



GLOBAL CITY  
TEAMS CHALLENGE



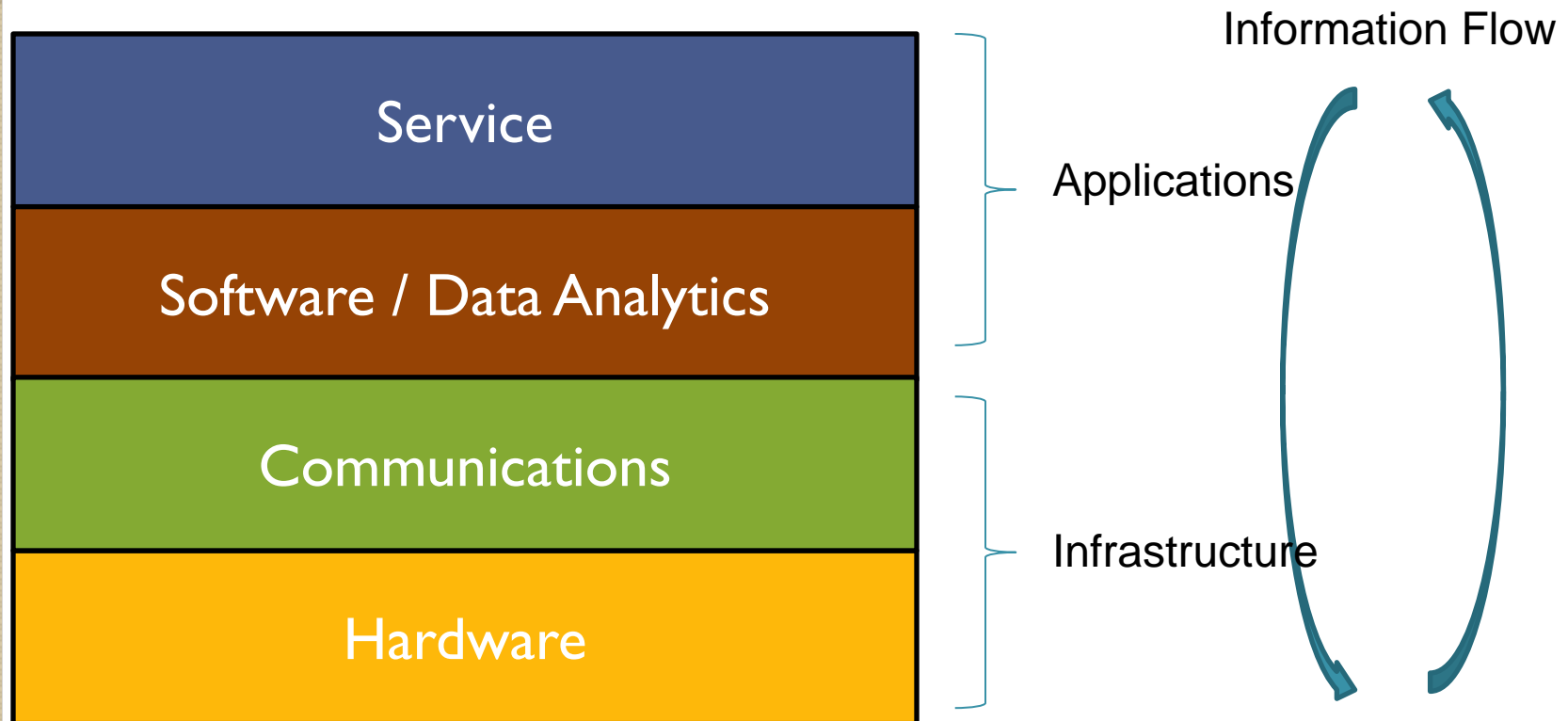
# GLOBAL CITY TEAMS CHALLENGE 2016

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National Institute of Standards and Technology (NIST)  
US Department of Commerce

