NASSCOM®

Smart Solutions for Cities

R. Chandrashekhar
President
25th June 2015

Making Cities Smart

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- To make Cities in India Smart we need an integrated approach to modernize city infrastructure, and leverage technology to improve efficiency and capacity of city services.

- Smartness in a city lies in integration of the core city sub systems and enabling seamless service delivery.

- Digital Master Plans have to be dovetailed into City Master Development Plans

Integrated ICT & Geospatial Technologies Framework for 100 Smart Cities Mission

NASSCOM's *Integrated ICT & Geospatial Technologies Framework for 100 Smart Cities Mission* is a comprehensive framework which clarifies the role of ICT in a Smart City

ICT Interventions for Smart Cities in:

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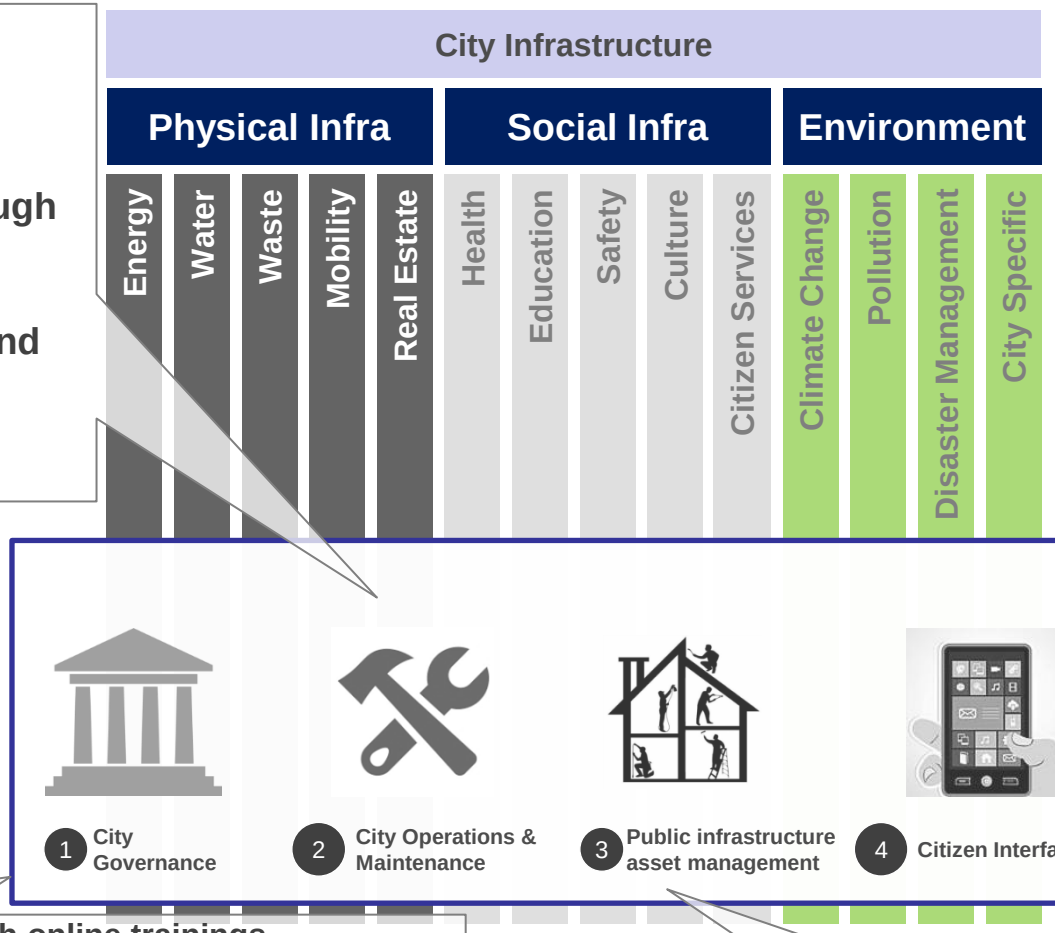
Governance | Water | Waste Man. | Safety | Transport | Energy | Healthcare | Education

- City performance dashboard
- Citizen online portals, forums
- Capacity Building through online trainings
- Analytics
- Integrated Command and Control Centre
- Workforce, resource management



- Online citizen services
- Social media
- Helpline

- Capacity Building through online trainings
- Citizen online portals, forums
- Workforce,resource management
- City performance dashboards

- Integrated Asset Management Solutions

ICT Interventions for Smart Cities in:

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Solution

- Integrated public service delivery
- Online Birth, Death certificates
- Online Trade License
- Online public grievances, redressal
- GIS based property tax estimation
- Online building plan approval
- Online self-assessment,payment of property tax
- Online utility bill payment
- Accrual based accounting system

Technologies

- Payment gateways
- Mobile gateways/applications
- Native Mobile applications
- Citizen collaboration platform
- GIS based works management
- Data warehousing
- Open data platform
- Big Data
- Cloud Based Solutions with pay per use model

Impact

- Significant improvement in revenue collection
- Reduction in time taken for grievance redressal
- Improvement in turnaround time for municipal services
- Improved citizen satisfaction
- Increase in productivity of ULB staff
- Improved accountability ,transparency in services and operations
- Improved city operations,maintenance

Leveraging technology for improved all round performance. Application in several cities/ULBs in India

