Korea’s IoT Policy and Current Status

Digital Planet Strategy 2020

Convergence of New Industry Division
Internet Convergence Policy Bureau
K-ICT Convergence Strategy of the Korean Government

Develop new ICT convergence industries through IoT and Big data policies
I. IoT Implementation Plan
Current Status of IoT Industry in Korea and Policy Implications

**IoT Industry Status**

- **(Demand)** Though IoT market is expected to show explosive growth, *lack of initial demand*, which would serve as a catalyst for growth, is *currently causing market stagnation*.

- **(Supply)** There is a *lack of basic technologies for key areas of the IoT industry such as wearable, device, and sensor technologies*; innovative competencies of individual businesses in terms of *commercialization of ideas and global market entry* need to be concentrated.

- **(Infrastructure)** There is a lack of infrastructure for *industry-wide convergence* and *expansion of the platform, network, security, and other IoT markets*.

**Policy Implications**

- We need to create the *initial demand* for the market, which will pump-prime the IoT industry growth.

- We need to build capacity of sustainable IoT businesses based on the *public-private partnership*.

- We need to establish a *safer and more efficient infrastructure* for expanding the IoT ecosystem.
Build a demonstration complex for IoT-based healthcare

- Monitoring of life patterns like eating habits, posture, sleeping time, and other health data
- Disease prediction, diagnosis, and prescription based upon data analysis
- Healthcare notification and guide based on data monitoring
- Regular report and notification of symptoms based on data analysis
- Biometric information monitoring
- Emergency notification
- Medication and treatment
- Smart Ambulance

Build a demonstration complex for IoT-based smart city

- Provision of citizen participatory services and provider information
- Facilitate energy supply and improve energy efficiency through energy resource management
- Improved traffic flow and provide convenience for citizens by solving transport problems in cities
- Offer a pleasant city environment through management of city environment and facilities
- Provide safe city life through integration and management of various social safety networks
- Facilitate economic life in cities through well-connected and managed leisure programs

- Develop open platforms for smart city and healthcare based on global standards (Government of Busan and SKT)
- Develop, demonstrate and facilitate promising services for smart city and healthcare (Government of Daegu and KT)
Constant Creation of Initial Demand to Facilitate Private Sector Investment
- (Collaboration with local governments) Establishment of a large-scale demonstration complex to facilitate commercialization of IoT (2/2)

Support SMEs and venture companies’ demonstration and commercialization

Smart City/ Healthcare Demonstration Support Center → Provision of environment (Open Lab, technical support, etc.) for development
II. Smart City Project and Open Platform
Busan metropolitan city

- Second largest city in S. Korea (population of 3.6 M)
- Fifth busiest container port in the world (17 M TEU per year)
- Logistics, transportation, and tourism
- Located at Centum City area, Haeundae-gu, Busan metropolitan city
- First IoT-based Smart City in Korea
Haeundae-gu, Busan metropolitan city

- Korean government funds (over $43M USD) - Ministry of Science, ICT and Future Planning
- 32 months (started May 2015)
- About 20 participants including Busan local government
- Coordinator: SK telecom (largest mobile network operator in Korea)
- First deployment scheduled at the end of 2015
Project Consortium

Haeundae Global Smarty City Consortium

Platforms
- SK telecom
  - Smart City Platform
- KETI
  - Device platform, City-to-City
- ETRI
  - Interworking with other platforms

Services
- IDOLINK
  - Safety and Security
- Smart parking
- Smart streetlight, crosswalk

Analysis
- Dasan
  - Big data analysis
- IoT security

Organization
- Participants from industry, academia, and research bodies

Global collaboration
- Heterogeneous IoT platform interworking, city-to-city interworking

Innovative business model
- SMEs commercialization and business support

Commerciaлизation
- Governance & publicization support
  - Evaluation & commercialization support
Project Approach

**Vision**

- **Global Reference Smart City**
- **Sustainable City**
- **IoT-centered Knowledge City**

**Project Orientation**

- **Establish Open Smart City Platform**
  - Global standards-based framework based on proven open platform deployment

- **Demonstrate Smart City Services**
  - Citizen-participatory services creation
  - Test-bed in Busan

- **Operate Test-bed Center**
  - Public IoT ecosystem for Industry-Scholar collaboration
  - Nurturing infrastructure for SMEs and startups