# Internet of Things (IoT) and Smart Cities



# Public Sector IoT: Smart Cities and Communities

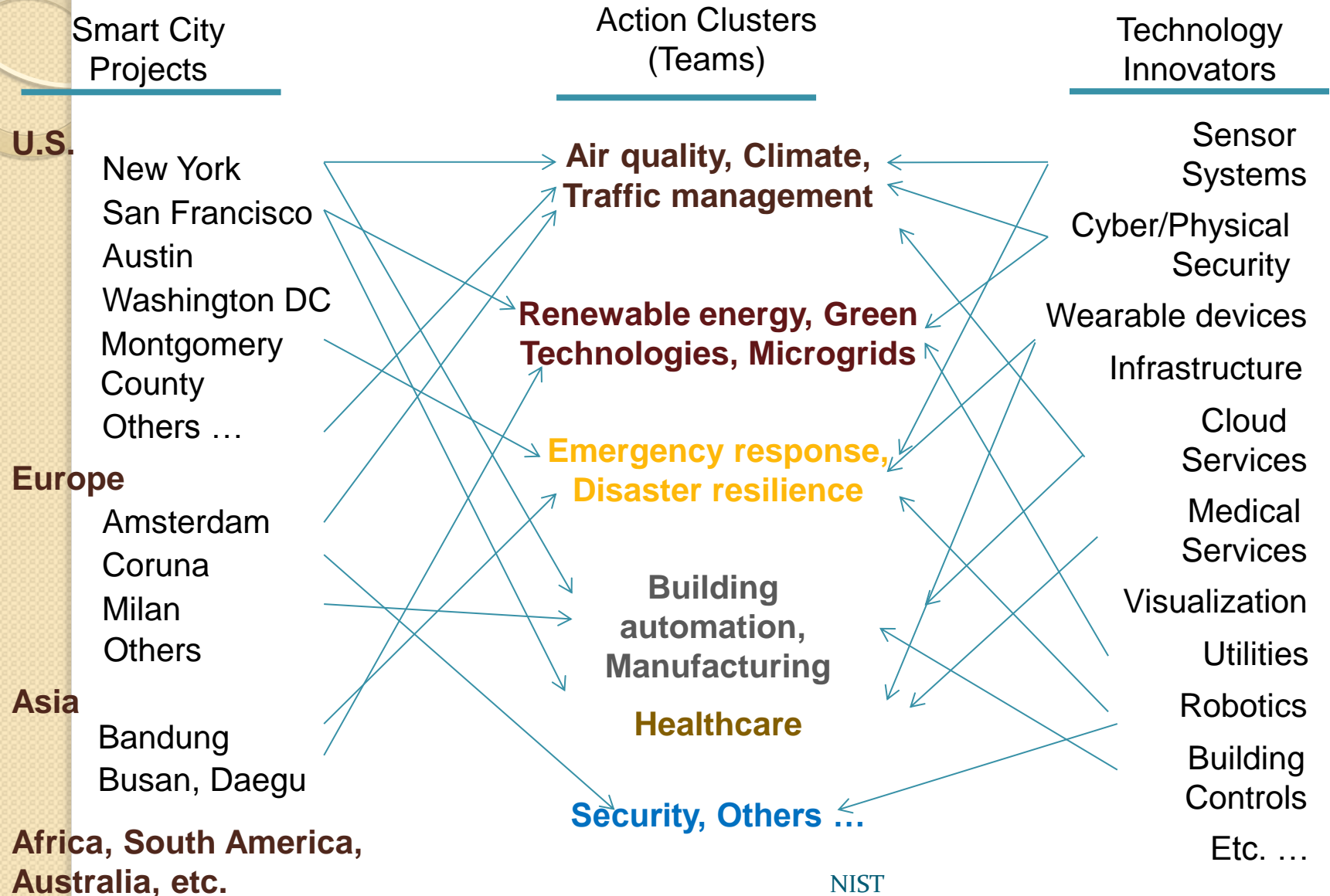
- Smart City: Use smart technologies such as IoT and CPS to improve the quality of life in cities and communities
- Many smart community efforts are one-off projects with heavy emphasis on customization and inadequate consideration for future upgradability and extensibility
- As a result, many Smart Cities/Communities deployments are isolated and do not enjoy the economy of scale.

