Paper Review

Sokwoo Rhee, "Catalyzing the Internet of Things and smart cities: Global City Teams Challenge," *2016 1st International Workshop on Science of Smart City Operations and Platforms Engineering (SCOPE) in partnership with Global City Teams Challenge (GCTC) (SCOPE - GCTC)*, Vienna, 2016, pp. 1-4.
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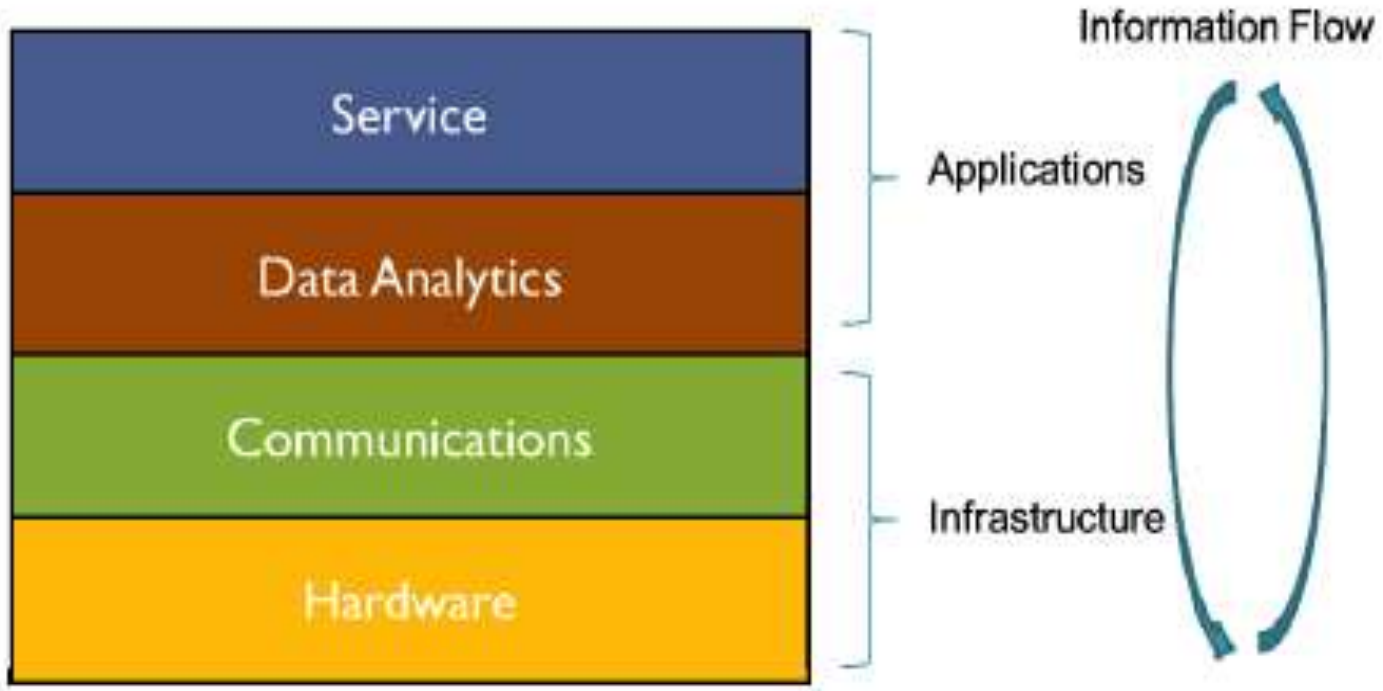
Friday Group Meeting

Simplified IOT and smart cities architecture



Hardware Layer

- Tangible hardware elements like sensors, actuators, chips and radios are found
- Elements in this layer interact directly with the environment, with other hardware elements and sometimes with users/consumers

Communications Layer

- Also called “Connectivity”
- Connects and binds different components in Hardware layer
- Examples include Ethernet, Wi-Fi, etc

Data Analytics Layer

- Receives data from the Communications layer and then stores, analyzes and processes them
- This is where “big data” could reside
- Main function is to collect data from the bottom two layers and then extract useful data

Service Layer

- Intelligence resides and decisions are made
- In position in the system to create the highest value for the users in the system
- Many business decisions made in this layer

Infrastructure and Applications

- “Infrastructure” refers to the bottom two layers of the IOT architecture
- “Applications” refers to the top two layers