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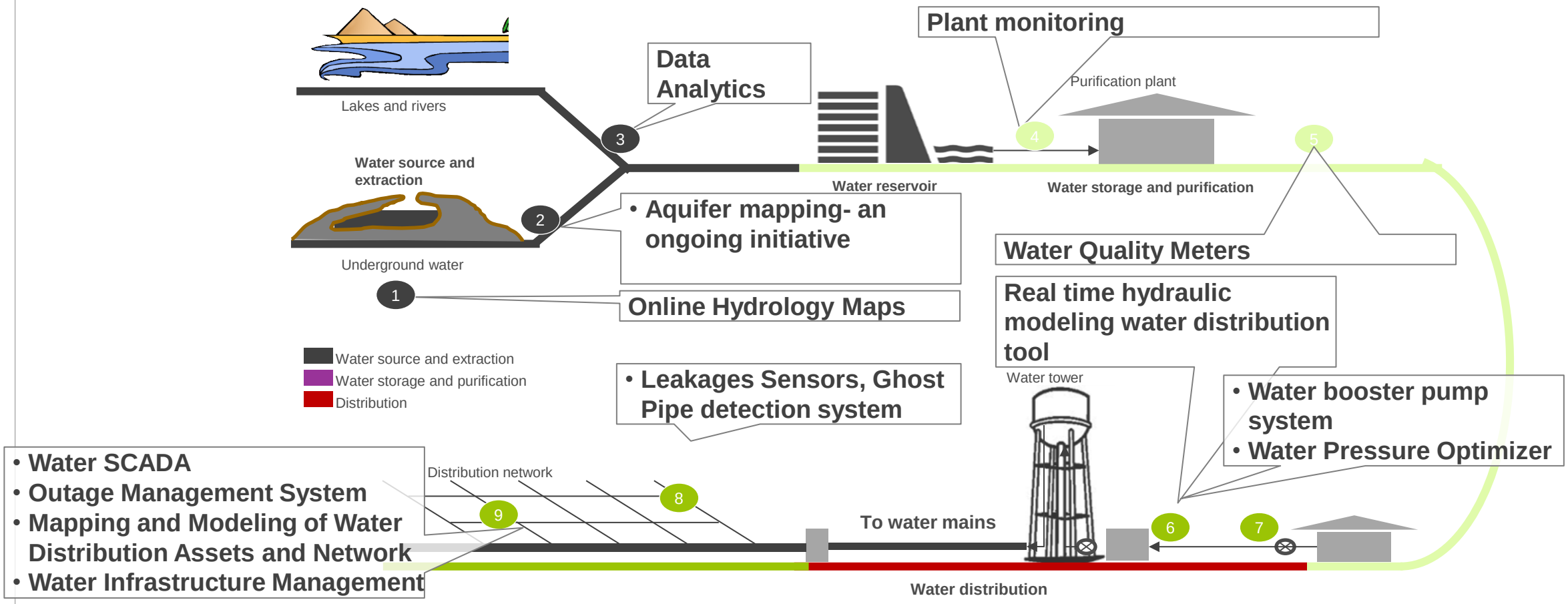

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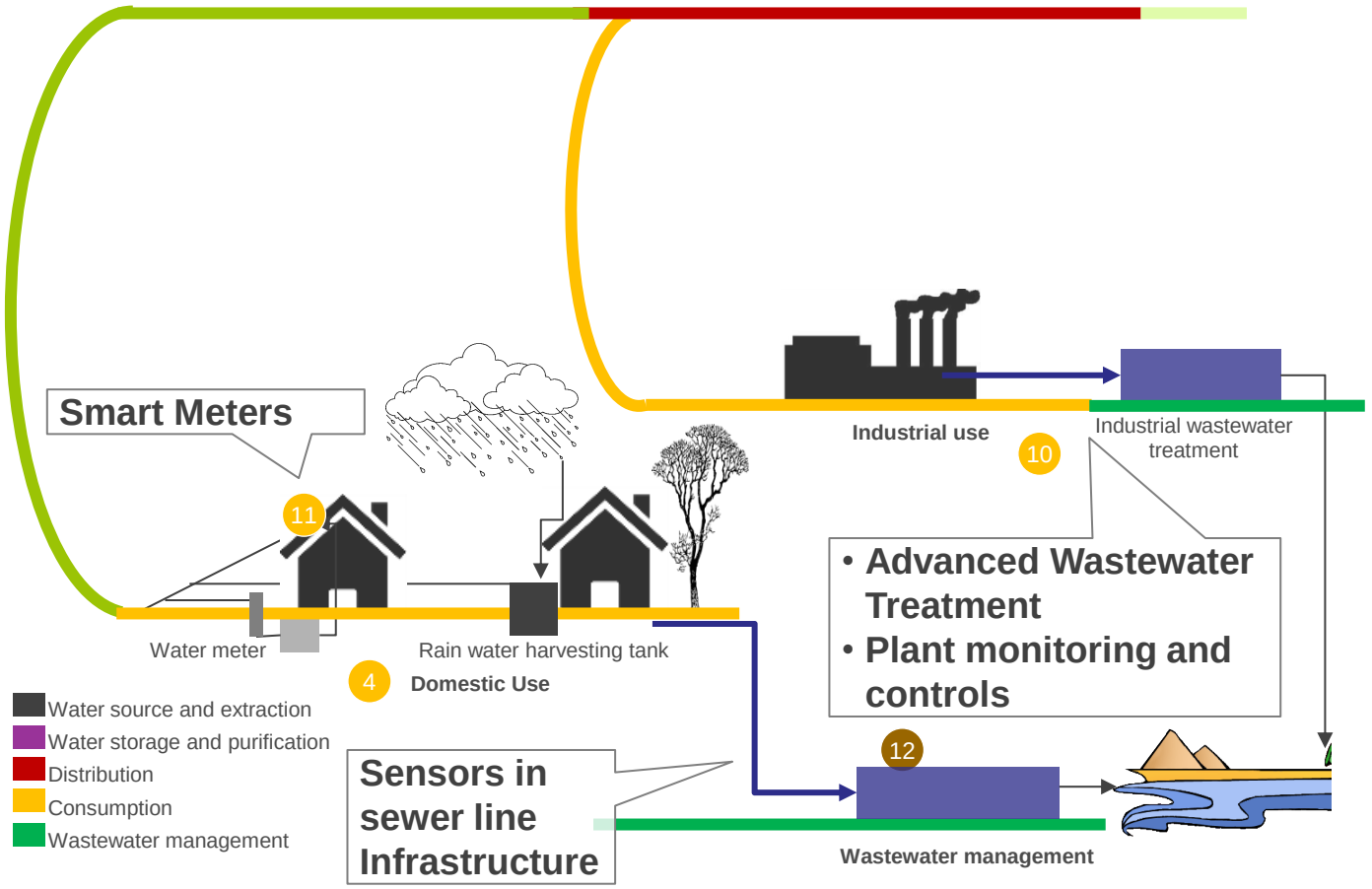