# Global City Teams Challenge



- Establish and demonstrate replicable, scalable and sustainable models for incubation and deployment of interoperable, standard-based IoT solutions and demonstrate their measurable benefits in Smart Communities/Cities

# The Approach



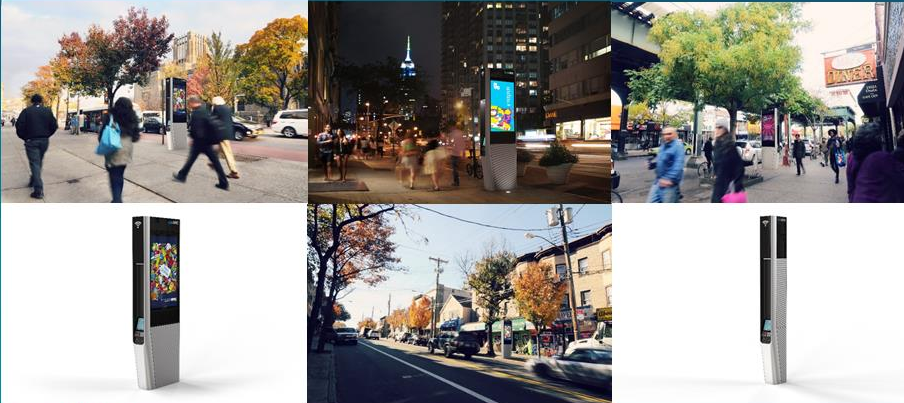
# Why Participate in GCTC?

- GCTC participants receive:
  - Mutually beneficial partnership opportunities for cities, companies, and academic institutions
  - Easier replication of existing and proven solutions in your community
  - Support in moving from solution concept to solution implementation
  - Valuable project and technical feedback from NIST and GCTC partners
  - Increased visibility for participants and access to other opportunities
- Cities
  - Promote your city's successful solutions and be the origin of replication for other cities that are facing similar challenges.
  - Learn the know-hows of other cities related to smart city projects and showcase your city as a ready partner to organizations with replicable smart city technologies.



# LinkNYC by City Bridge

First-of-its-kind communications network that will bring the fastest available municipal Wi-Fi to millions of New Yorkers and visitors



Source: [www.linknyc.org](http://www.linknyc.org)

New York City, Qualcomm Incorporated, Titan360, Control Group, COMARK Corporation, Antenna Design

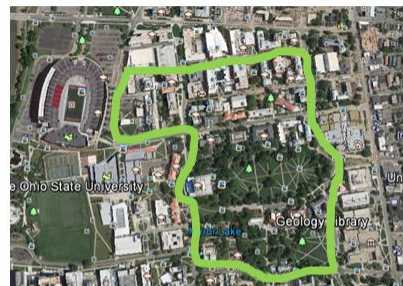
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## SMART MOBILE OPERATION: OSU TRANSPORTATION HUB (SMOOTH)



### First Mile/Last Mile Solutions

- On demand automated vehicles will move passengers the first mile to the bus stop and the last mile from the bus stop (bottom picture).
- Scheduled or on demand vehicles will move passengers through a closed loop within OSU campus (through roads and pedestrian areas, top picture).
- The vehicles will:
  - use automated driving technology;
  - use V2V communication for convoy driving;
  - be equipped with vulnerable road user protection technology enabling them to function in pedestrian zones.
- SMOOTH will keep track of vehicles and guide them.
- Smartphone applications will be developed to schedule and track the on-demand automated vehicles.

