Orchestrating a brighter world

NEC

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The World Bank

NEC's Corporate Profile and ICT solutions for The World Bank's Smart City Knowledge Silo Breaker (KSB)

February 11, 2016

NEC Corporation

NEC Corporate Overview

Leading Social Value Innovator

Provides telecommunications,
IT and Enterprise business solutions *

- More than **100,000** employees worldwide
- About **USD 30 Billion** net sales
- **270** consolidated subsidiaries
- Headquarters: **Tokyo, Japan**
- **115 years** of brand success

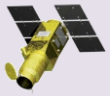
- World's Top 100 **Most Innovative Organizations****
- **Fortune Global 500** company

*Data as of March 31, 2014

****World's Top 100 Most Innovative Organizations for 2013 (Thomson Reuters)**

For Public

Public Safety


Satellite 「NEXTAR」

Digital Terrestrial TV Transmitters

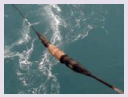
For Enterprise

Industry Solutions

Office Solutions

For Telecom Carrier

LTE Network Systems


Submarine Cable Systems

Microwave Communications Systems

For Smart Energy

Energy Management System

Electric Vehicle Charging System

Energy Storage System

Solutions

C&C Cloud Infrastructure | SDN Solution | Big Data

Products

Server

UNIVERGE
Unified Communications and Collaboration Solution

PC/Tablet

Display

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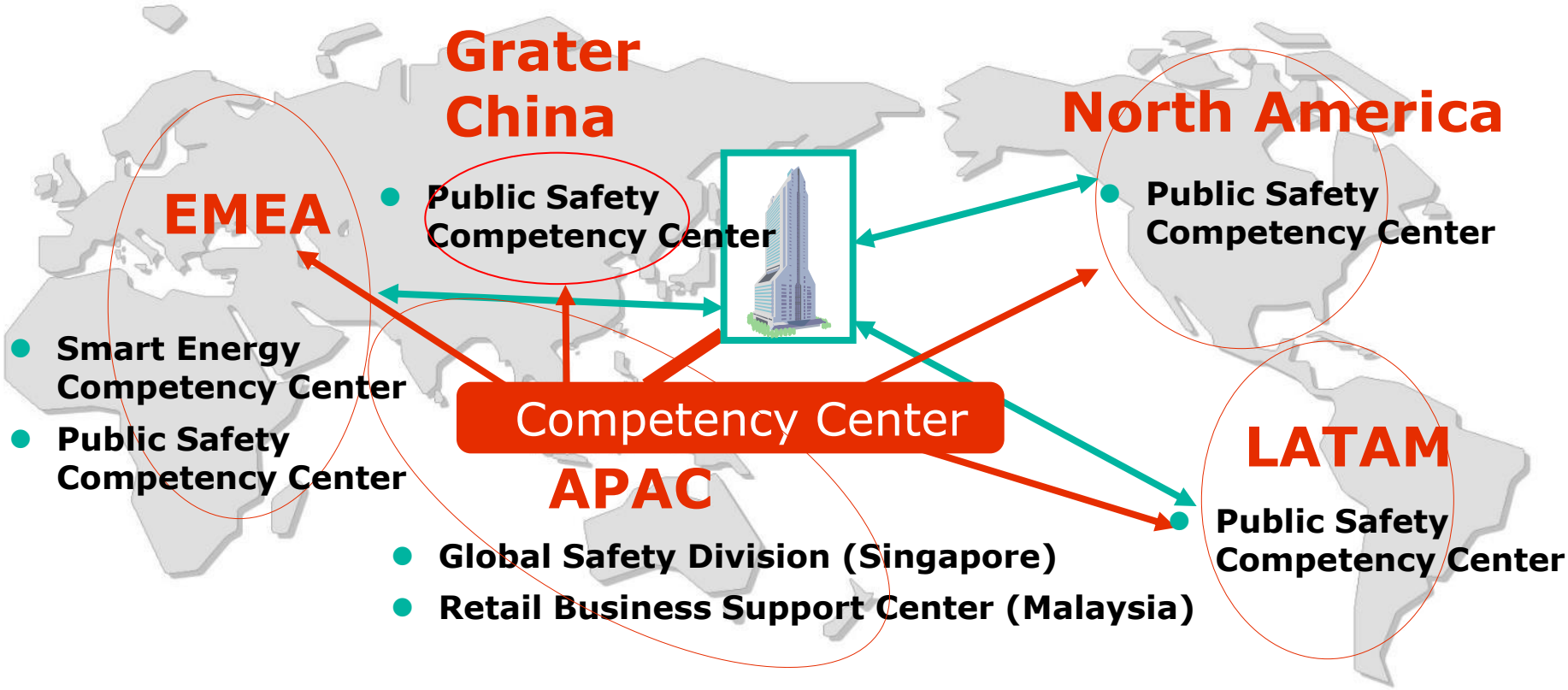
Worldwide: "One NEC" formation in 5 regions

- Portfolio Management
- Business expansion through Competency Center
- Corporate governance



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Top commitment to the SDGs

President
Nobuhiro Endo

NEC Annual Report 2015

NEC is participating in the United Nations Global Compact and proactively in international frameworks such as "Transforming our world: the 2030 Agenda for Sustainable Development".

