Introduction of
KT **Smart City**

01 **KT's Smart City Framework**

KT, based on strengths on IoT, Cloud, Big Data, and AI, uses network and platform to solve issues arising from cities and maximize city value

Culture/Tour · Welfare/Admi-nistration · Environment · Safety · Traffic

KT Smart City Platform

**Wired & Wireless Network Infra
(5G, LTE, LTE-M, NB-IoT, Wi-Fi etc)**

IoT · **AI** · **Cloud** · **Big Data** · **Mobile**
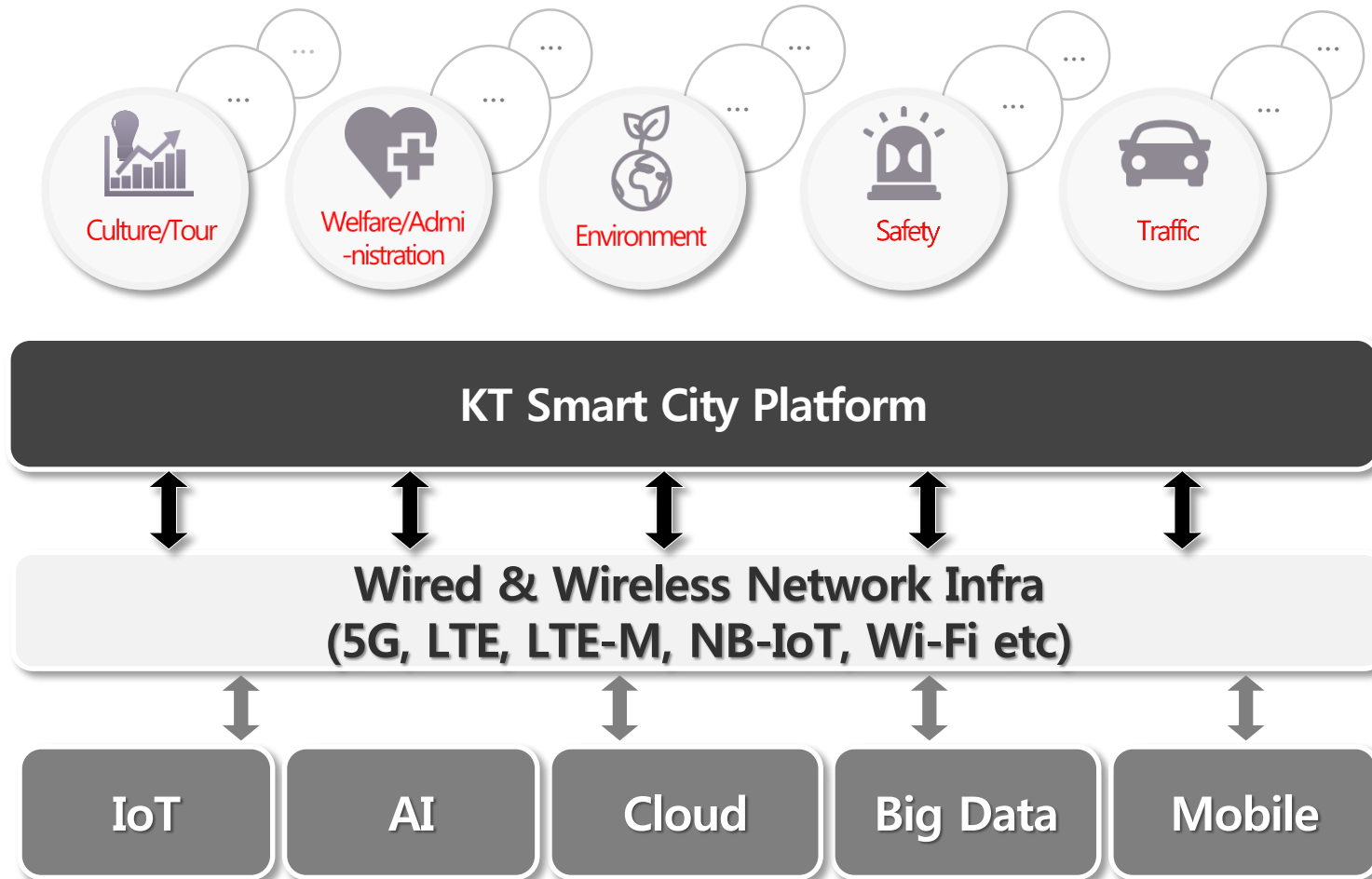
02 ## Network - Backbone for Smart City Services