**Win Strategies**

- **Strategy 01**
  - Establish global standards (oneM2M) based open Smart City platform

- **Strategy 02**
  - Enhance Citizen-participatory Smart City services

- **Strategy 03**
  - Utilize smart sensing-based infrastructure

- **Strategy 04**
  - Revitalize economy through establishment of virtuous ecosystem

- **Strategy 05**
  - Expand overseas through Global City-to-City connection
Global standards-based open Smart City Platform
Expand overseas through Global City-to-City connection
Smart City Platform Architecture
**Smart City Services (1/3)**

### Safety service for Children and the old
- A smart location management and a service of smart education supporting which are based on the free communications for the disadvantaged people such as the demented elderly, disabled people, children, infants.

### Smart marine safety based on drone
- In order to prevent coast and marine accidents, a drone with device of video transmission and automated pilot devices based on LTE controls the site in real-time.

**Diagram:**
- **LTE drone**
  - Information and image on aircraft
  - Commercial LTE network
  - Command aircraft control
- **Control server (Busan Univ.)**
  - Image
  - Command the aircraft control
  - Information on aircraft status
- **Central control computer**
  - Image
  - Command the manual flight (in emergency)
- **Safety Pilot (Battery exchange and servicing the aircraft)**
  - Image
  - Operating PC
- **Gateway**
  - CCTV image, health check with location service
- **GW example of existing installment**
- **Provision of Integrated service**
  - CCTV image, health check with location service
- **Cost saving due to the first utilization of service based on LPWA (LoRa)**

**Application of auto pilot control with only domestic technology**
**The national first unmanned marine surveillance/Implementation of control system**
Smart City Services (2/3)

Smart Parking

- It is possible for users to be provided information on the location, parking fee, image of parking lot, and etc. due to the application of a terrestrial magnetism sensor in real-time.

1. Implement the location mapping
   - Installation of sensor, video camera, and gateway

2. Search for available parking
   - Searching for real-time information on available parking lots: location, distance, fee

3. Linkage with navigation
   - Linking with Tmap
   - Linking with applications without input the destination

4. Monitor the parking lot
   - Real-time video information
   - Battery information for parking sensor

5. Save the maintenance
   - Fee due to implementation with terrestrial magnetism sensor

- The national first large-scale exemplification
- Of outdoor parking lot

- Provision of real-time information on Availability

Smart Crosswalk

- The smart crosswalk provides audio guidance service and has a detection sensor for pedestrian safety. In addition, it leads drivers to observe the stop line.

- The national first crosswalk for protecting both driver and pedestrian
- The national first realization of crackdown and guidance for breaking the stop line
- Collection of basic data for reinforcing the traffic safety facilities

- Guidance for the driver who broke the stop line via LED display
- The sub-device for audio guidance in the smart crosswalk
- Provision of LED lamp in the pedestrian signal
- Data collection and analysis via platform
- Command center
- Control network for traffic light
- Police Agency
Smart City Services (3/3)

**Energy and environment management in the store**

- Monitoring and informing the indoor environment and amount of electricity used for each device in the store
- Diagnosis on overuse and saving the electric charge through derivation of saving plan

**Context-aware evacuation guidance system**

- When the disaster happens, the system recognize situation automatically. At the same time, evacuation guidance will be performed.
- Effective guidance for each disaster and suitable location

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**Service Rule Engine**

- Sensor on disaster status
- Evacuation algorithm
- Notice

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**Evacuation information station**

- Spark sensor
- Gas and smoke sensor
- Access sensor
- Intelligent CCTV

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**A Store**

- Real-time monitoring and setting through the user application
- A common platform for the smart city
- Service platform for smart store
- Gateway

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**Headquarter**

- Real-time monitoring and informing service the amount of electricity used for each device
- Coordination and control the electricity usage linked with indoor environment
- Detection of device’s errors through analysis on electricity usage pattern in advance

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**Sensor on convenient stores**

- Temperature
- Amount of electricity used
- Door
- Camera
- CO₂

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**Operation input data (Manual)**

- Establishment and distribution the common regulation for saving electricity usage
- Monitoring, comparison and analysis on current store status
- Detection and prevention of error in advance
Thank you