NEC is striving to solve Social Issues through its ICT Solutions for the Society.

Sustainable Cities and Communities

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Building relations with the MDBs (Multilateral Development Banks)

<Inter-American Development Bank>

IDB Inter-American Development Bank

Panel discussion and NEC sponsored lunch at 2014 LAC Global Summit, Inter-American Development Bank (IDB)

<Asian Development Bank>

ADB ASIAN DEVELOPMENT BANK

NEC sponsored seminar at 2015 Annual Meeting, Asian Development Bank (ADB)

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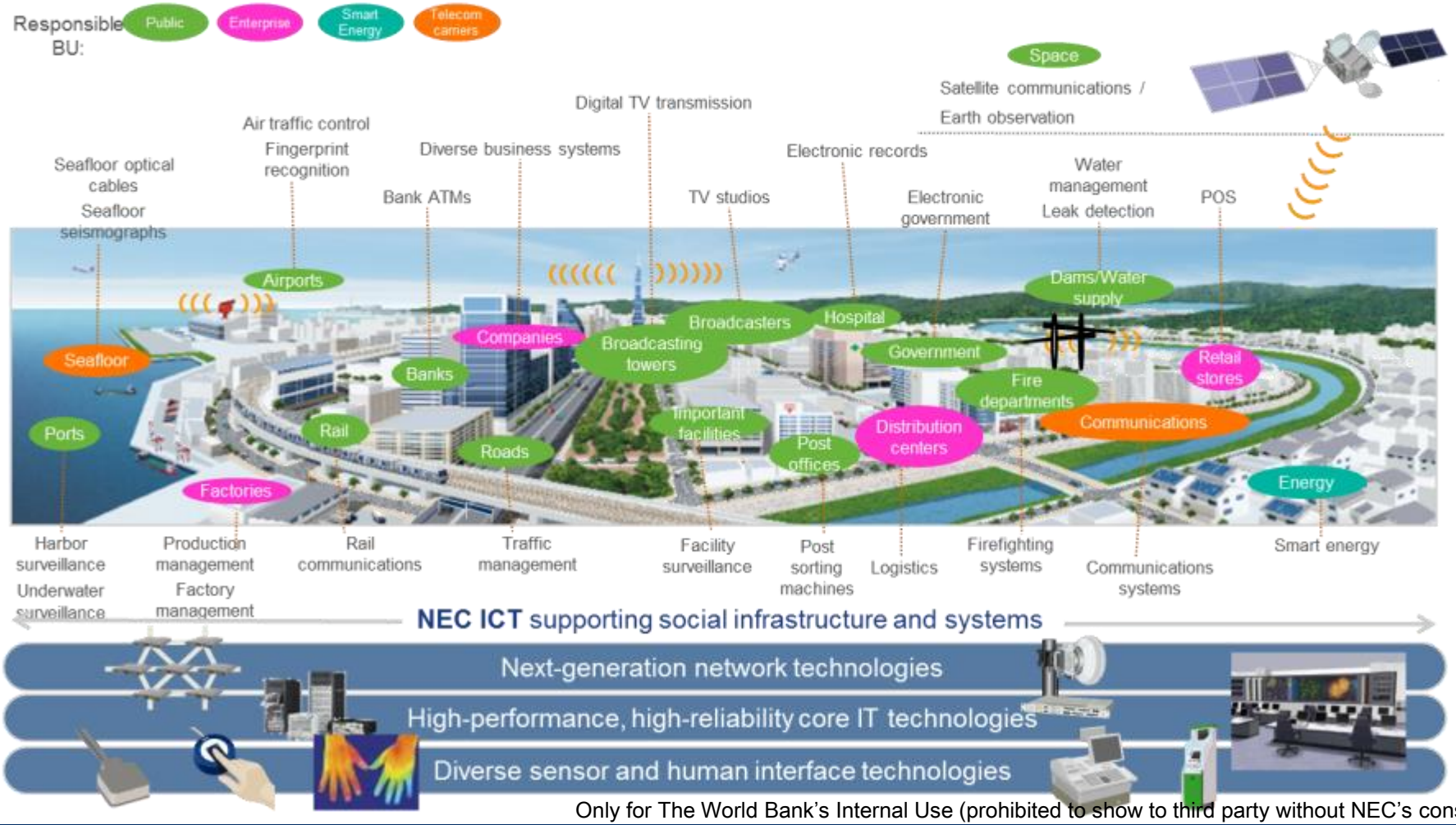
Supporting Smart Cities (1)

Leveraging our proven results and strong position for global expansion

- From the seafloor to outer space, concentrating management resources in areas in which social infrastructure will be innovated by ICT



