



**Mobile360**  
Digital Societies

# APAC IoT INNOVATION SUMMIT

Kuala Lumpur 24-26 Sept 2019



**#MOBILE360**

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**Kuala Lumpur 24-26 Sept 2019**

# **Session 6: IoT in the 5G Era**

Kuala Lumpur 24-26 Sept 2019



**Sohee Shin**

Senior Vice President,  
Global Business Group  
KT

## Session 6: Industrial IoT with 5G

# KT, Bringing 5G Into a Reality

IoT Use case in 5G

26<sup>th</sup> September, 2019 | Sohee Shin, KT



# 5G

# Contents



I KT 5G Leadership

II KT 5G Current Status

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III KT 5G Business Case

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# 01 | 5G as Driver of Industry 4.0

5G will play pivotal role across all industries and serve its role as General Purpose Technology

5G

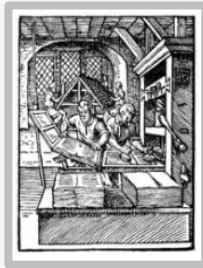
Renaissance

1st IR

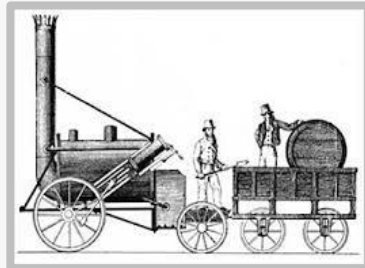
2nd IR

3rd IR

4th IR



Printing



Steam Power



Electricity & Car



Internet



5G

*“The impacts of the ICT revolution are now palpable in all countries, and are projected to be economically and socially revolutionary in the coming years as technology penetrates and fosters fundamental change in all sectors and dimensions of life.”*

Professor Dale Jorgenson (Harvard)

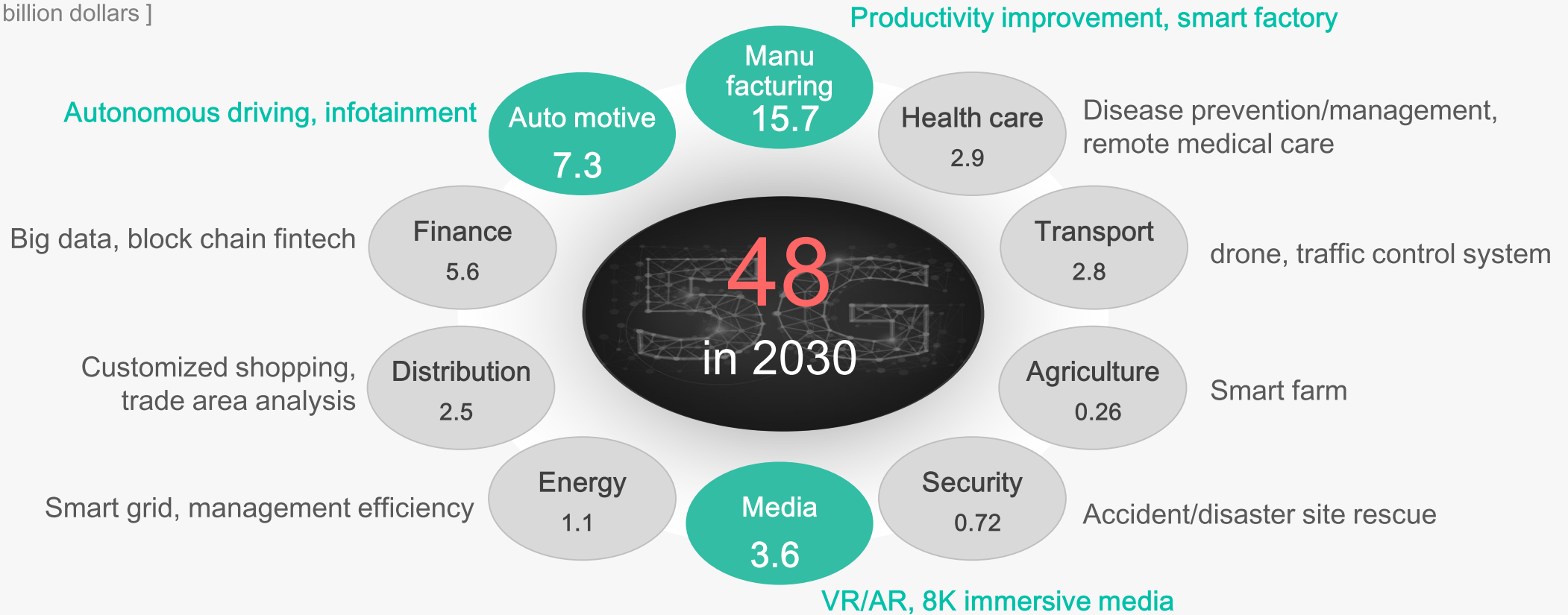
‘The ICT revolution, world economic growth, and policy issues’ (2016)