A variety of value added services can be delivered via 5G to NB-IoT network

5G Network	Location-base Infra	NB-IoT	Wired/Wireless Network
✓ Data traffic acceptance (1,000 times more than 4G) ✓ Applying & verifying 5G tech at PyeongChang Olympic	✓ Public Wifi, LTE, Beacon infra ✓ More than 310,000 location-base Infra countrywide	✓ Low power consumption, cost efficiency, & outdoor coverage based on global standard IoT Network	✓ Biggest service provider for wired/wireless network
Innovative	*Accurate*	*Economic*	*Trustworthy*

03 KT's Smart Services

KT has various smart city services in the area of traffic, safety, administration, environment, energy etc., that can be customized for each customer's needs

04 # KT's Plan for Smart City Business

KT aims to improve life quality and city value with proven capabilities and differentiated competitiveness

Demand Analysis

City Environment

User Analysis

Tech/ System

Connected Car	Environ-ment	Energy/ Safety	Culture/ Tour

Sensor	H/W	Device

platform	Network

More than 60 projects involved for more than 13 years

Strategic Planning (+12)

Implementation (+20)

Design (+11)

Global Business (+15)

+

Competitiveness

5G — First release worldwide

NB-IoT — Nationwide Commercialization

AI/Blockchain — AI TV GiGA Genie

Big Data — Bus route analysis during nighttime

IoTMakers — Open Platform

6 Key Areas

Traffic

Safety

Admin.

Environ-ment

Energy

Welfare

Life Quality

City Value

05 KT's Smart City References

With various experiences in Smart City development and more than 60 Smart City references, KT is actively expanding its smart city expertise globally as well as domestically

Global References

Irkutsk Smart City ICT Plan
Russia Tolyatti
● **Russia**

Qatar Smart City Demo Lab
Lusail Smart City

Korea

Aseana City PSS
BCDA Clark Green City

Algeria

Qatar

Algeri Sidi Abdella
U-City Master Plan

● **UAE**

The Philippines

Masdar Smart City
Aldar Al Raha Beach
Feasibility Study

Malaysia

Nusajaya ICT Master Plan

15 *CASES*	**Malaysia** **Nusajaya ICT Master Plan ('11)** **The Philippines** **Aseana City Public Safety & Security Design & Construction ('13)** **Qatar** **Qatar Smart City Demo Lab 1st & 2nd ('13-15)**