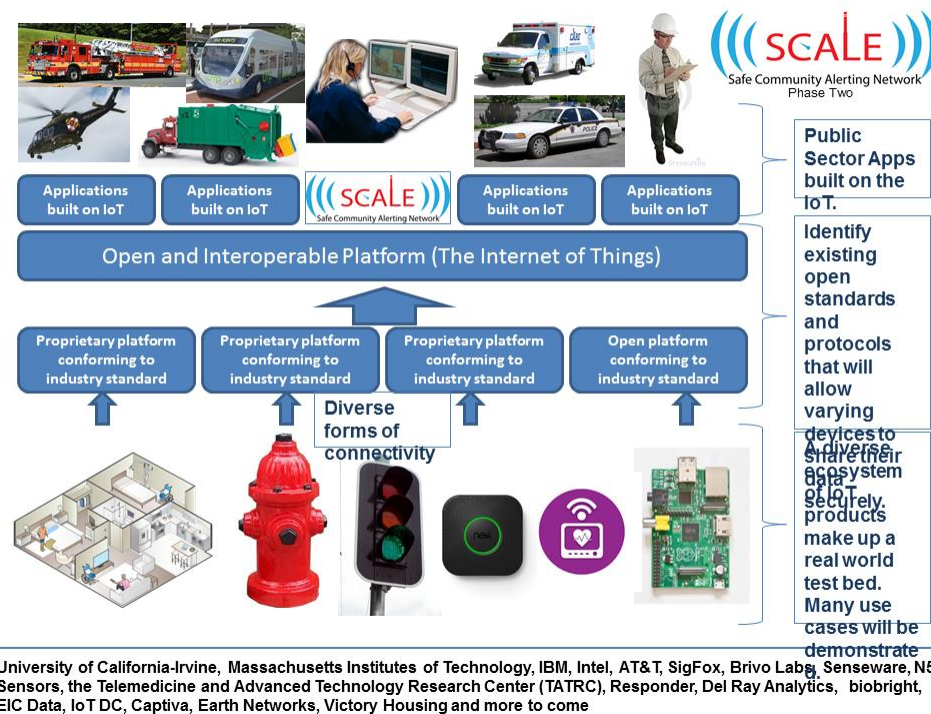


### PARTNERS

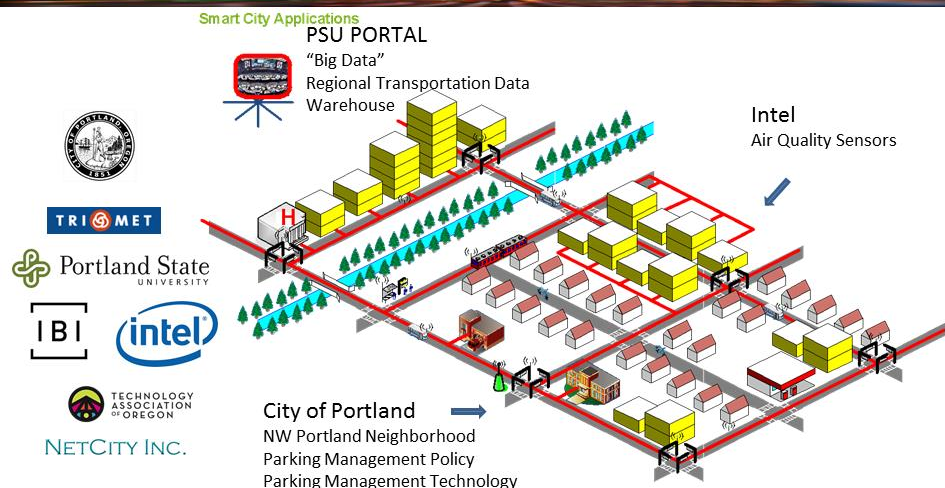
Ohio State University - Center for Automotive Research  
City of Columbus  
Mid-Ohio Regional Planning Commission (MORPC)  
Team ARIBO

Location: Columbus, Ohio

Automating the First and Last Miles



## Connected, Intelligent Transit



NIST

# GCTC 2015 Expo on June 1 at National Building Museum in Washington DC



Source: National Building Museum web site

- Exhibitions and presentations from over 60 teams in partnership with 50+ municipal governments and 200+ companies/universities/organizations
- Special Session with the **King Willem-Alexander and Queen Maxima** of the Netherlands
- Keynote Speeches
  - **Anthony Foxx**, US Secretary of Transportation
  - **Tom Kalil**, Deputy Director of White House Office of Science and Technology Policy
  - **Willie May**, Director of NIST and Under Secretary of Commerce
  - **Jim Kurose**, Assistant Director, NSF
- 1500 attendees including smart cities experts, CPS/IoT stakeholders, cities, communities, federal governments, industry and academia
- 50+ media outlets from around the world