# 01 | 5G Economic Effect in Korea

5G will create economic value of 48 billion dollars across all industrial areas in 2030 in Korea

[ Unit : billion dollars ]



Smart city 0.91	Smart office 3.64	Smart home 0.29	Non-urban area 0.56
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\*source: KT Institute of Economics & Management Research

# Contents

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I KT 5G Leadership

II KT 5G Current Status

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---



# 02 | 5G Network Deployment

**Phase.1**  
(~Apr. '19)

Major cities,  
Highway



**Phase.2**  
(~Dec. '19)

Expand 5G Coverage

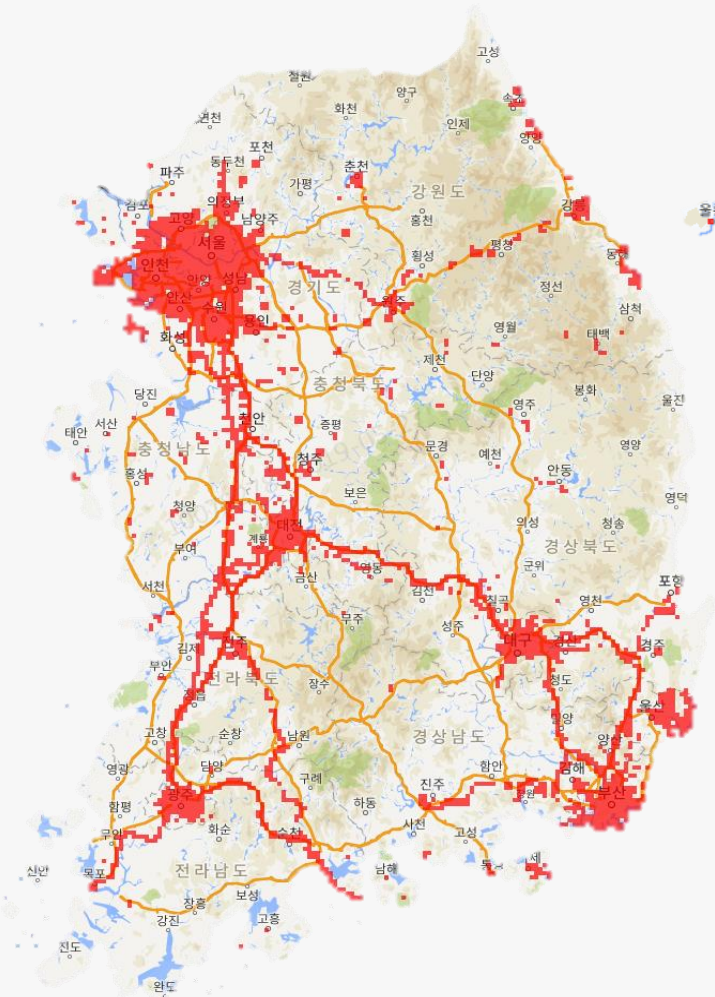


**Phase.3**

Nationwide Coverage  
(including 28GHz)