ICT Interventions for Smart Cities in:

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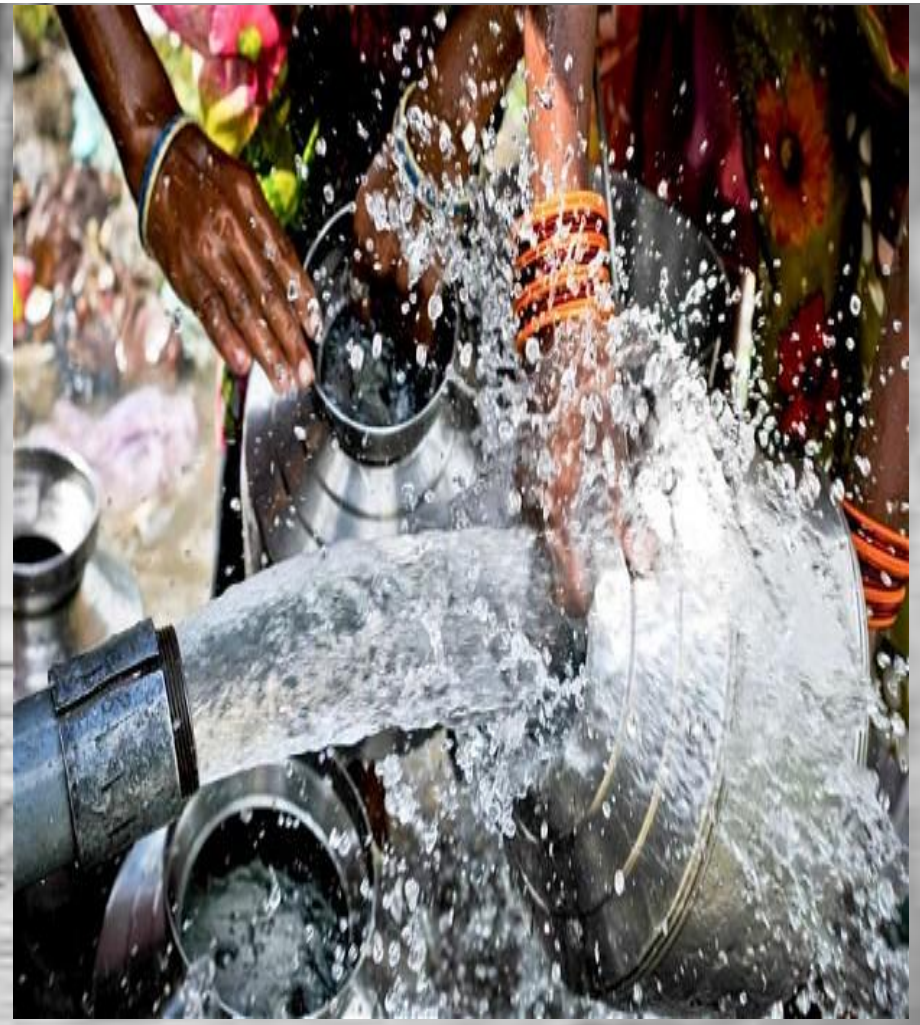
Governance | **Water** | Waste Man. | Safety | Transport | Energy | Healthcare | Education

Solution

- GIS based asset mapping & consumer indexing
- Predictive analysis based historic data
- Consolidated view of the water network via schematics
- High volume data analytics using data from across the water network
- Real time monitoring of utility meter readers
- GPRS enabled Mobile Billing devices
- Online bill payment
- Integrated billing, collection DBs

