The Promise of Urban Informatics
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CUSP is Part of the NYC Applied Sciences Initiative

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What does it mean to instrument a city?

**Infrastructure**
- Condition, operations

**Environment**
- Meteorology, pollution, noise, flora, fauna

**People**
- Relationships, location, economic/communications activities, health, nutrition, opinions, ...

Properly acquired, integrated, and analyzed, **data can**
- Take government beyond imperfect understanding
  - Better (and more efficient) operations, better planning, better policy
- Improve governance and citizen engagement
- Enable the private sector to develop new services for citizens, governments, firms
- Enable a revolution in the social sciences
Urban Data Sources

• **Organic data flows**
  – Administrative records (census, permits, ...)
  – Transactions (sales, communications, ...)
  – Operational (traffic, transit, utilities, health system, ...)

• **Sensors**
  – Personal (location, activity, physiological)
  – Fixed *in situ* sensors
  – Crowd sourcing (mobile phones, ...)
  – Choke points (people, vehicles)

• **Opportunities for “novel” sensor technologies**
  – Visible, infrared and spectral imagery
  – RADAR, LIDAR
  – Gravity and magnetic
  – Seismic, acoustic
  – Ionizing radiation, biological, chemical
  – ...

What can cities do with the data?

- **Optimize operations**
  - traffic flow, utility loads, services delivery, ...
- **Monitor infrastructure conditions**
  - bridges, potholes, leaks, ...
- **Infrastructure planning**
  - zoning, public transit, utilities
- **Improve regulatory compliance** ("nudges", efficient enforcement)
- **Public health**
  - Nutrition, epidemiology, environmental impacts
- **Abnormal conditions**
  - Hazard detection, emergency management
- **Data-driven formulation of data-driven policies and investments**
  - Low-Income Home Energy Assistance Program, road pricing and congestion charging, ...
- **Better inform the citizenry**
- **Enhance economic performance and competitiveness**
A diverse set of other organizations have expressed interest in joining the partnership.
In 5-10 Years, CUSP will be a major center for research and education in Urban Informatics

- 50 full-time senior researchers
  - 30 faculty, 20 industrial

- 30 Postdocs

- 430 Masters students and 100 PhD candidates

- Located in Downtown Brooklyn
  - 60,000 ft² leased in 1 MetroTech
  - 150,000 ft² + 40,000 ft² incubator post-2017 in 370 Jay Street

- Government (esp. Federal), corporate, philanthropic, academic funding to $70M/yr
CUSP Facilities Being Developed

• Data access policies, technologies, infrastructure

• Urban Observatory

• “SimCity for real”

• Quantified Community