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Supporting Smart Cities (2)

1. Broadband Network Expansion
2. Internet / Digital Access
3. Citizen Services (Identification)
4. Safer Cities
5. e-government
6. Disaster Management
7. Smart Energy
8. Smart Transportation
9. Smart Water

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1. Broadband Network Expansion

Wireless Broadband Network for the Rainforest in Peru

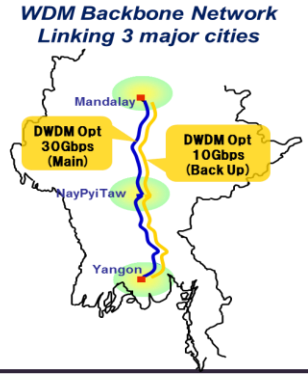
- Iquitos: City in Peruvian rainforest with around 500K population. The region could be reached only by air or boat.
- Only Satellite telecom access was available.
- The built network captured the new opportunities for development.
  370km distance
- PJ completed in 2014

Wireless Radio Backbone and Access in Zambia

- Boosted network coverage for major arterial routes not covered by optical fiber networks for main telecom operator in Zambia (Zamtel).
- Backbone : 286 Hops
- Access : 173 Hops
- Steel Towers : 60
- Installation & Training to be completed in September 2015.

National Backbone Network Creation in Myanmar

- Urgent improvement of Core and Metro fiber optical networks.
- The country is capable of transmitting 30Gbps & 10 Gbps in/between 3 major cities. (Yangon, Mandalay and Naypyidaw)
  50 LTE eNB and vEPC has been deployed in those cities.



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

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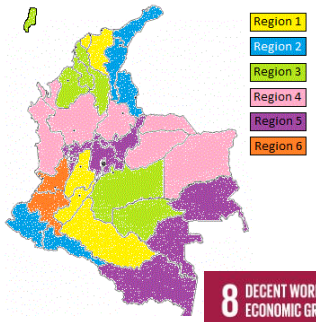
2. Internet / Digital Access

Contributed to the Improvement of the ICT Environment of Colombia's Local Municipalities.

- **Outline**: National Rural Digital Project
- **Contract** : December 2013
- **Customer**: MinTIC
- **Schedule**: 3.5 years
- **SoW**: Computers, Printers, IP Telephony, WiFi, Monitor, Full Implementation, Operation and ICT training for the end-users.

Note: More than 4,200 ICT room has constructed with high speed internet connection and around 1000 rooms have been constructed by NEC.



Wifi Construction Contributed to the Improvement of the ICT and Internet Access in Education for Colombia

- **Outline**: Net access improvement project of school by the Ministry of Education
- **Awarded**: April 2014
- **Customer**: the Ministry of Education of Bogota City
- **Schedule**: 3 years
- **SoW**: Equipment, Implementation, 3 years Support

- Around 300 major public schools

BOGOTÁ ZONA WiFi GRATIS

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3. Citizen Services(1)National ID

National ID System in South Africa

- Positive Identification
- Passport Service
- Registration for Election
- Pension Payment Service
- Immigration Control
- System is operating since 2001.

DB: 70 Mil persons DB

Lagos State Resident ID in Nigeria

- System was implemented in 2014.
- Supplied Backend system for Fingerprint identification. and Face recognition

DB: 10 Mil persons DB

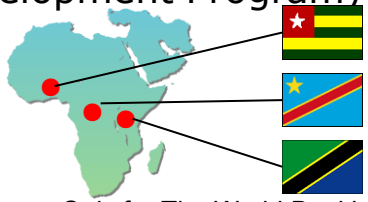
Voting ID System in Bolivia

- NEC supplied AFIS for fingerprint and facial Identification
- System was implemented in 2010.

DB: 10 Mil persons DB

Collaborating with UNHCR/UNDP

- Provided refugee registration system and voting registration system utilized by our fingerprint technology collaborating with UNHCR(United Nations High Commissioner for Refugees) and UNDP(United Nations Development Program)