Impact

- Consolidated view of historic data enabling quicker, facts-based decision
- 10-year forecasting tools for chemical usage and filtration
- Energy monitoring and site performance reporting
- Customer friendly services for payment and receipts
- Increased revenue collection
- Savings in expense reduction with respect to operations and manpower



Technology led improvement in asset performance and efficiency. Application in Delhi Jal Board, UK based Thames Water Utility and others

ICT Interventions for Smart Cities in:

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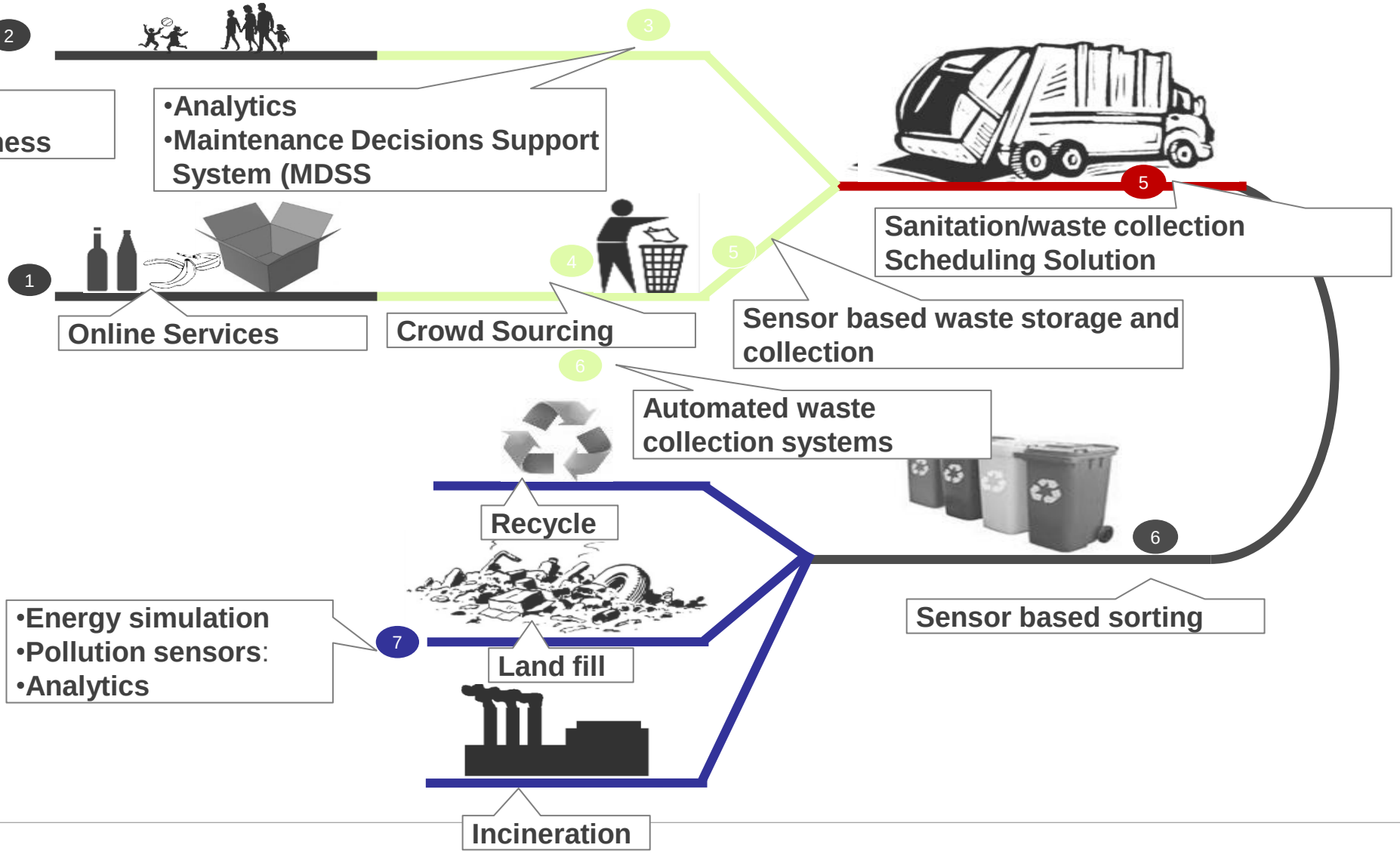
Governance | Water | **Waste Management** | Safety | Transport | Energy | Healthcare | Education



ICT Interventions for Smart Cities in:

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Governance | Water | **Waste Management** | Safety | Transport | Energy | Healthcare | Education

Problem

- Monitoring is manual and absenteeism is high among employees
- Physical visit required to verify employee performance
- Garbage keeps lying in city for extended periods
- Overpayment - Payment is usually linked with Number of Trips, mileage, or Weight - No perfect verification methodology
- Difficult to monitor vehicle movement

Solution (East Delhi & others)

- Attendance with Handheld Biometric Device
- Tracking Devices installed on each vehicle
- Geo-fencing of area & marking of important points & routes
- Bin Monitoring with RFID Tags
- Handheld terminals for drivers
- CCTV Cameras at Secondary and Final Dumping sites
- Cloud Based IT platform
- Central Monitoring Station

