Smart Cities and Infrastructure

Introduction of the Issues Paper

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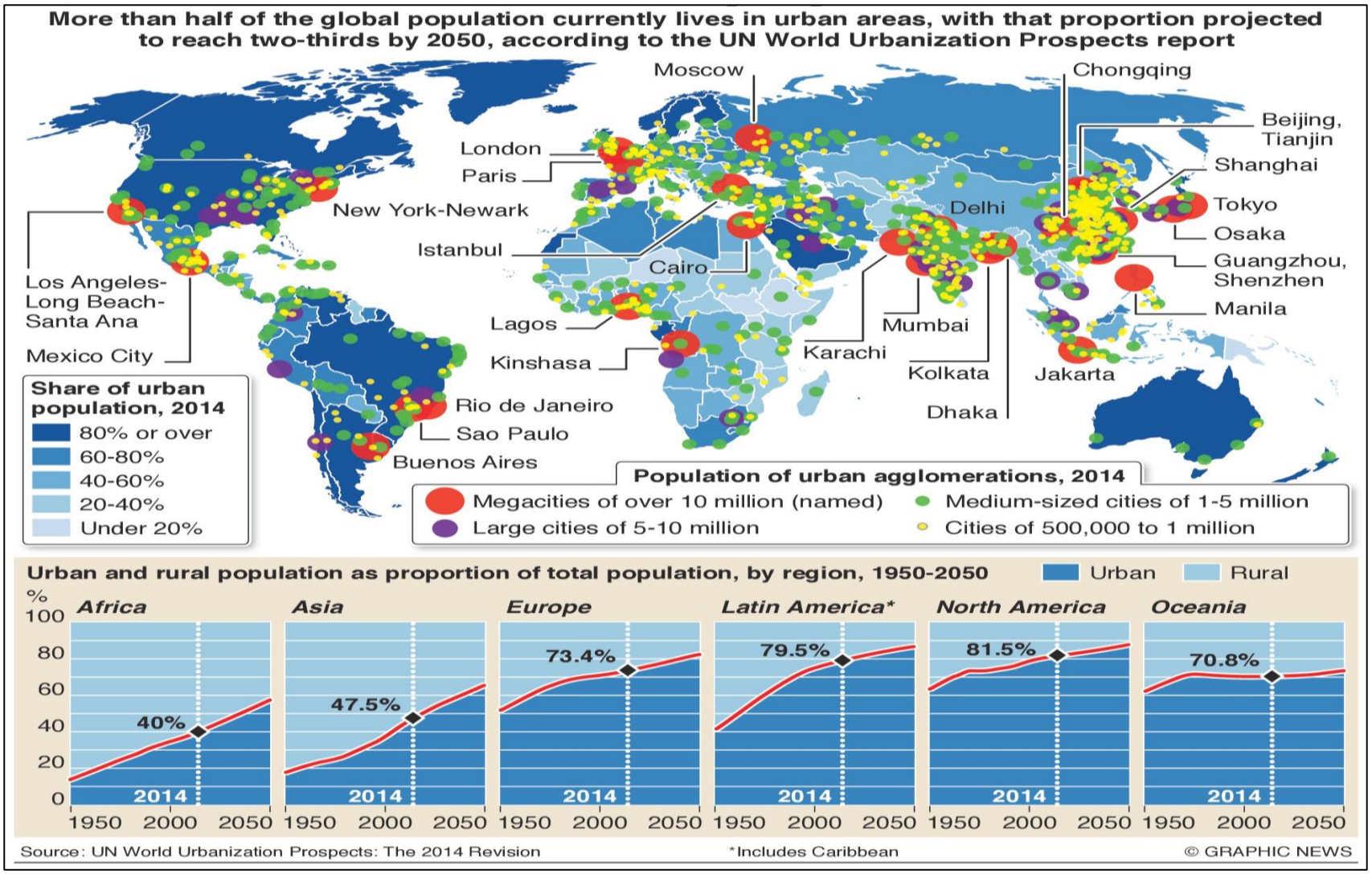
Structure

- Urbanization & SDGs
- Defining Smart Cities
- Components of Smart Infrastructure
- Key Challenges in Applying Smart Infrastructure Concepts
- STI driven Policy Instruments
- Smart Infrastructure Design Principles