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

16 PEACE AND JUSTICE STRONG INSTITUTIONS

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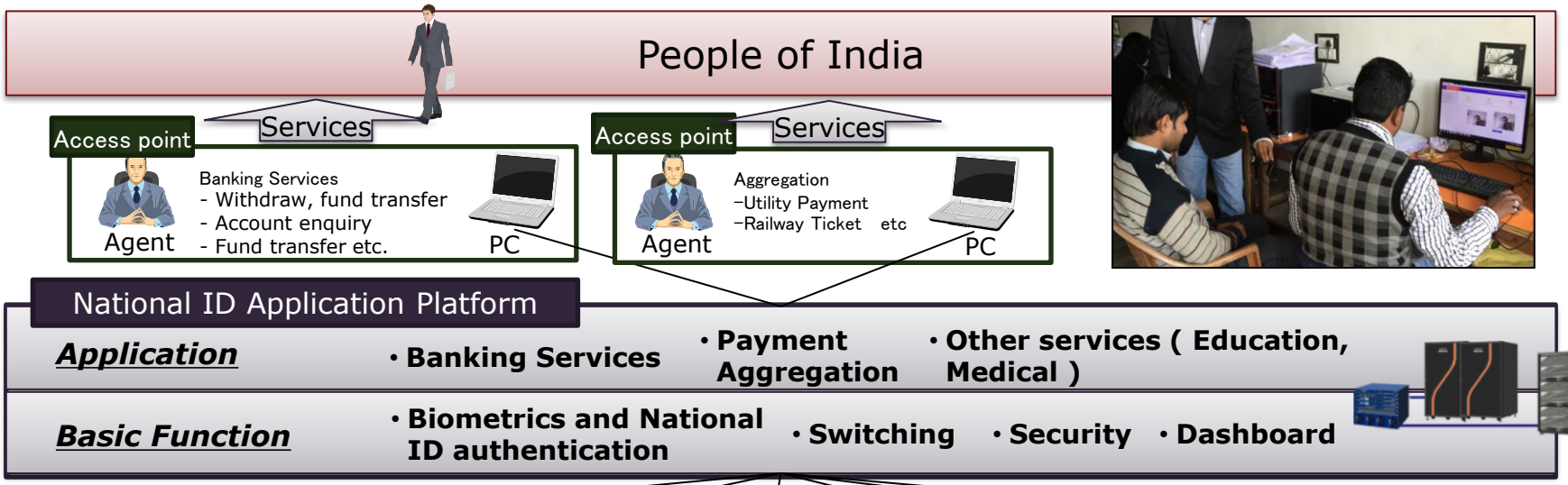
3. Citizen Services (2) Financial Inclusion

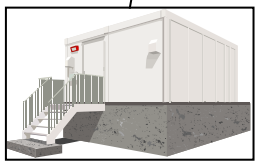
Financial Inclusion with National ID in India

- NEC provide a various of services with national ID to Indian citizen for promoting sustainable and inclusive economic growth.
- As a first step NEC contributes to Financial Inclusion to collaborate with banks, after NEC expands to other areas such as public services, education and so on.

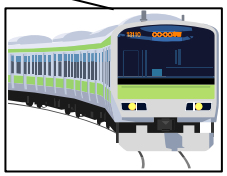


<National ID>
UIDAI

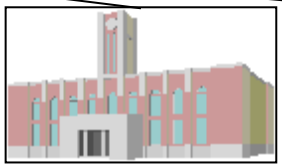
Bank



Public Services



Railway



Education

. . .

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4. Safer Cities (1) Tigre City

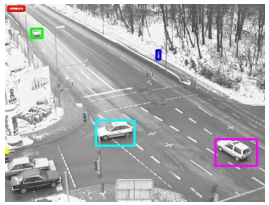
Urban Video Surveillance Solution in Tigre, Argentina

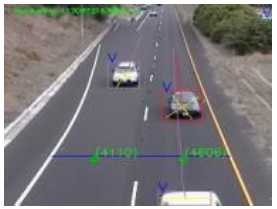
- 4,135 cameras installed out of 5,580 cameras delivered
- Command and control system and state-of-the-art optional functions
- Implemented in 12 cities
  - Face Recognition (3 Consecutive Win in the NIST Competitions)
  - Behavior Analysis
  - Number Plate Recognition

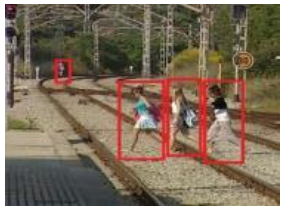
Crimes
Robbery
Kidnapping
Drug dealing
Intrusion
Terrorism

Traffic incidences
Dangerous behaviors
Traffic Accidents

Other incidences
Demonstrations
Fights
Proof collecting







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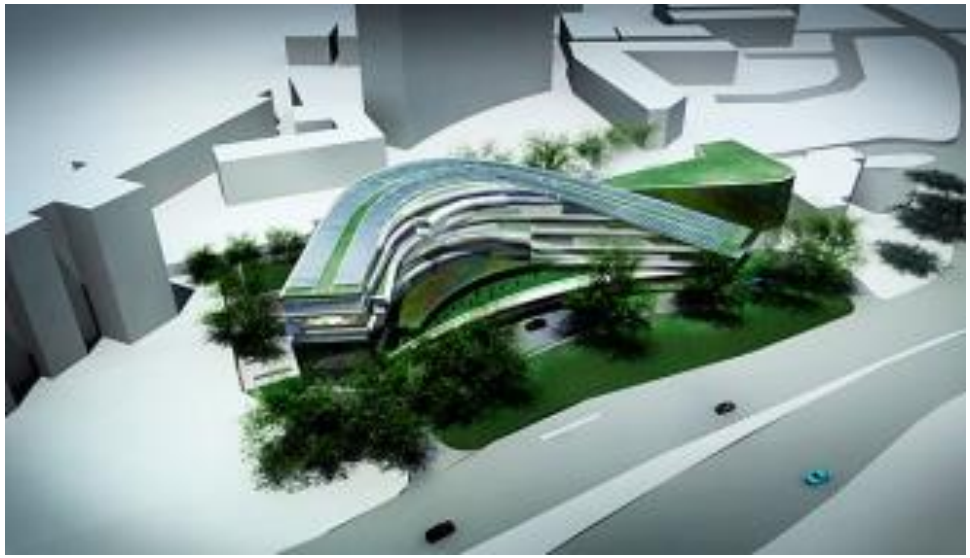
4. Safer Cities (2) INTERPOL STRATEGIC PARTNER