Domestic References

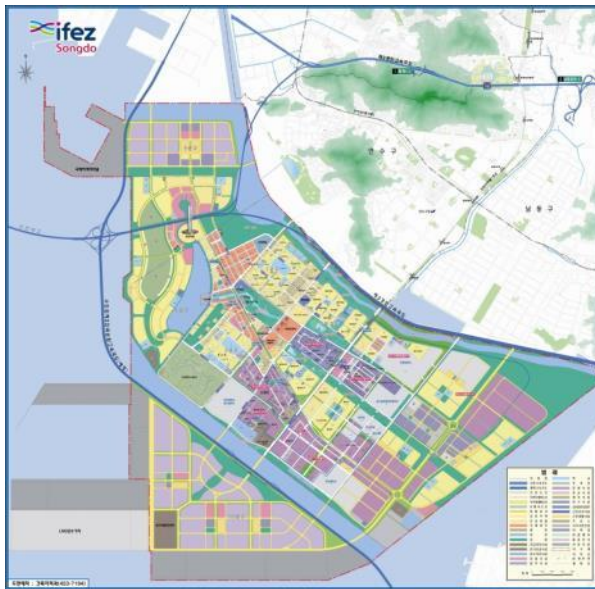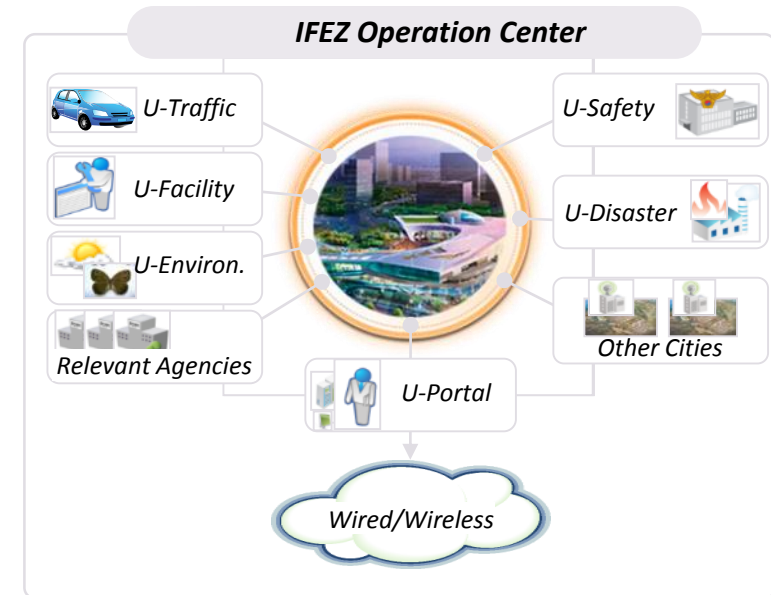| **48** *CASES*	**South Korea** **Dongtan U-City Design & Construction ('05)** **Gwanggyo U-City Design & Construction ('09)** **Sihwa MTV U-City Construction ('12-16)** **Songdo Smart City Consulting & Design ('13)**

1. Songdo Smart City

Songdo, a leading Smart City

Separate ICT Planning, Design, Implementation and Operation subjects has been implemented for developing Songdo smart city

- *Total area : 5,340 Ha (53.4 km^2)*
- *Population : 130,000*
- *Budget : 7,670M US$*
- *Implementation of U-Public service with IOC (Integrated Operation Center)*

IFEZ Operation Center

U-Traffic

U-Facility

U-Environ.

Relevant Agencies

U-Safety

U-Disaster

Other Cities

U-Portal

Wired/Wireless

Major ICT Projects for Songdo

IFEZ ISP*
2005

City IOC USP
2008

1~4 Blocks U-City Detail Design
2010

5·7 Blocks U-City Detail Design
2011

U-City Implement Phase 1
2014

U-City Implement Phase 2
2017

U-City Implement Phase 3
...

* ISP : ICT Strategy Planning

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2. Pankyo Smart City

Pankyo, Autonomous Vehicle Cluster

KT is building the world first autonomous vehicle cluster in the tech savvy startup district in Pankyo and targeting to complete the project by 2019.