Urbanization & SDGs



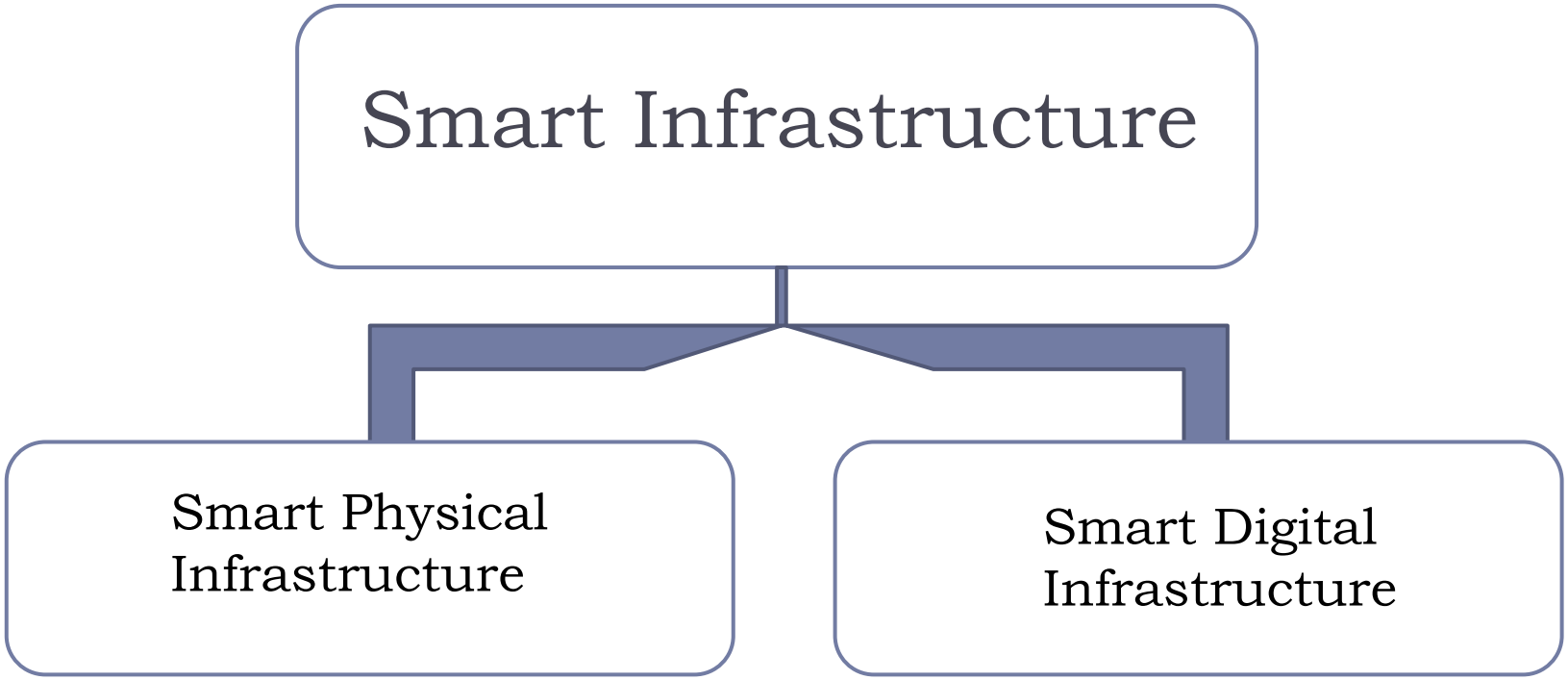
SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable

No sustainable development without sustainable urban development

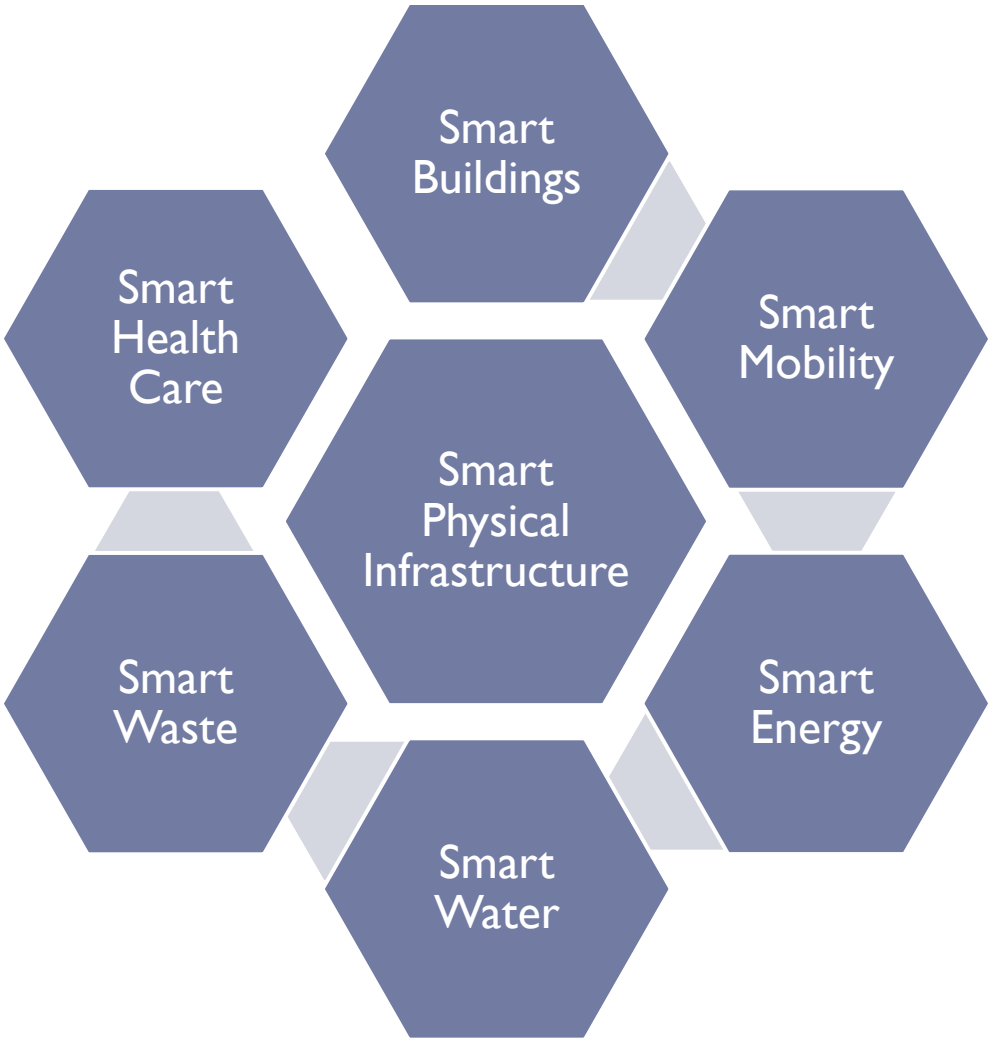
Defining Smart Cities

"A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects"