Cyber Security with INTERPOL

- INTERPOL and NEC signed partnership agreement to enhance cyber security.
- NEC will provide systems and personnel for investigating/analyzing information related to cyber security threats,
- The aim is combining INTERPOL's international police networks and NEC's cutting-edge cyber security solutions to investigate and analyze cybercrime.

INTERPOL | STRATEGIC PARTNER

Grand Opening Event
in April 2015



INTERPOL Global Complex for Innovation (IGCI) in Singapore

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5. e-government (1) Smart Santander CCOC

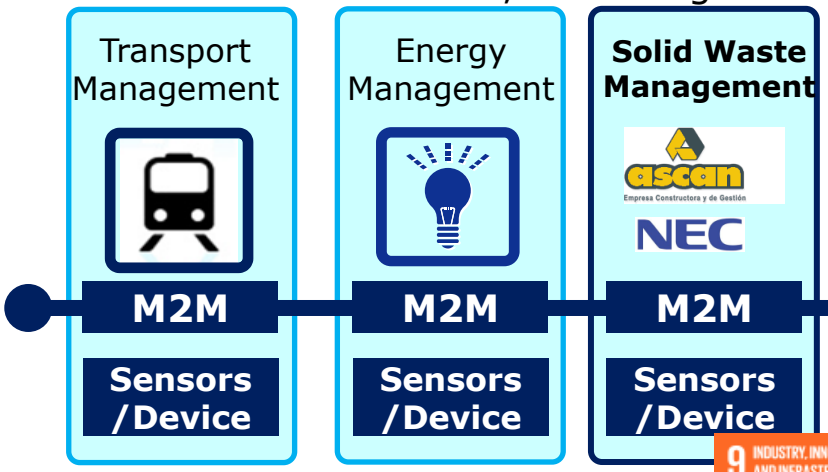
Cloud City Operation Center (CCOC) in Spain

Integrated Services fo Citizens, Govern and Enterprises

NEC's CCOC

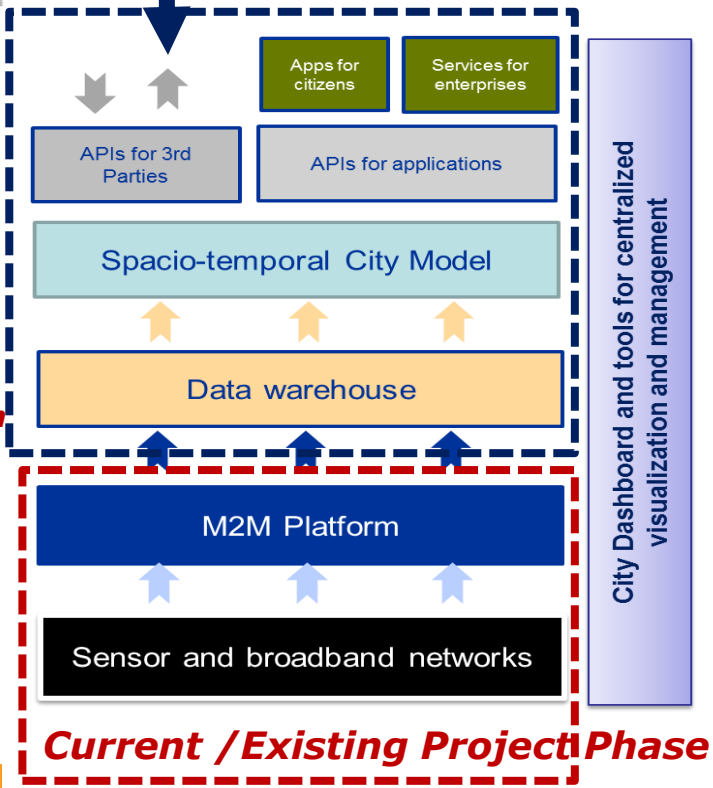
Visualize the process in real-time through Portal

Monitors industry vendors as sub-system integration (water, energy, transport, etc.) directly connect their IT own platforms to the Cloud City Operation Center or to the Data Warehouse, for data gathering



Sub-System Integration via API's

Others



Current /Existing Project Phase

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5. e-government (2) e-San Luis