# 02 | 5G Nationwide Footprint



62,521 Base Stations installed and in operation



6 Major cities & large parts of 85 cities



Gyeongbu · Honam Line highways & 47 Service areas



KTX · SRT Express railways



6 Major airports



70 Key Shopping malls & Department stores



464 Eco partner sites

## 02 | 5G Peak Data Rate in commercial network

**kt** LTE

**0.9**Gbps

- CA Band : B3+B3+B8+B1
- CA Bandwidth : 50 MHz
- FDD



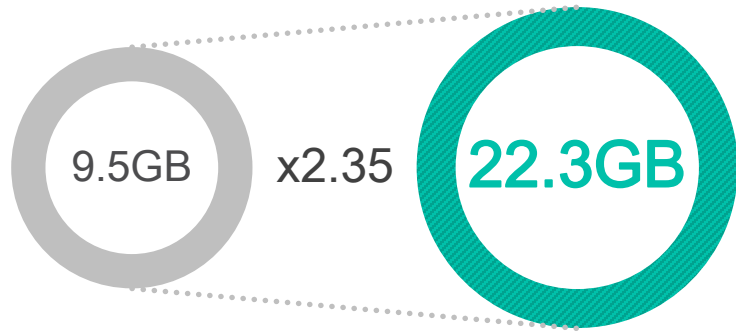
**kt** **5G**

**1.6**Gbps

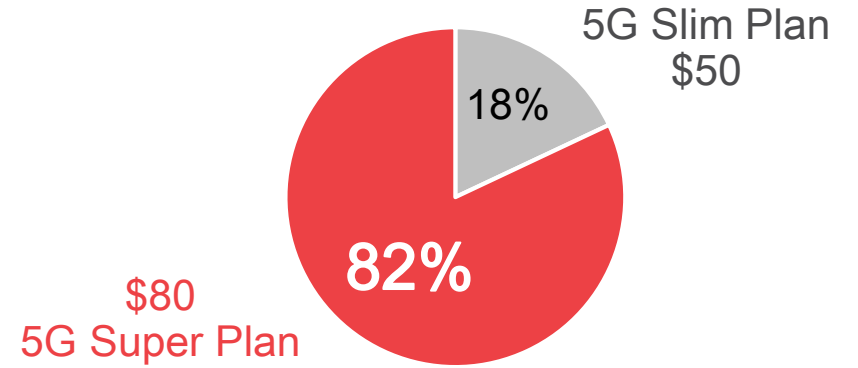
- Frequency band : 3.5GHz (n78)
- Bandwidth : 100 MHz
- TDD ratio : 4(DL) : 1(UL)

