

## IOT FOR INFRASTRUCTURE DEVELOPMENT



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#### Content

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- IoT Definitions
- Growth
- Factors Contributing to the Growth
- Connectivity Technologies
- Opportunities/Common Issues
- Compelling Benefits
- Emerging Challenges
- Policy Considerations

## **EVOLUTION**



#### **DEFINITIONS OF IOT**

#### The IEEE describes IoT as;

"A network of items — each embedded with sensors—which are connected to the Internet."

(IEEE Special Report on Internet of Things, 2014)

#### **GROWTH OF IOT**



#### FUTURE PROSPECTS



## FACTORS CONRIBUTING TO THE GROWTH OF IOT



The Reduction in the Cost of Computing (Including Sensors)

Growth in Mobiles and Expansion of Network Connectivity Across the World

The Rise of Software Development, partly attributable to Economies of Scale

The Emergence of Standardized Low-power Wireless Technologies

## **IOT ARCHITECTURE**



## **CONNECTIVITY TECHNOLOGIES**



## **OPPORTUNITIES / COMMON ISSUES**

2

5



#### Lack of Infrastructure Management Facilities



#### Shortage of Power & Interruptions





3

6

#### Frequent Natural Disasters





#### Environmental & Waste Management Issues





#### Poor Health Facilities



Outdated Processes used in Agriculture





#### Contd.



### SMART UTILITY MANAGEMENT



- Smart Grid Automation & Flexible Distribution
- Smart Metering & Demand Response Analysis
- Storm Water Management & Irrigation Monitoring for Flood Control

#### SMART HOME



- Remote Control of Appliances
- Intrusion Detection & Surveillance Systems
- Video doorbells for Smart phones
- Energy and Water Utilization

## SMART CITIES



- Smart Parking
- Traffic Management
- Smart Lighting

- Waste Management
- Smart Roads

# WHERE WE ARE

# WHERE WE TAKE YOU

## South Korea, a country devoid of oil.

#### **SENSORS FOR COW!**



#### 200 MB

of information per year.



## "The Internet of Everything will be 5 to 10 times more impactful in the next decade than the Entire Internet has been to date"

- John Chambers, Former CISCO CEO

## IOT COMPELLING BENEFITS

#### Cost Savings

(e.g. smart meters)

#### Improved Asset Utilization

- Tracking of assets

#### **Efficient Processes**

- real-time data to monitor
- reduce energy costs and minimize human intervention

#### Improved Productivity

 reducing the mismatch of required vs. available skills and improving labour efficiency

## **OVERCOMING CHALENGES**

- Identify the Potential of IoT
- Develop Robust Data Management Capabilities
- Develop strong Analytics Capabilities
- Recruit and Train Talent to Manage IoT
- Seek Help from Specialists to complement In-house Capabilities

Source: GE Estimates, Reaping the benefits on Internet of things -Cognizant Reports - May 2014

## IOT POLICY CONSIDERATIONS

- Data localization regulations and cloud-based servers where data may be analyzed
- The IoT has regulatory considerations span across Telecom, IT, Security and related Industries
  - Establish coordination mechanism in policy development and regulation
- Lack of Investments
  - Incentives for investments
  - Government initiatives for investments in industries like Agriculture
- Lack of Talent related to IoT Eco-System
  - Partnerships with Developed countries.
  - Alignment of University & Technical curricula

# WELCOME.TOF FUTURE