Public Administration Services in Argentina

Telecommunication Infrastructure Backbone

Radio (830 km)

Optical Fiber (200 Km)

Main cities

Data Center

Points of Presence

- 957 : Point of presence connected to Internet
- 3.500: Work Area (Network connections)
- 1.700: PCs
- 10 : Multimedia Kiosk
- 16 : PABX

Services

- **Public Safety**
- **Education**
- **HealthCare**
- **Civil Registry**
- **Portal**

300.000 Man Hours (2 year, 80 p.)
3.5 Million code line
21 Applications

(2001-2005)

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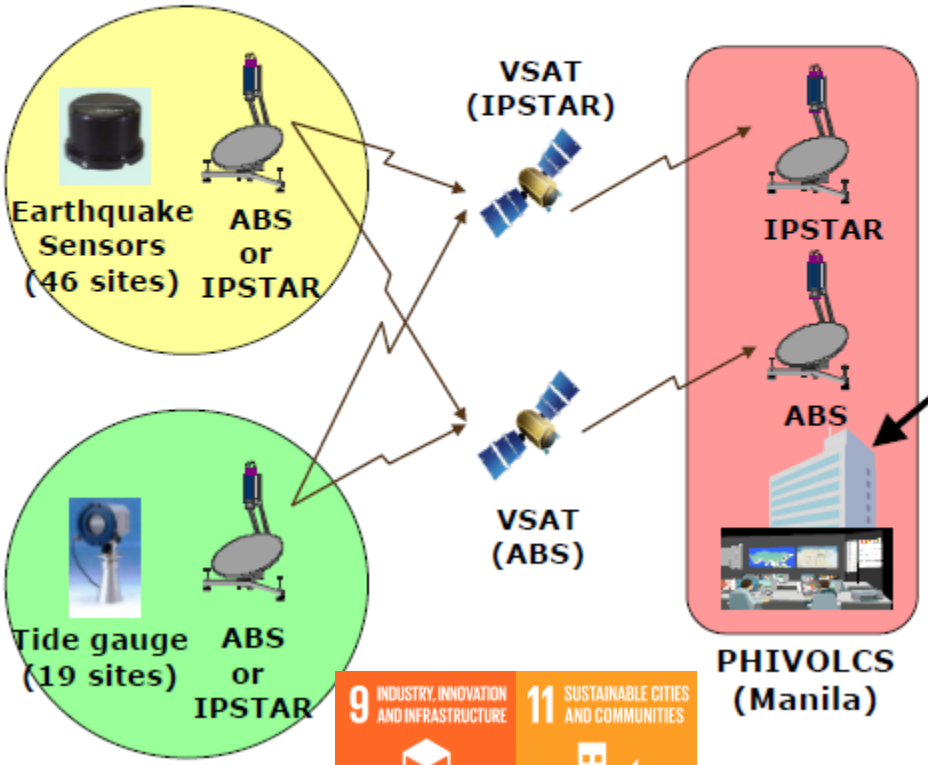
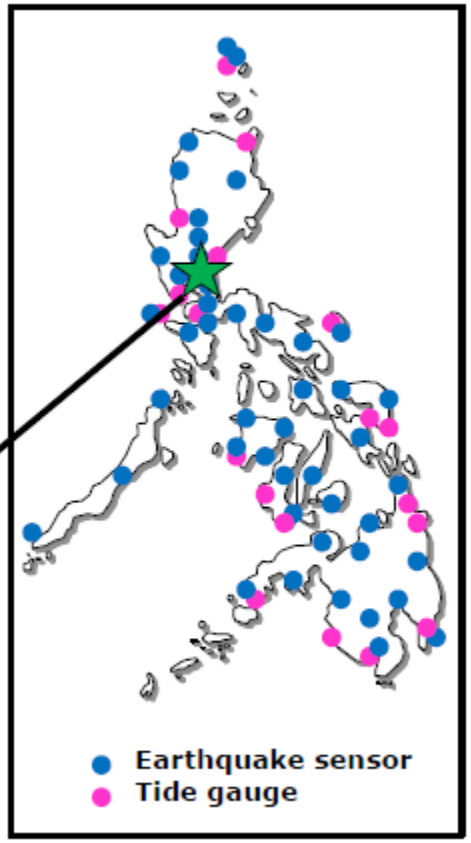
6. Disaster Management

Earthquake and Tsunami Monitoring in Philippines

Overview

1. Order : February, 2014 (from JICS)
2. Customer : Philippine Institute of Volcanology and Seismology (PHIVOLCS)





The Republic of the Philippine

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7. Smart Energy

Large Scale ESS Pilot in ENEL Distribuzione in Italy

- NEC Lithium Ion battery: 2MW/2MWh
- Inauguration: May, 2014
- Purpose: Improve service quality and continuity for alternative energy sources by compensating for power fluctuations

Installation and Commission in Italy

Inauguration Ceremony (15th May 2014)

Location; Calabria, Italy

7 AFFORDABLE AND CLEAN ENERGY

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8. Smart Transportation

Smart Transportation (BRT) in Pune, India

Pune Mirror

BRT passes the test

By Sukirt Gumaste, Pune Mirror | Apr 7, 2015, 02.30 AM IST

ITMS in place for Vishu
to be operational from

After much delay and amid
Pune Mahanagar Parivaha
(PMPML) finally conducte
Intelligent Traffic Manage
the Bus Rapid Transit (BR
Sangamwadi bridge to Vish

Along with officials from P
from both municipal corpo
mayor were present at the
officials presented a demo
during the journey.