# 03 | KT Current Status of 5G

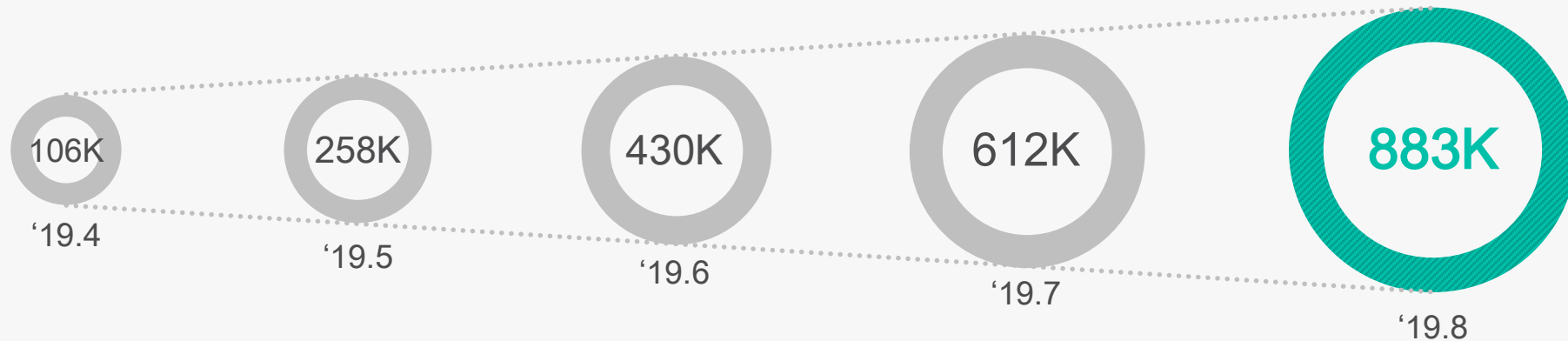
## Monthly Avg. Data Usages



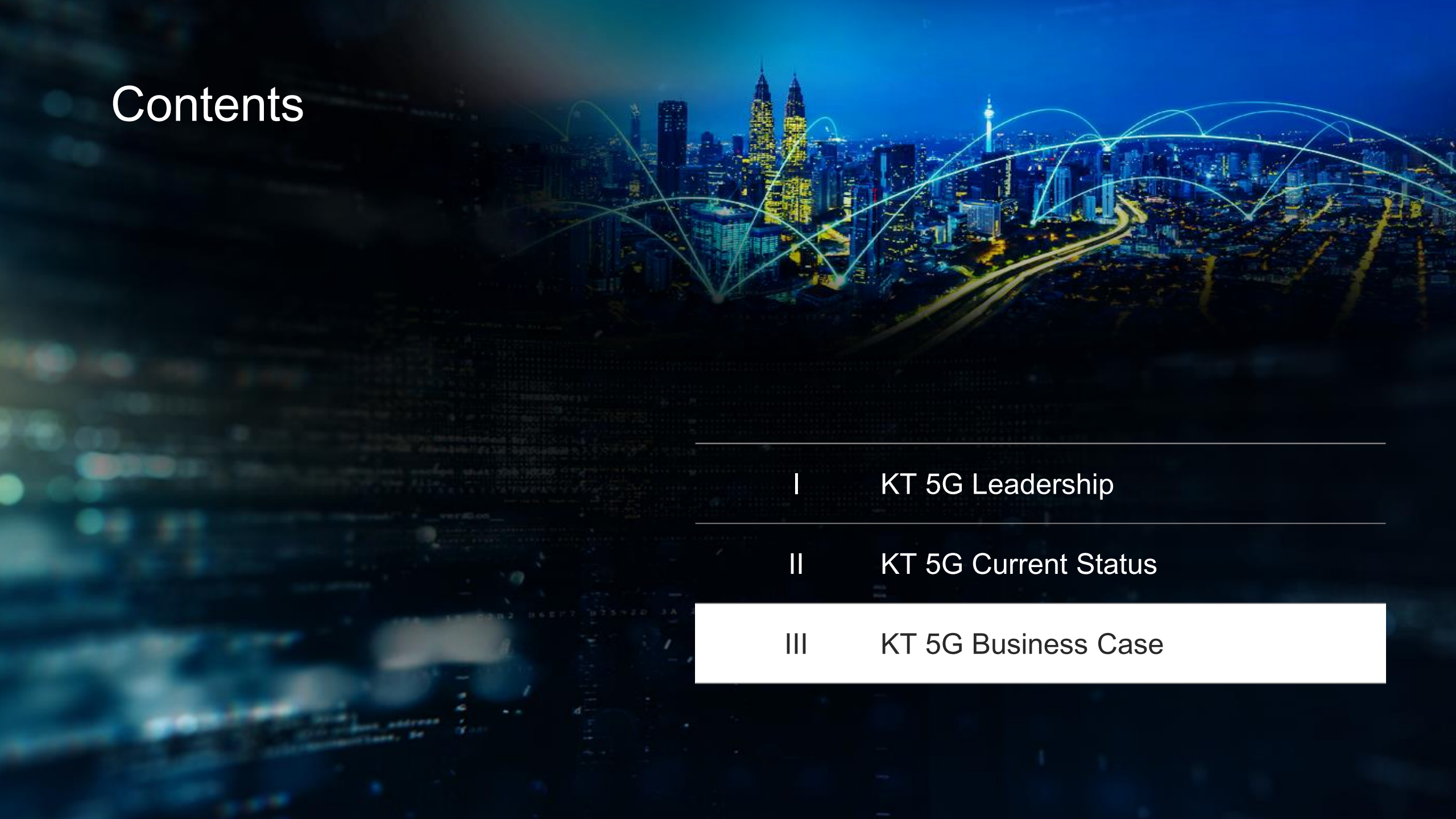
## 5G Plans



## No. of 5G Subscribers



# Contents

- 
- 
- I KT 5G Leadership

---

  - II KT 5G Current Status

---

  - III KT 5G Business Case

# 03 | 5G as a Platform

KT 5G Network will evolve as an “Integrated Platform”, which is basis of 5G Open Eco System