Pankyo Autonomous Vehicle Cluster Construction Project

Self-driving Control

Self-driving Communication

IoT Service

Startup Fostering

경기도 '판교제로시티 자율주행 실증단지 조성사업', 국토부 업무계획에 포함

한국경제신문
2017.1.15

경기도가 자율주행차 대중화를 위해 추진하는 '판교제로시티 자율주행 실증단지 조성사업'이 빠르게 추진될 전망이다. 국토교통부가 올해 업무 계획에 오는 12월까지 판교제로시티 자율주행 셔틀 서비스 개시 계획을 담았기 때문이다.
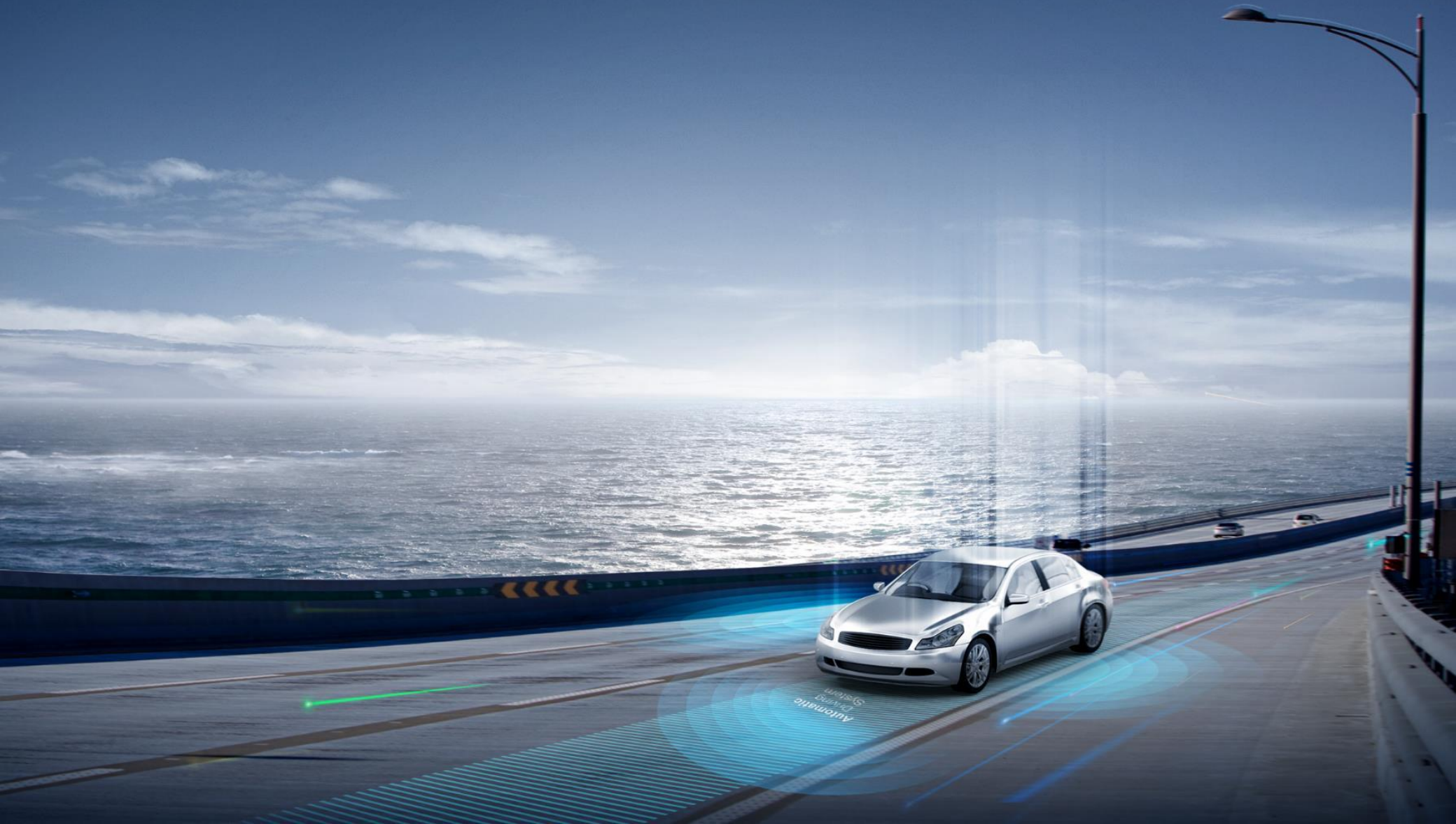
5일 도에 따르면 국토부 업무계획에 판교제로시티 내에 일반인들이 탑승할 수 있는 자율주행 셔틀 서비스를 도입하는 경기도 자율주행 셔틀 서비스 도입 계획이 담겼다.