Sakal Times

14 May 2015 | Last updated 02:19 PM

PMPML starts trials of ITMS

Reporters Name | ST Correspondent | Monday, 6 April 2015 AT 11:46 PM IST

PMPML, Intelligent Traffic Management System, ITMS, Alandi road, BRTS, public transport, bus shelters, Pune

SHIVAJINAGAR: The Pune Mahanagar Parivahan Mahamandal Limited (PMPML) on Monday started the trials of the Intelligent Traffic Management System (ITMS) on the Alandi Road corridor of the Bus Rapid Transit System (BRTS).

Mayor Dattatraya Dhankawade, Standing Committee Chairman Ashwini Kadam and PMPML Director Vijay Deshmukh took review of the trials and instructed PMPML to install ITMS in all buses and bus shelters speedily

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11 SUSTAINABLE CITIES AND COMMUNITIES

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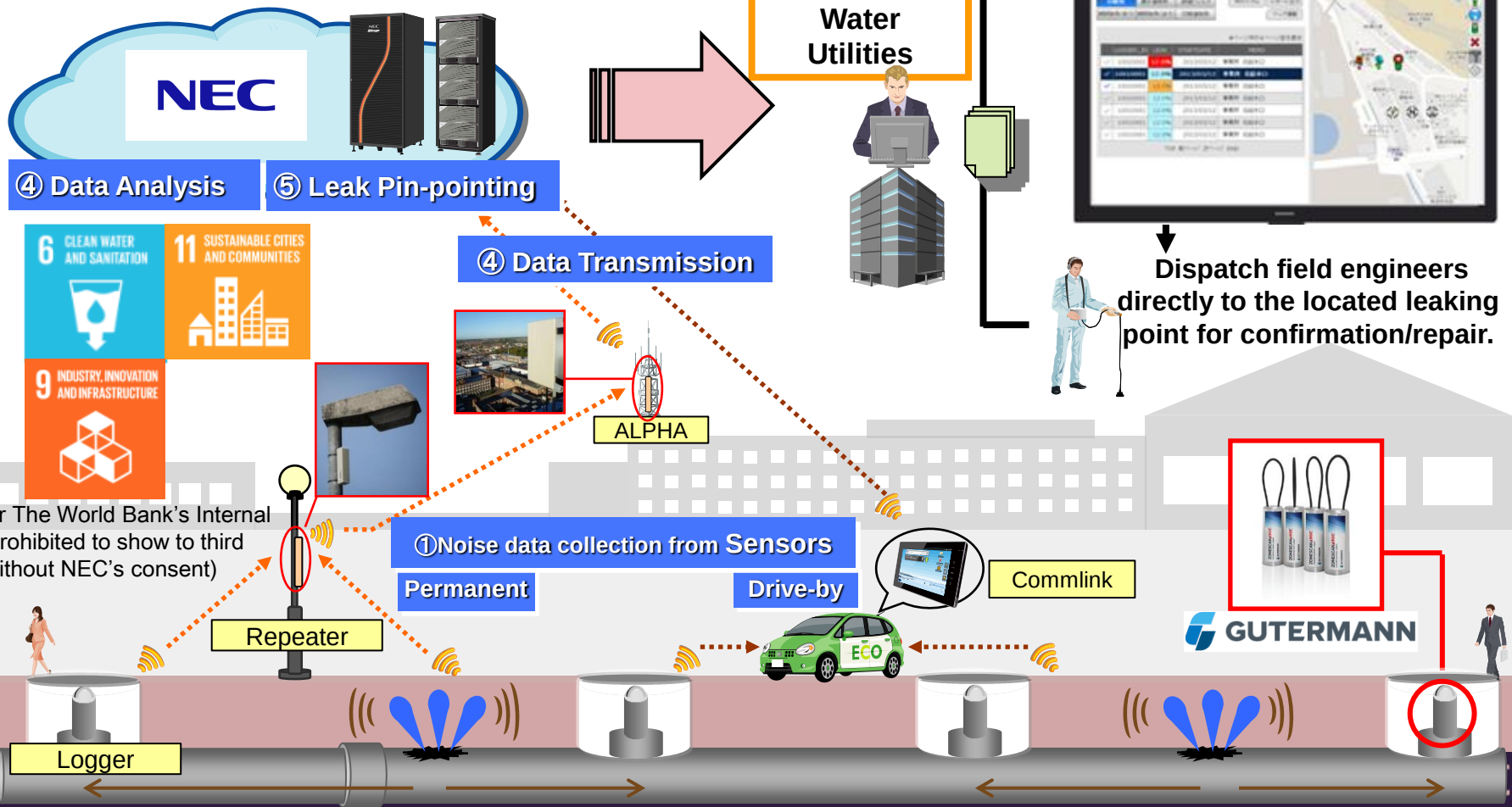
9. Smart Water