Impact

- Live performance management of employees
- Work of each employee is measured
- Improved productivity per employee
- Garbage pick up schedule is optimized
- State of solid waste in the city is tracked
- Activities of sanitation department is coordinated

ICT Interventions for Smart Cities in:

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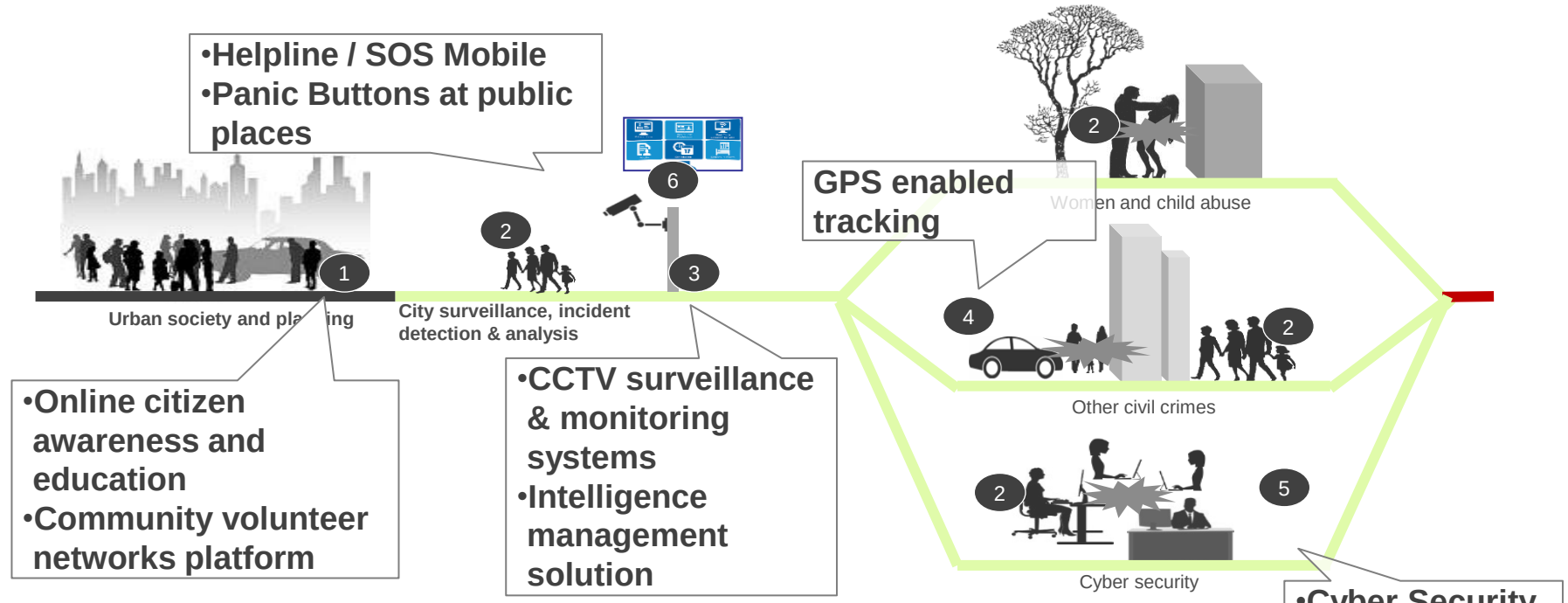

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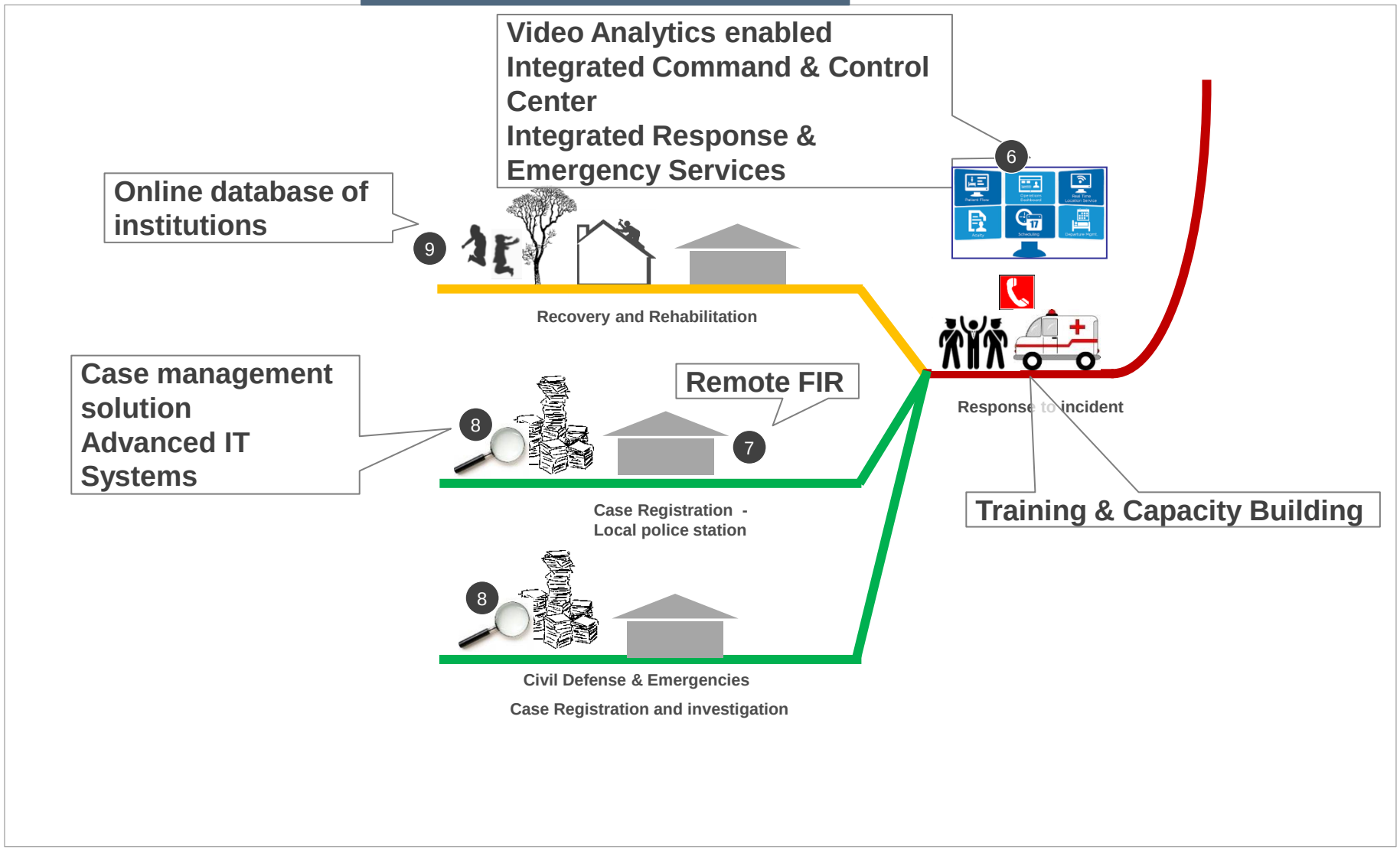