ITU study group on SSC

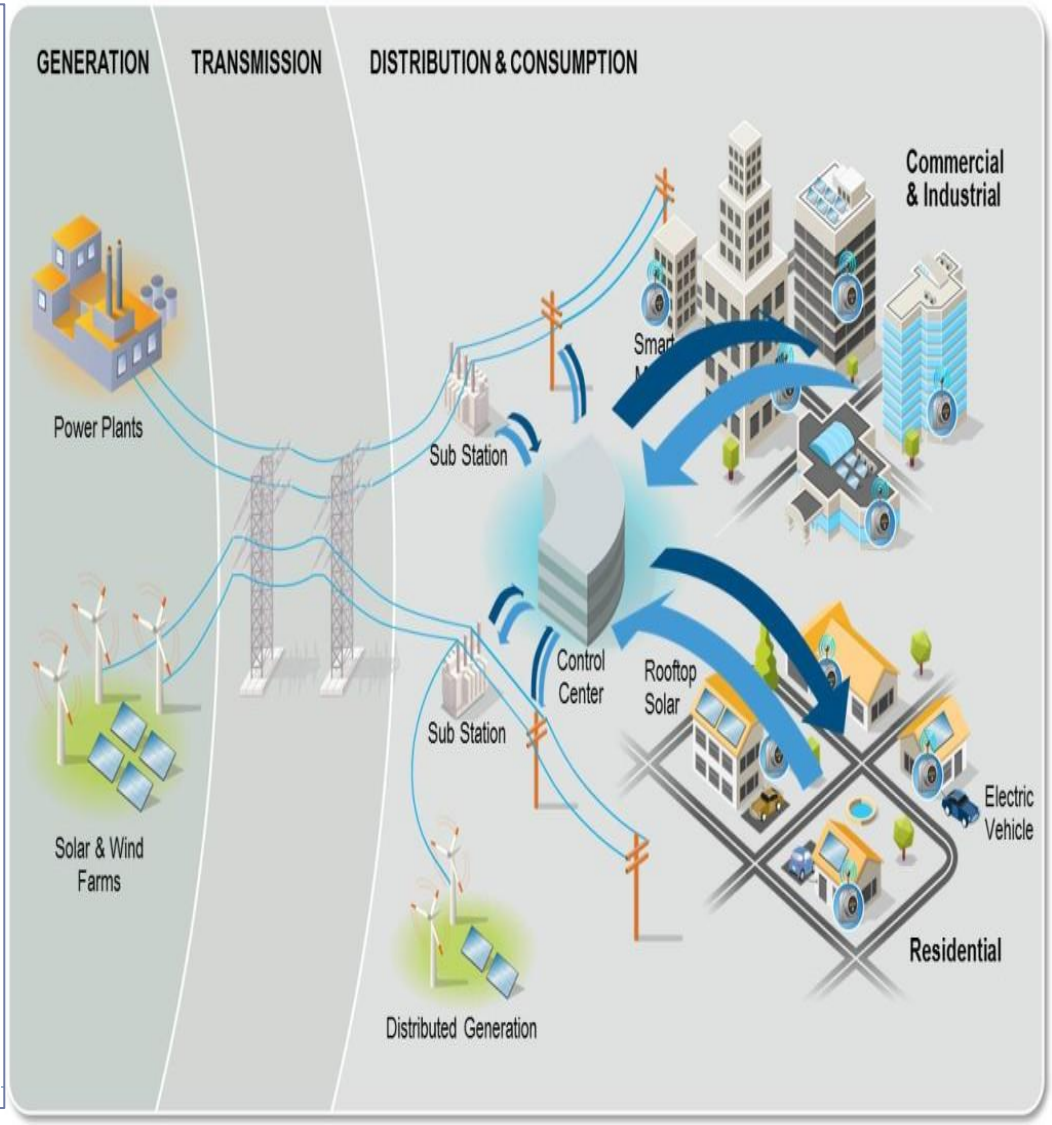

Smart Infrastructure
Smart Physical Infrastructure
Smart Digital Infrastructure

Smart Physical Infrastructure



Smart Physical Infrastructure : Example

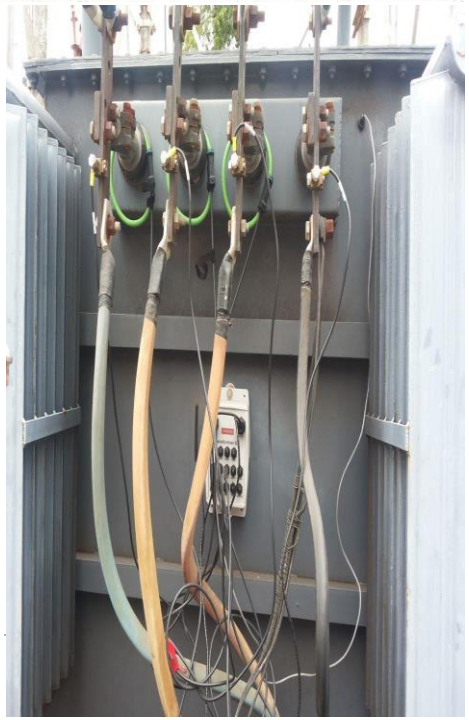
- Smart Energy : Meeting energy needs in a sustainable and cost-effective manner
- Includes:
  - Smart Grids
  - Automated demand response
  - Micro-grids
  - Virtual power plants
  - Smart meters