# GCTC 2016

- Aims to demonstrate quantifiable/measurable benefits to the cities and communities
  - Traffic jam reduction by 20%?
  - Air pollution reduction by 25%?
  - Energy reduction by 30%?
- 20-month process (2 Phases)
  - 1<sup>st</sup> Phase by June 2016 – Team building phase
  - 2<sup>nd</sup> Phase by June 2017 – Implementation phase
- **Tech Jam: Save the Date, March 22-23, 2016, NIST**
  - Action Clusters (project teams) present their plans and identify additional partners: application to present due on Feb 26
- Phase I Expo: mid-June 2016, United States
  - Featuring exhibitions and project presentations from Action Clusters, and opportunities to engage with other teams and Smart City leaders from industry, government, and academia

# Phase I: To do list

## 1: Due Feb. 26, 2016

(for Tech Jam presenters; April 29 deadline for others)

\*Join Action Cluster:

<https://goo.gl/kXyfNVV>

\*Contact Cluster leads or [mariya.cherk@us-ignite.org](mailto:mariya.cherk@us-ignite.org) for more information

\*For a new Cluster, submit project worksheet (template at <https://goo.gl/fq39KG>) to [William.Maguire@us-ignite.org](mailto:William.Maguire@us-ignite.org) and [Sokwoo.Rhee@nist.gov](mailto:Sokwoo.Rhee@nist.gov)

## 2: Due April 29, 2016

\*Submit a detailed project plan, which includes: team member contact information, list of municipal partner(s), Key Performance Indicators (KPIs), project timeline, and commitment of required resources




## 3: Due May 27, 2016

\*Begin project pilot/deployment (*optional, but highly recommended*)

\*Prepare demonstration for expo

# Current Partners of GCTC 2016



- Partners
  - US-Ignite
  - US Government Agencies: NSF, ITA, DoT, State Department, GSA, NCO/NITRD, Census
  - Non-US Central Governments: Netherlands, South Korea
  - Corporations:   
  - Non-profits: FIWARE, World e-Governments (WeGO), Industrial Internet Consortium (IIC), MetroLab Network, R20
- Participating Members (partial list)
  - Qualcomm, Bosch, Siemens, CH2HL, Mathworks, Pecan Street, Inc., Yet Analytics, MIT, Vanderbilt, UT Dallas, University of North Texas, Ohio State University and Columbia University, Downtown DC BID, ALICE, IoT Dev Labs, Inc, Internet of Things DC, National Capital Planning Commission (NCPC), George Washington University and more
- More than 30 cities around the world are currently participating.

# Cities that participated in GCTC kickoff

- Abuja, Nigeria
- Ammon, ID
- Amsterdam, Netherlands
- Austin TX
- Baltimore MD
- Busan, Korea
- Charlotte NC
- Chesapeake VA
- Columbus OH
- Daegu, Korea
- Galle, Sri Lanka
- Greenville SC
- Hampton VA
- Kansas City MO
- Montgomery County MD
- Nairobi, Kenya
- New York, NY
- Newport News VA
- Pokhara, Nepal
- Portland OR
- Provo UT
- Salt Lake City, UT
- San Jose, CA
- Suffolk VA
- Washington, DC

# For More Information

- Contact
  - Sokwoo Rhee ([sokwoo.rhee@nist.gov](mailto:sokwoo.rhee@nist.gov))
- Challenge web site: Meet the action clusters
  - [www.globalcityteams.org](http://www.globalcityteams.org)
- GCTC 2016 Kick-off presentations (Nov 12-13, 2015)
  - <https://drive.google.com/folderview?id=0B8nL0SuAAnfXcldlSkInTF9DX2c&usp=sharing>
- Social Media
  - Twitter #globalcityteams
  - Linkedin Group <https://www.linkedin.com/groups/8285610>
- Webcast replay of the GCTC 2016 Kick-off (Nov 12-13, 2015)
  - <http://www.nist.gov/cps/global-cities-team-challenge-2016-kick-off-webcast.cfm>
- Webcast replay of the GCTC Expo (June 1, 2015)
  - <https://www.youtube.com/watch?v=tLnFbLS4AtY&list=PLLiocXmoHP8iQBmCdGnNlLPLAyPMAojYE>