ICT Interventions for Smart Cities in:

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Governance | Water | Waste Man. | **Safety** | Transport | Energy | Healthcare | Education

Safe City ICT Components

- CCTV Surveillance ,Monitoring systems
- Video analytics
- Native mobile applications
- Integrated Security Operations Management System
- Integrated Response , Emergency Services
- Predictive Analysis, Open Source Intelligence
- Helpline
- Command and Control Centre

Impact

- Increased crime detection
- Significant improvement in crime prevention
- Increased confidence level of citizens
- Improved emergency response capabilities
- Improved Safety and Security of Critical Infrastructure
- Improved Security of Public Places and Events
- Improved Incident Response Management

Technology enabled safe and secure environment for citizens and stakeholders in Surat and other cities

ICT Interventions for Smart Cities in:

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ICT enabled Emergency Medical Response across India

- Computer telephone integration
- Geographical Information System (GIS)
- Location Tracking System (AVLT) / Fleet Management systems
- Communication Officer and Dispatch Officer applications
- ePatient Care Record
- ERP applications (Financials, HR, CRM, Inventory Management)
- Mobile Communications

Impact

- Population coverage: > 750 Million
- No. of calls/ day: 220,000
- No. of Emergencies attended/day: 24,000
- Time taken to pick call: Within 3 rings
- Ambulance dispatch time: 160 seconds
- Average time taken to reach site: 20 minutes
- Total no. of lives saved since 2005: > 1.3 Million

Technology enabled emergency medical response across several cities in India

How can government partner with IT Industry ?

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- As per guidelines from MoUD, SPV will be created for each Smart City. SPV will play a key role in determining Funding, Procurement, Partnership Models with Industry
- Role of IT Industry in making a City Smart may vary depending on Retrofit, Redevelopment, Greenfield development Scenarios
- IT Industry Members can play a role of :
  - Turnkey implementation of ICT at city level
  - Turnkey implementation of ICT at domain level (Safe City, Smart Energy, Citizen Services….)
  - Partner with Turnkey Infrastructure developers to integrate ICT Solutions at a city level
  - Partner with Infrastructure EPCs at a domain level like Energy/Water etc.
- IT Industry members can play the role of a lead in making a domain smart or be a part of a larger Infrastructure consortium in driving technology adoption across various city domains

A detailed ICT roadmap at a city level is needed, for which the NASSCOM report can serve as a ready reckoner.
NASSCOM also recommends leveraging on existing investments in ICT, already made at city/State level

To understand in-depth the Technologies and Solutions that can make your city smart and to connect with Implementation partners, reach out to Manojit Bose (manojit@nasscom.in)

Thank You !