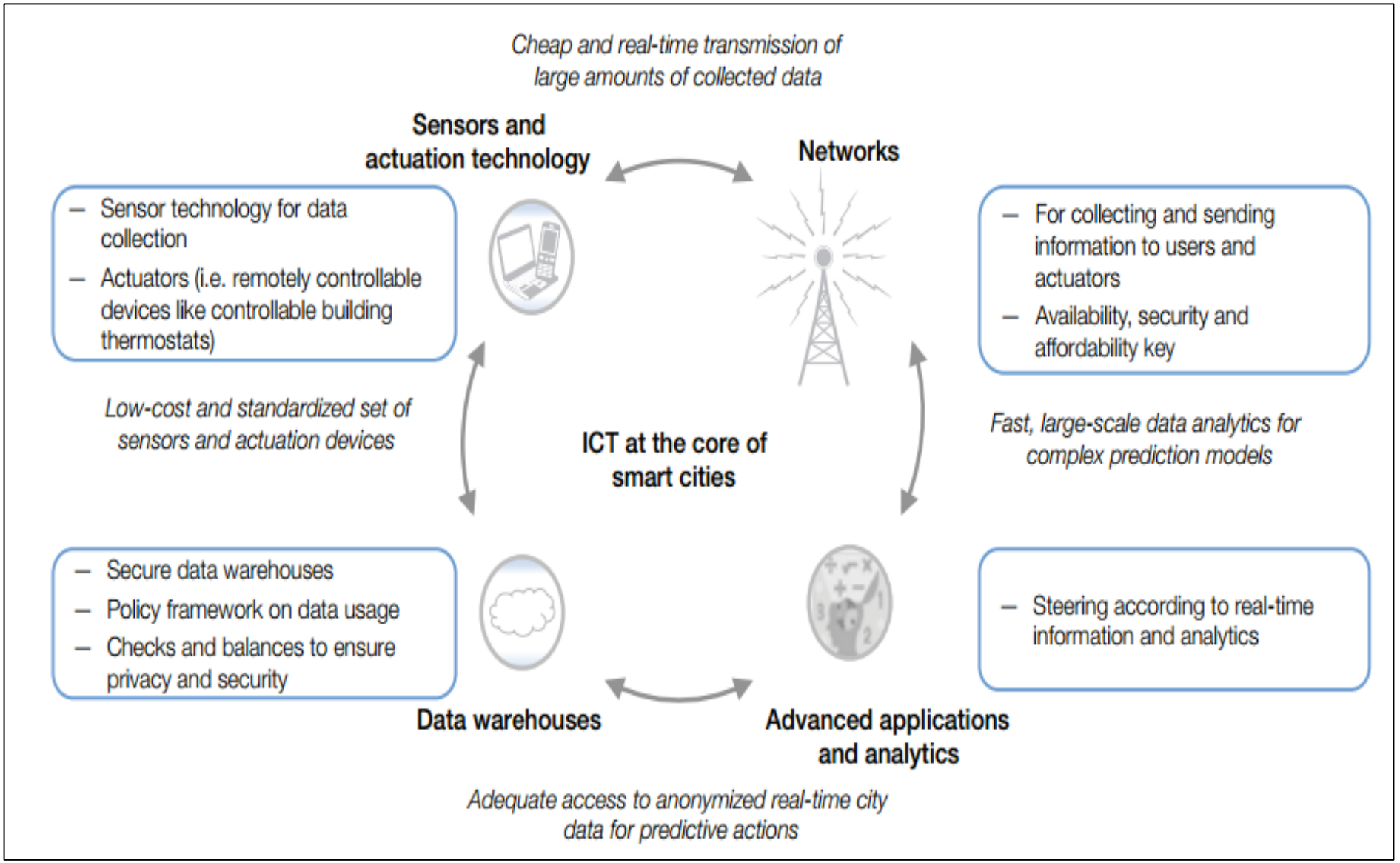
Source: http://trilliantinc.com/smart-grid