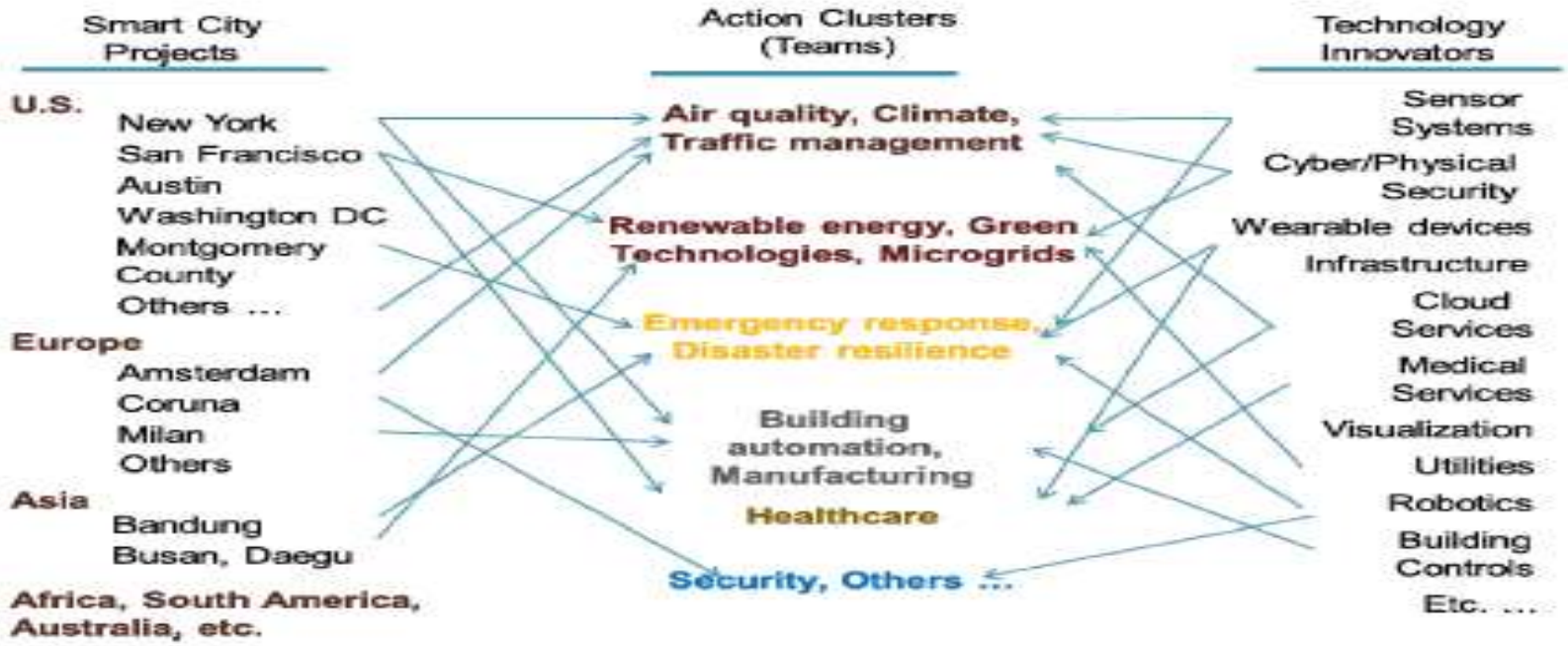
Challenges for Advancing IOT in Smart Cities

- Many smart city projects are isolated and rely on custom solution
- Many of them are “one-off” with inadequate consideration for upgradability
- These don’t enjoy economies of scale

Global City Teams Challenge

- Replicability : Solutions designed to operate in multiple cities without customization
- Scalability : Solutions must be functional regardless of size
- Sustainability : Solutions must last beyond its initial funding stage

GCTC Approach



GCTC Approach

- Multiple cities coalesce around shared challenges like air pollution
- Since each cluster has multiple members, the solutions can be replicated in other cities as well
- It is a win-win for both types of cities, namely, those who has been successful and those who are learning

Missing Links

- Lack of connectivity fabric which is a commonly shared IoT infrastructure
- No easy mechanism for an IoT solution to be deployed in a plug-and-play manner
- Current landscape of IoT and smart cities are like pre-internet days