ICT Interventions for Smart Cities in:

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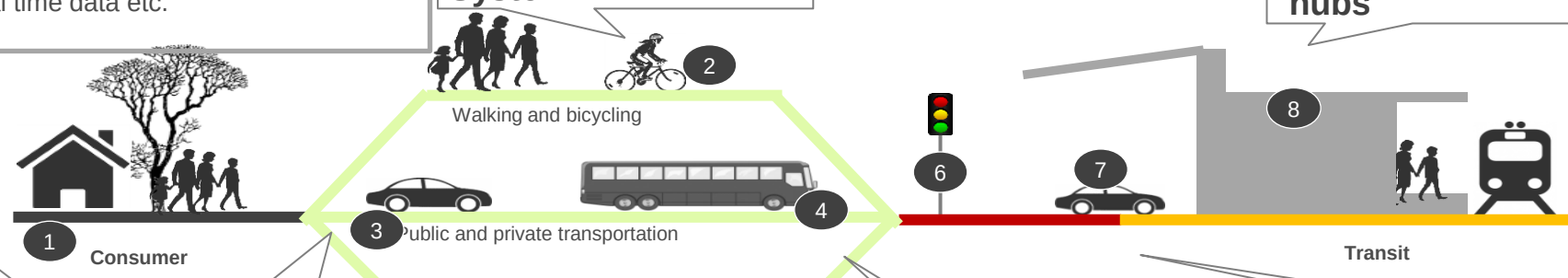
Geospatial enabled efficient Transportation system: Geospatial enabled services provide periodic traffic forecast, journey planning mobile applications based on real time data etc.



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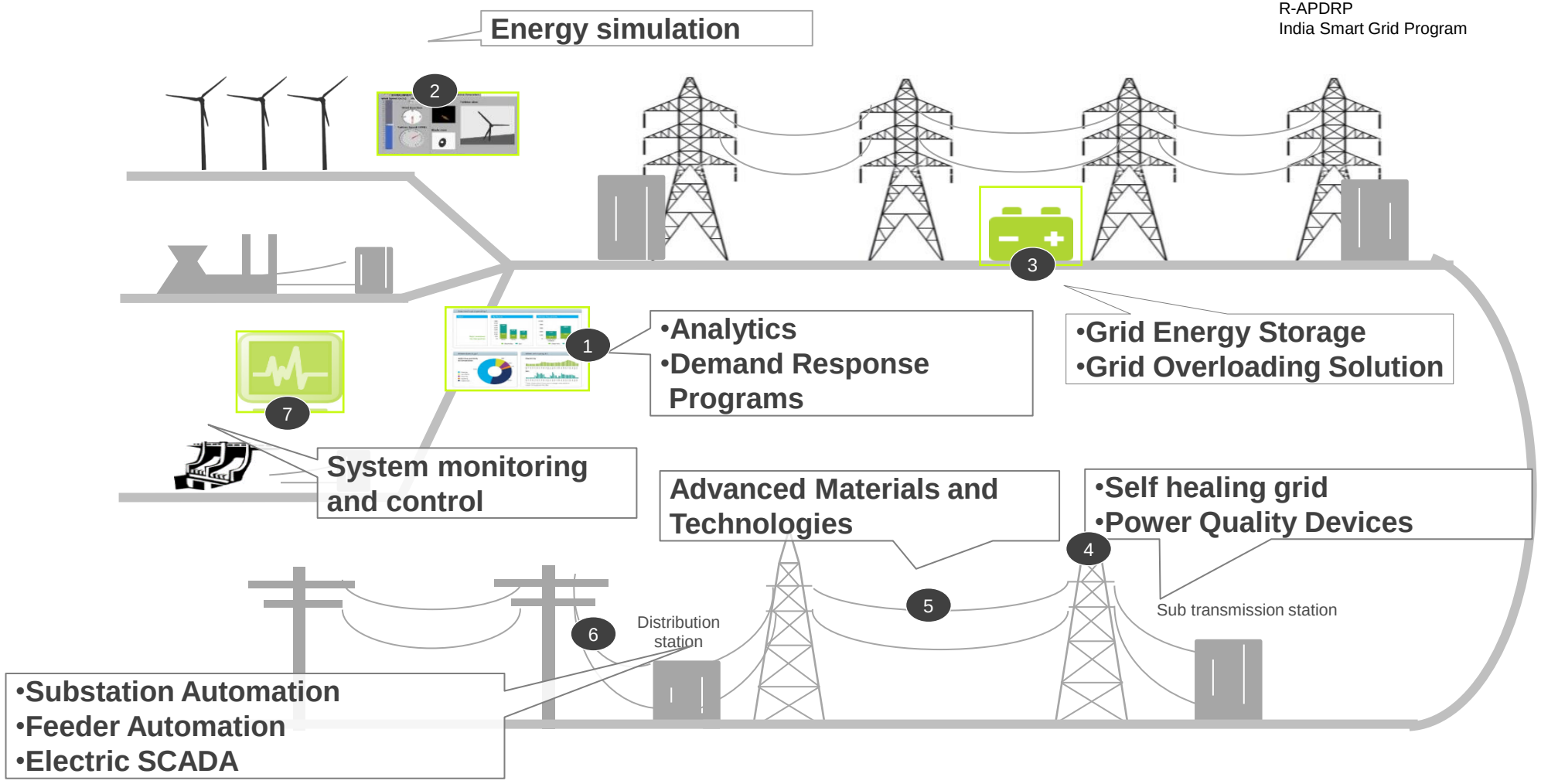
On-going government initiative:
R-APDRP
India Smart Grid Program