Smart Grid, Kashiwa-no-ha, Japan

Smart Grid, Puducherry, India

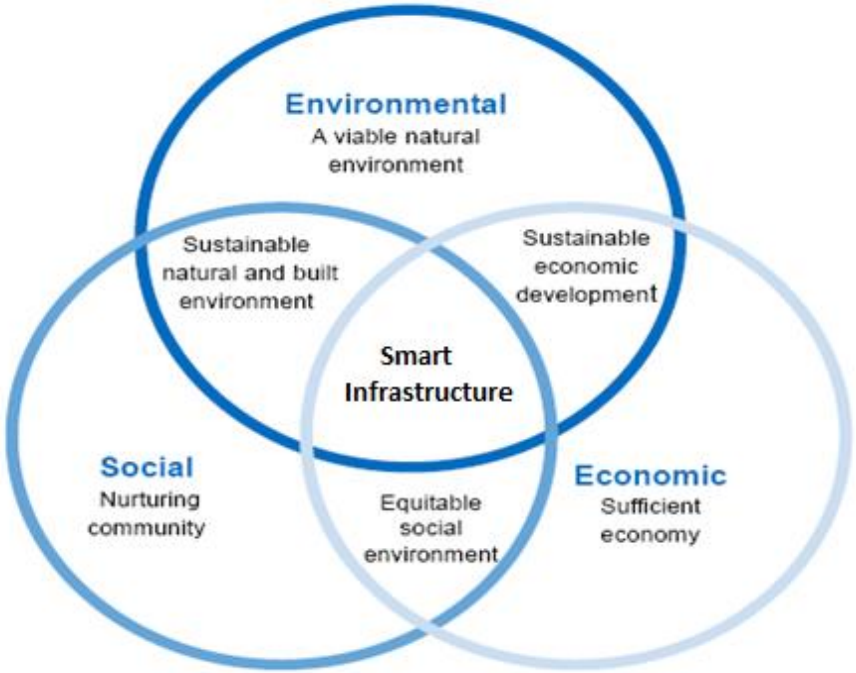


Smart Digital Infrastructure



Need for an Integrated Approach for Smart Infrastructure

- Co-location of smart infrastructure
- Integrating data generated by different smart infrastructures
- Smart infrastructure as a system that integrates the core domains of sustainability



Smart Infrastructure is Context Specific

Developed Countries

-Need to maintain legacy infrastructure systems

-Monitoring of operations

-Facilitate optimal use of existing infrastructure

Developing Countries

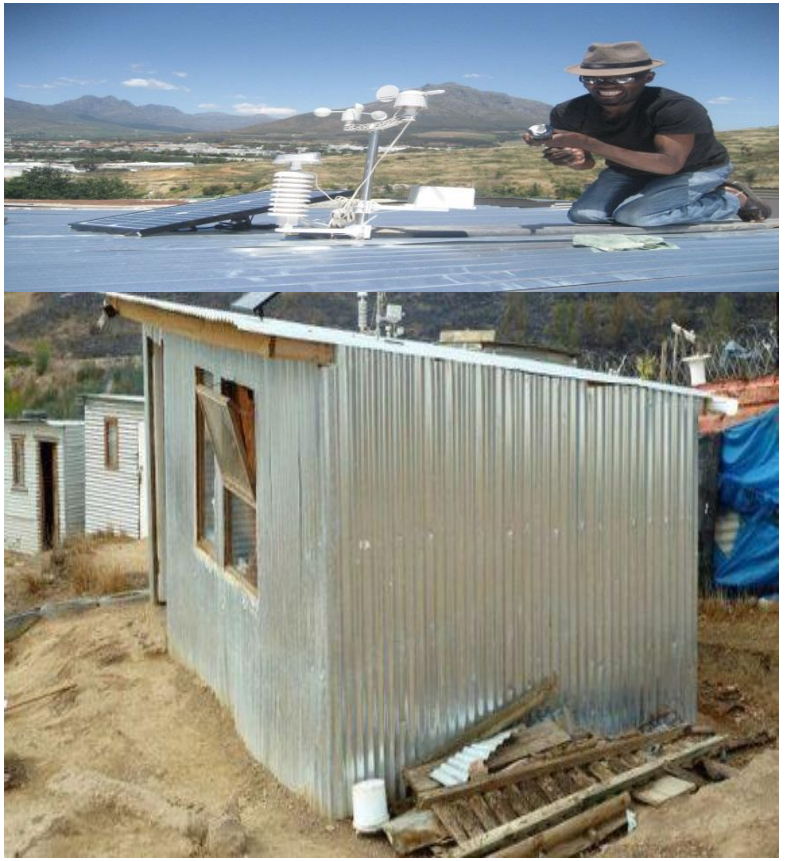
-Absence of legacy infrastructure

-Technology leapfrogging through smart infrastructure

Addressing some key challenges in applying Smart Infrastructure Concepts through STI driven Policy Instruments

