, or
  - ➔ Operation
- ➔ As an alternative to bonds and DBB





# Long Term Risk Transfers

P3s seek to achieve public benefits through mutually advantageous risk transfers to private sector

- ➔ Each side does what it can do well
- ➔ Long term life cycle cost and risk management
- ➔ Private sector will get paid (or own the upside) on risks it agrees to assume

# Keys

Keys to good legislation include:

- ➔ Allowing full range of desirable outcomes
- ➔ Avoiding creation of/or eliminating unnecessary or unexpected risks or avoidable risk
- ➔ Public owner will pay a price if private bidder sees risks

# Keys (cont.)

Two approaches

- ➔ Broad authorization
- ➔ Prescriptive and detailed

Advantages to both approaches

## Keys (cont.)

- ➔ Prescriptive statutes eliminate heartburn



## Keys (cont.)

- ➔ Perceived risks, whether real or not, will carry a price tag, either
  - ➔ In the bid
  - ➔ Or in the implementation
- ➔ Alternatively, legal uncertainty or perceived legal risks may
  - ➔ Limit options
  - ➔ Produce legal challenges

## KEYS (cont.)

- ➔ First Questions: To whom and what does P3 authorization apply?
  - ➔ Universal?
  - ➔ Particular entities?
  - ➔ Particular types of projects?

# Sample Considerations

- ➔ Relationship of P3 powers/procedures to generally applicable:
  - ➔ Public works laws
  - ➔ Open door and open records laws
  - ➔ Confidentiality/transparencies – particularly important in Smart Cities context
  - ➔ Source of funds limitations
  - ➔ Other limitation on types of projects



# Sample Considerations(cont.)

- ➔ Provisions providing for affirmative guidance on procedures
  - ➔ RFPs, RFQ, etc.
  - ➔ Hearings
  - ➔ Public approvals
  - ➔ All necessary component steps
  - ➔ Unsolicited proposals
  - ➔ Contractual requirements on performance and payment security

# Sample Considerations (cont.)

- ➔ Other provisions:
  - ➔ Eminent domain
  - ➔ Statute of limitations
  - ➔ Relationships to other units of government
  - ➔ Existing employees/union
  - ➔ Intellectual property ownership
  - ➔ Diversity and community engagement

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Questions?