To test and verify self-driving technology for local and global companies

To apply KT's IoT platform with proven references and construct IoT services

To construct big data system based on KT's analysis on the traffic data

3. Jeju C-ITS Project

Jeju, Cooperative-Intelligent Transport Systems(C-ITS)

Area Coverage

| Network of Major Roads in Jeju, 300km |

- '18년도(1차년)
- '19년도(2차년)
- '20년도(3차년)

- Phase 1(2018)
- Phase 2(2019)

Details

Building Center System

- H/W, N/W System
- Integrated Operation Device & Program for the Center & Display Board
- Creating Highly Precise Map
- Supporting promotion & public relations

On-site Support Equipment

- Vehicle Device, Road Station
- Sudden Detector / Pedestrian Detector
- CCTV, Weather Data Collection Equipment
- National Police Agency Standard Signal Controller
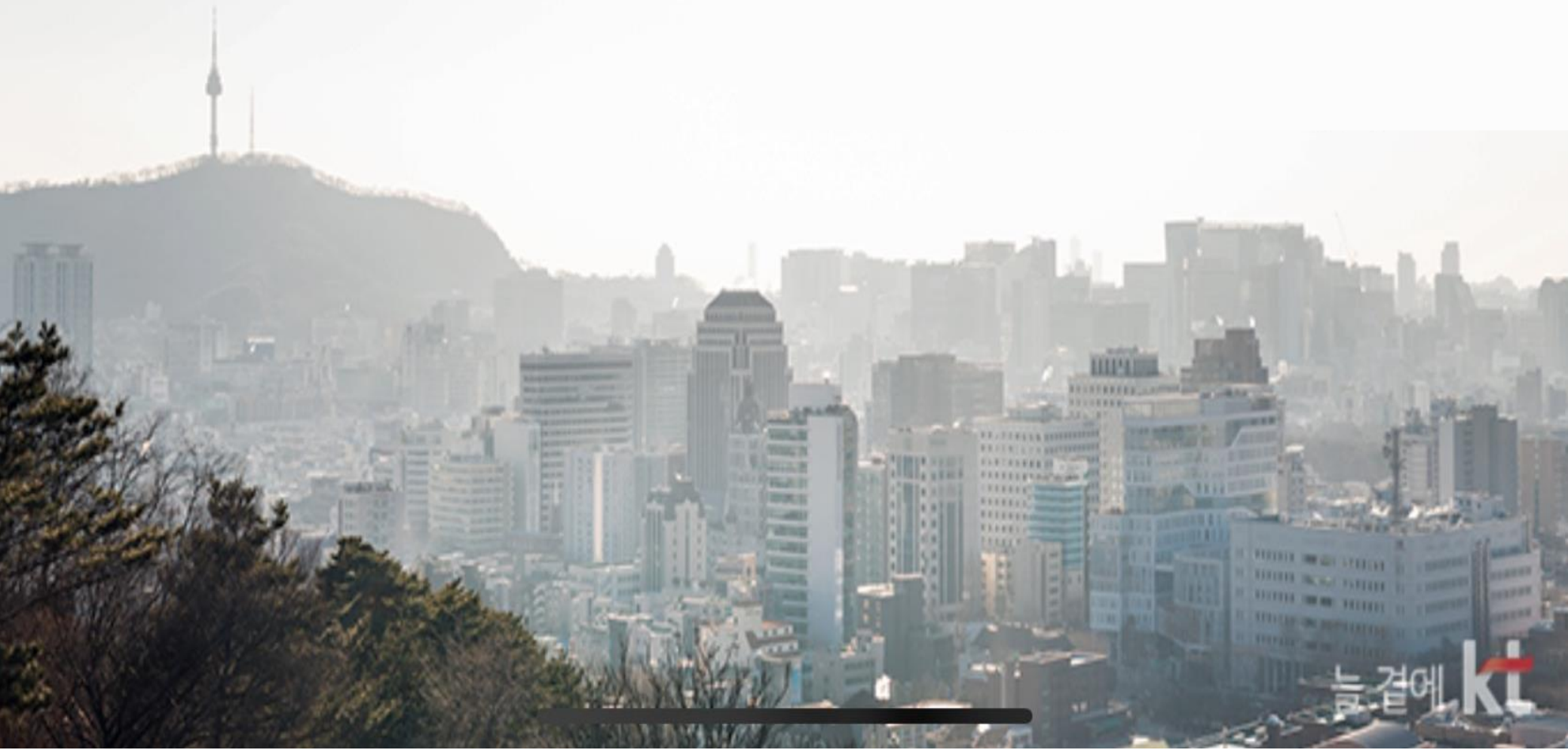- Parking Information System, e-Call Device