Policy Instruments

- Harness the local innovation system

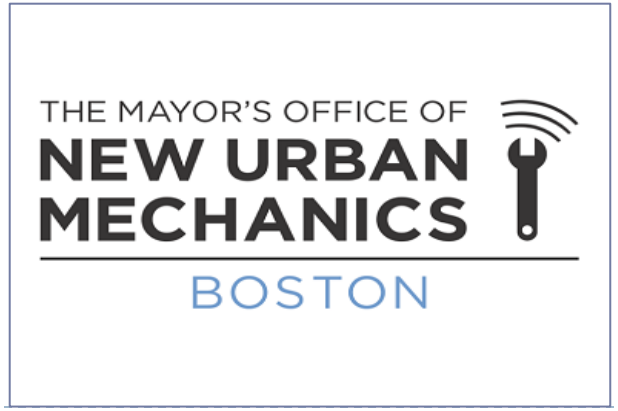


Smart Shacks, South Africa

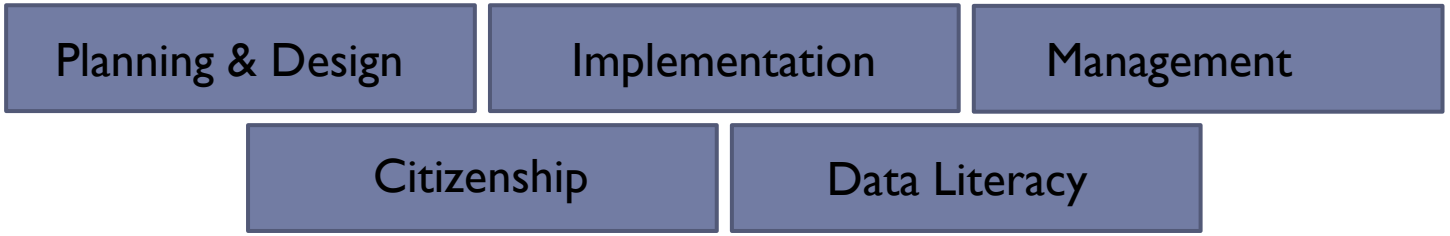
Challenge I : Localization of Smart Infrastructure

Policy Instruments

- Make it a priority theme for local STI institutions
- Promote open data, open science models
- Establish urban innovation units and living labs
- Exploit regional innovation networks and global collaborations



Challenge II: Skills Gap



Policy Instruments

- Accelerate STEM education programs
- Reform Curricula and promote Multi-disciplinary Learning
- Develop MOOCS, m-learning and other ICT tools
- Partner with Technology Firms

Challenge III: Lack of Finance and well developed Business Models

Policy Instruments

Technology Driven Innovative Financing Models

Challenge III: Lack of Finance and well developed Business Models

Policy Instruments

- Crowdfunding Platforms
- Monetizing Smart Data
- Smarter use of existing public resources

Challenge IV: Applying a Suitable Governance Model

Policy Instruments

- Smart City Operation Centers to Break down Administrative Silos
- Platforms for Bottom-up Participatory Governance
- Effective Use of Overall Smart City Agenda, Smart City Strategies and Technology Plans

Challenge V: Making Smart Cities Inclusive

Policy Instruments

- Develop smart infrastructure targeting all vulnerable groups
- Making Smart Cities Gender Inclusive
- Use data generated by smart infrastructure to ensure inclusiveness

Smart Infrastructure Design Principles

People-Centered and Inclusive Infrastructure

Resilience and Sustainability

Interoperability and Flexibility

Managing Risks and Ensuring Safety

Thank You