Immersive Media



Smart Factory



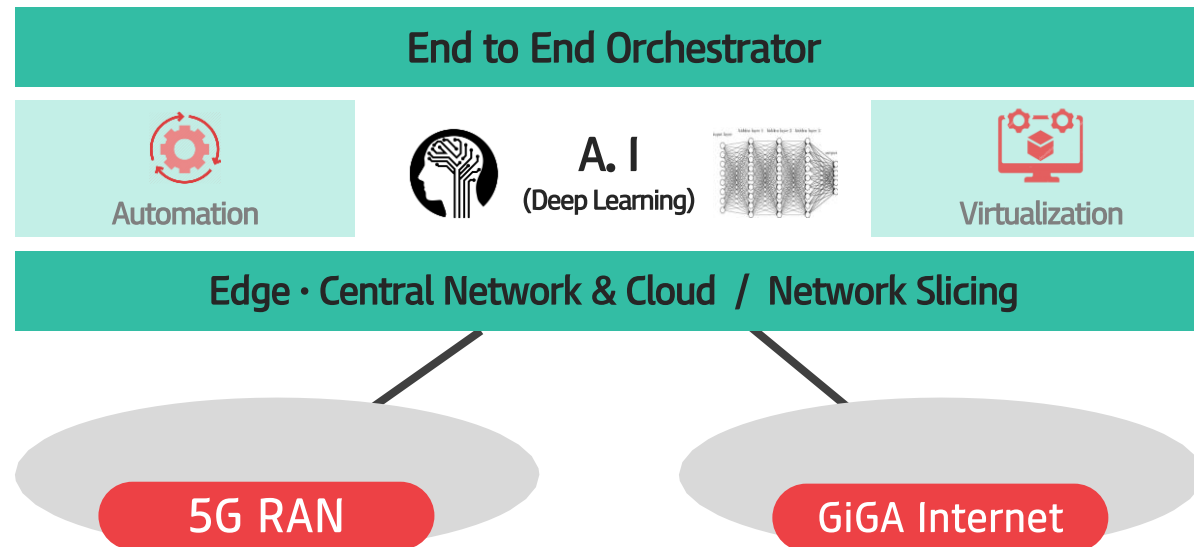
Connected Car



Drone

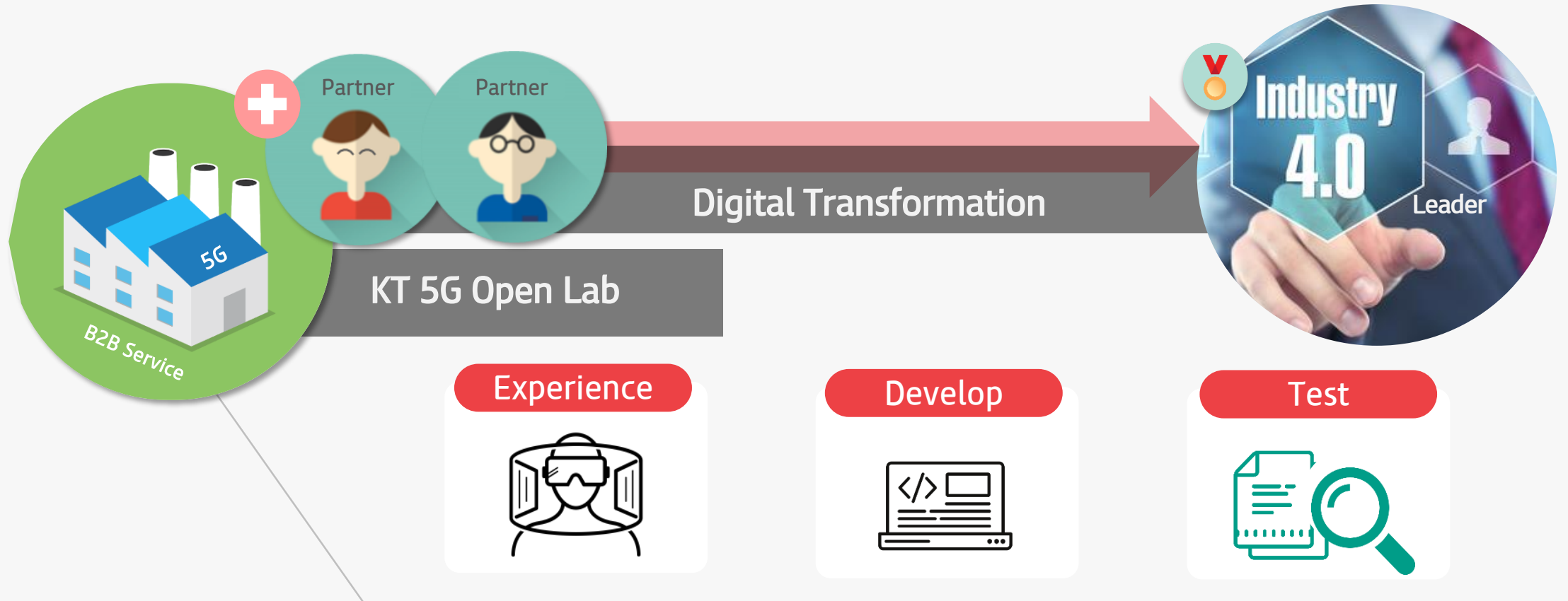


5G as a Platform



# 03 | 5G Open Lab

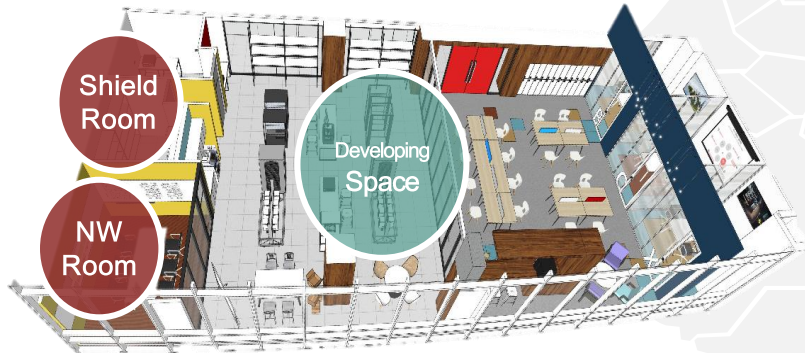
5G Open Lab functions as core hub where cross-industry partners work together to accelerate commercial availability



# 03 Facilities of 5G Open Lab

## Pangyo

- Dev. Space (host 12 developers)
- 1 Meeting Room
- 1 Shield Room



## Seoul

Realistic media service developing environment

5G Infra/Service developing environment

IoT service developing environment

B2B Use Case Exhibition

- 3 Dev. Rooms (host 20 developers)
- 1 Meeting Room
- 1 Show Room
- 1 Shield Room