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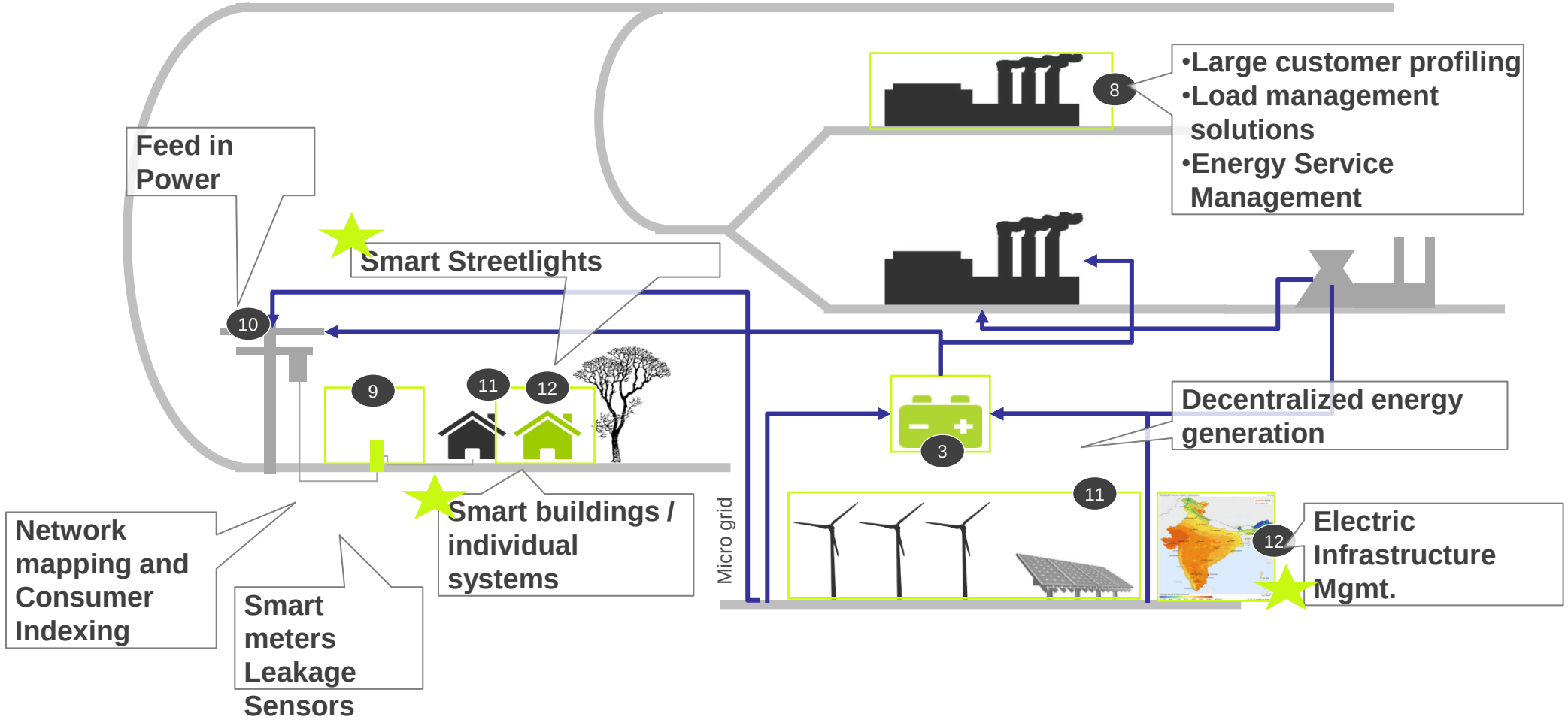

ICT Interventions for Smart Cities in:

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Problem

- AT&C Losses
- Lack of data to identify problem
- Multiple sources of conflicting data
- Error prone manual control systems
- Unsatisfactory customer Service

Solution - (RAPDRP)

- Installing smart meters for consumers
- Installing sensors through the distribution network
- Analyzing and projecting demand
- Automating and integrating subsystems
- Real-time notifications for consumers and utility staff

Impact*

- Consumer data migrated into a single system
- Average response time of under 5 seconds for online transactions
- 2% Increase in revenue
- Reduction in AT&C losses from 28% to 19%
- Improvement in available power

*Case Study

ICT Interventions for Smart Cities in:

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Urban society and health

Access to healthcare services (Primary, Secondary & Tertiary)

Consultation and diagnosis

- Smart Health Card and Electronic Health record.
- GIS enabled Emergency Medical Services (EMS)
- •Health Portal
- •Tele-medicine
- •Analytics
- •Online Health portal, online database with real time monitoring
- •Electronic Health records and Patient portal
- •Medical simulation
- •Diagnostic Analytics

In-patient treatment

Medication and treatment

- •Business Process Automation
- •Smart Health Card

Payment and discharge

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Infrastructure

1 •CCTV Surveillance
•GPS tracking in buses:

2 School Management System

3 Adopt curriculum

Curriculum management solution (Schools

4 Teacher recruitment

•Online recruitment

8 Analytics

Biometric attendance system

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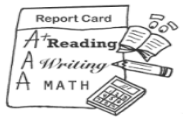

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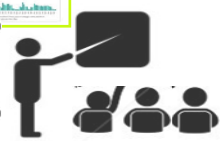

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10 Learning outcomes

Student Performance Management Solution

11

Teacher Performance Management Solution

Teaching and learning

•Smart Classrooms & Collaborative learning platforms
•Online trainings , E-Books and Video conferencing lectures

Student Enrollment

Online centralized admission system

Rashtriya Madhyamik Shiksha Abhiyan (RMSA)
Rashtriya Uchchatar Shiksha Abhiyan (RUSA)