Jeju C-ITS Services

- 15 C-ITS Service
- Building Testbed for Self-cooperative driving

Special Proposal

- LTE Network Exclusive for C-ITS
- Very Precise Measurement Solution
- Public Demonstration for Self-driving Bus
- Providing Jeju Special Tour Information
- Monitoring the area in which accidents can happen

4. Air Map Korea
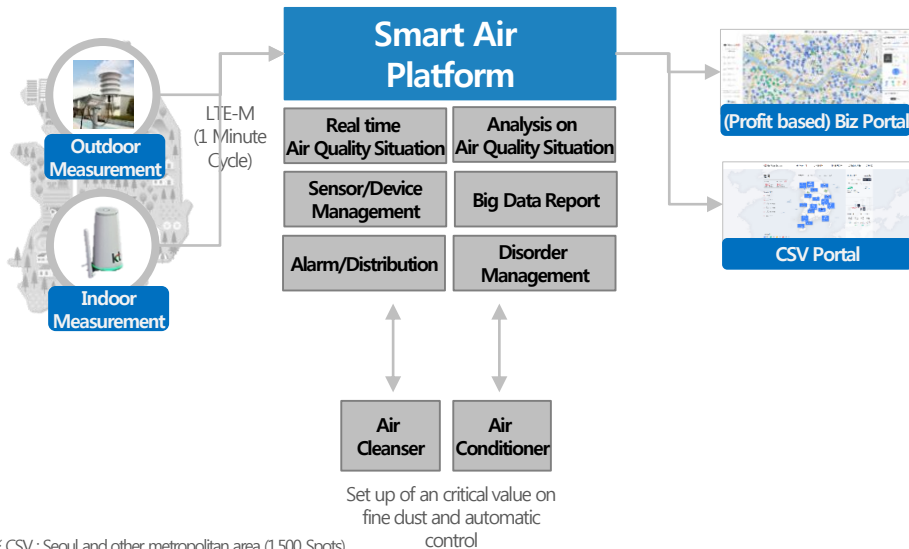
KT Air Map Korea (Smart Air)

Air Map Solution

Q

- How come level of fine dust is bad every day?
- Want to go work out but can I?
- What is the current level of fine dust in my town?
- What is the cause of the fine dust and where does it come from?

Service

Providing integrated services :
Collection and analysis on an enormous amount of real time data about air quality and automatic control over air conditioner

Outdoor Measurement

Indoor Measurement

LTE-M (1 Minute Cycle)

Smart Air Platform

Real time Air Quality Situation	Analysis on Air Quality Situation
Sensor/Device Management	Big Data Report
Alarm/Distribution	Disorder Management

(Profit based) Biz Portal

CSV Portal

Air Cleanser

Air Conditioner

Set up of an critical value on fine dust and automatic control

※ CSV : Seoul and other metropolitan area (1,500 Spots)
※ Biz : On-site installation (184 Spots)

Key Points of KT's Air Map Solution

Other Observation Network

Connecting to the limited number of sensors
Operating 380 monitoring station

One Hour
Not reflecting the changes in air quality which changes every moment

Sensor Measurement
Not providing analytics and forecast

Not connected to air conditioning device

VS

KT Smart Air

Accepting Massive Things
Air quality sensor spotted at 1500(CSV) & 184(Biz) locations and expandable to include air cleanser

One Minute
Providing Air Map service based on real time live data

Sensor Measurement + Big Data Analysis
Providing additional report on Big Data analysis

Connecting to Air Cleanser/Conditioner
Automatic control based on the measured value

Expected Outcome

Preoccupancy on the B2B Air Quality Service

Providing the air quality service (The first & the most)

Already providing the service to the 9 different entities(Business, local government, etc.)

Expanding to various business by establishing Open API

Incorporating with existing KT services including AI and advancing the solution to the next level
Processing/advancing collected data so that it can be applied to the navigation/ infotainment, air conditioning facility

Improving air quality based on Integrated Weather data & automatic control

Optimized control on air conditioner based on data collected from sensor

Expanding analytics to provide integrated information

PEOPLE. TECHNOLOGY. kt