# 03 | 5G Open Collaboration



**5G Eco Alliance**  
500+ Partners

**40%** Up in productivity  
(an annual cost saving of \$700m by 2021)

**25%('18) → 10%('21)** Down in accident rate  
(more than 50% down in the accident occurrence rate by 2021)

kt **5G** × **HYUNDAI**  
HEAVY INDUSTRIES

## Digital Transformation

- ✓ Enterprise 5G
- ✓ 5G AR Supporter
- ✓ Connected Robot
- ✓ 360° Smart Surveillance
- ✓ 360° Live Security



kt 5G × HYUNDAI  
HEAVY INDUSTRIES

Digital Transformation

# 03 | 5G Key Services - ① 360° Smart Surveillance

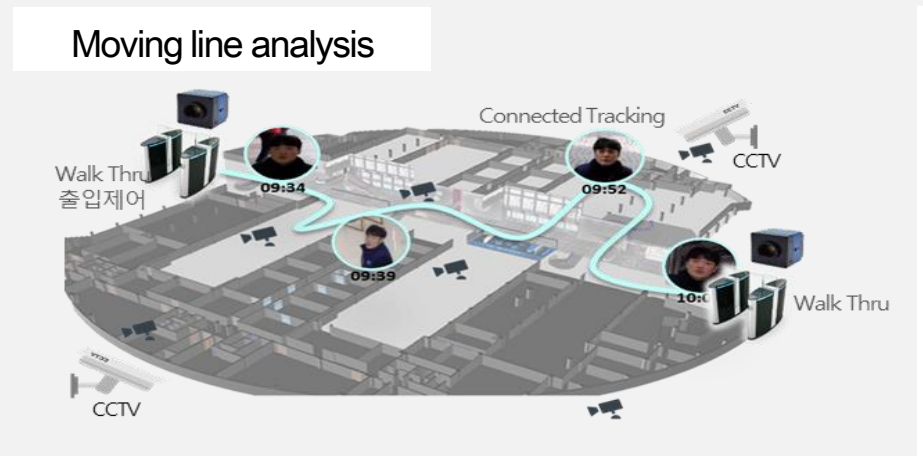
360° CCTV increases efficiency by minimizing the need of CCTV from 4 to 1 and provides analyzed information to the customer through various Video Analytics technology.



### Intelligent Video Analysis



- 1 Access Control
- 2 Event Detection
- 3 Safety Management
- 4 Moving line analysis/ Heat map
- 5 Fault Detection
- 6 Monitoring



# 03 | 5G Key Services - ② 360° Live Security

By simply putting a band around workers neck, 360° video information can be captured in real time.

## On Field Application



## 360° Live Security Device

<360° Live Security >



- Four HD Cameras
- 360 degree capturing

<System Part>



- Four HD Cameras
- 360 degree capturing



5G

## VA Platform



- Real time video transmission
- Capturing Event
- 2<sup>nd</sup> degree analytics