Water Leak Detection Solution

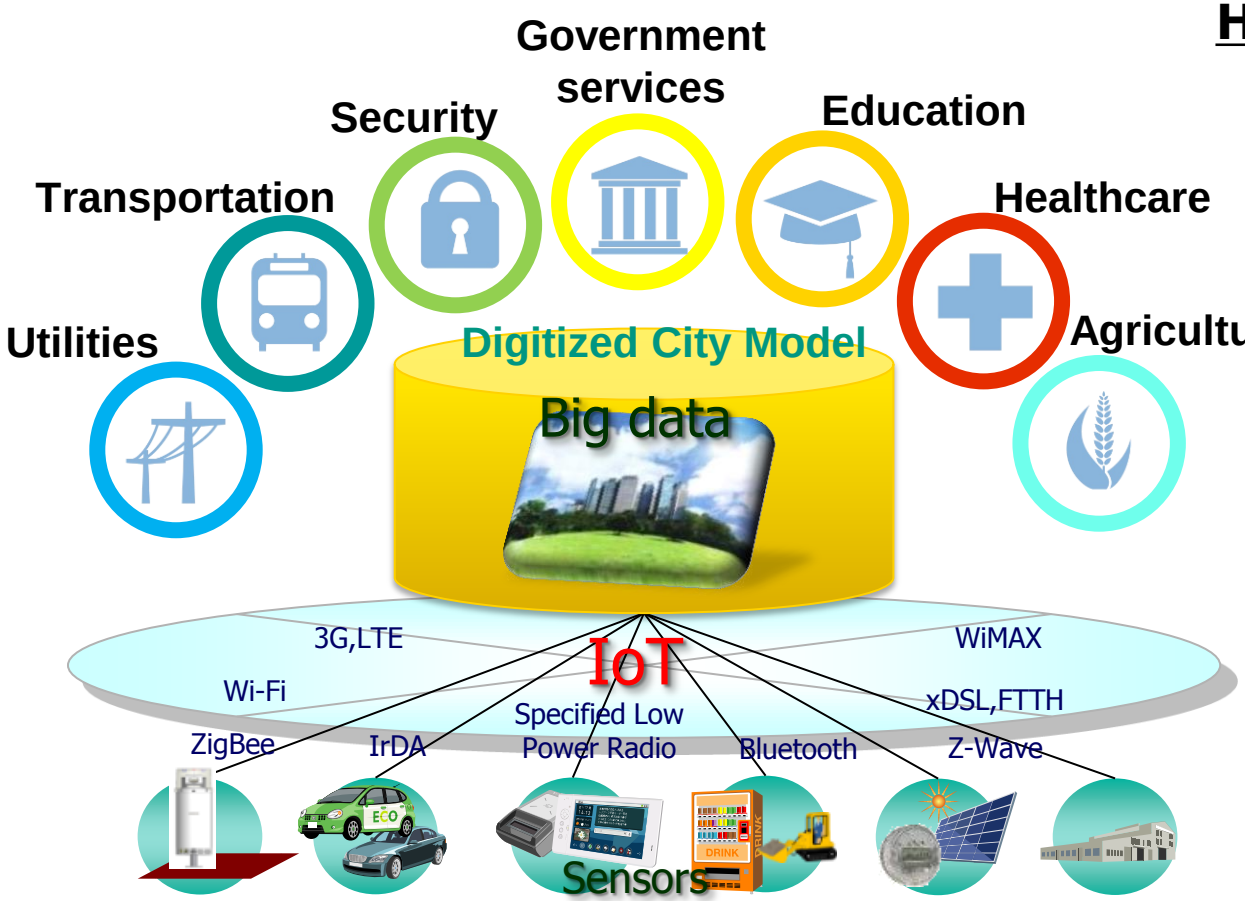
- ☑ **NEC's cloud based system allows you to continuously monitor and easily analyze leak noise characteristic within the pipe network.**
- ☑ **The system will detect and identify the presence and location of the leak with high accuracy which can minimize the leakage damage.**



Smart Cities – Sustainable Business Model

- **There are many Agendas in Smart Cities…**
- **Common Challenges : Creating Sustainable Business Model**

---> Common Platforms (Horizontal) are necessary to break the Silos



Horizontal Platforms

- Bio Identification
- Video Analytics
- Machine Learning Analytics Engines
  "HML", "SIAT"
- Cloud Platform
- Data Center
- IoT Platform
  "Connexive"
- SDN/NFV Network

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