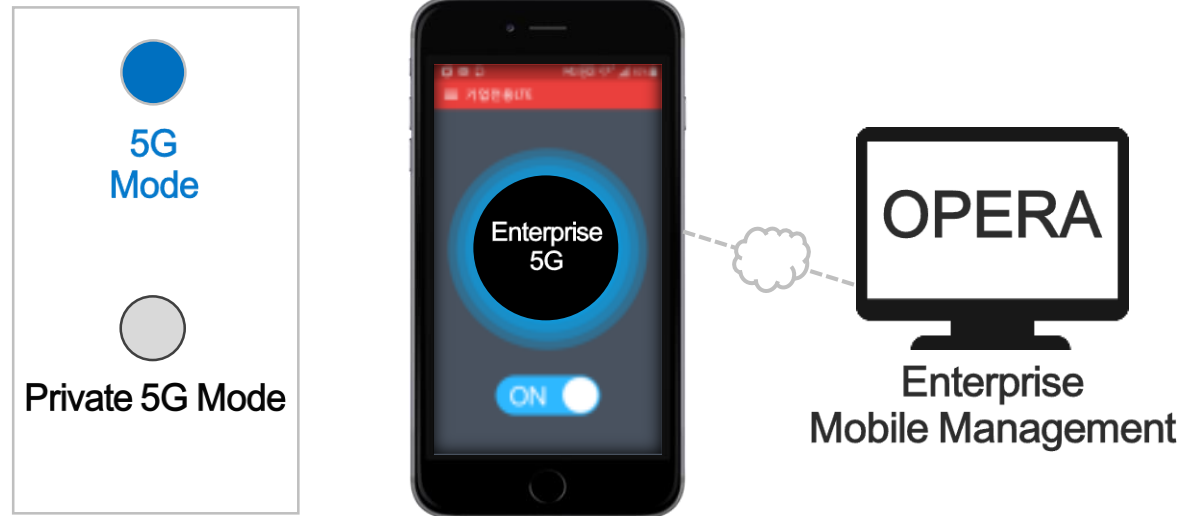
## Control Center



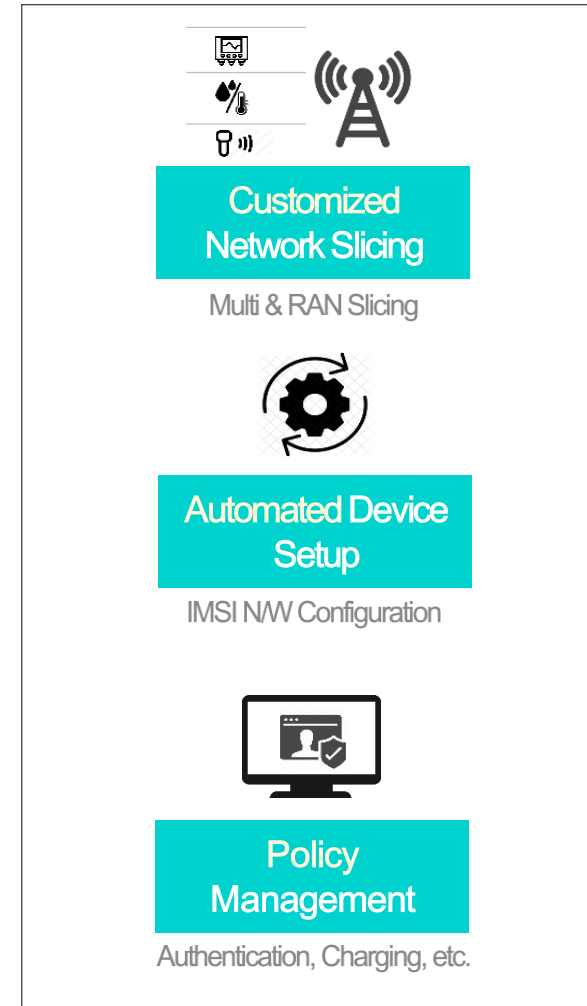
- 180 degree \*2 Video Display

# 03 | 5G Key Services - ③ Enterprise Private 5G

“Enterprise 5G” is a B2B service that provides enterprises with 5G dedicated Network



provides the Security of the Enterprise,  
and set Mobile Management & Configuration by policy.



# 03 | 5G Key Services - ④ Autonomous Driving Vehicle

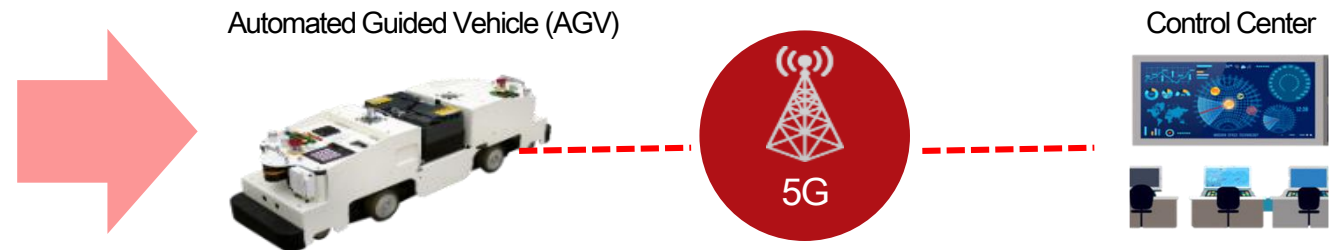
5G AGV provides more mobility and less space constraint.

## As-Is (Wired)



- Wired base magnetic AGV.
- Less Mobility and limitation only for indoors

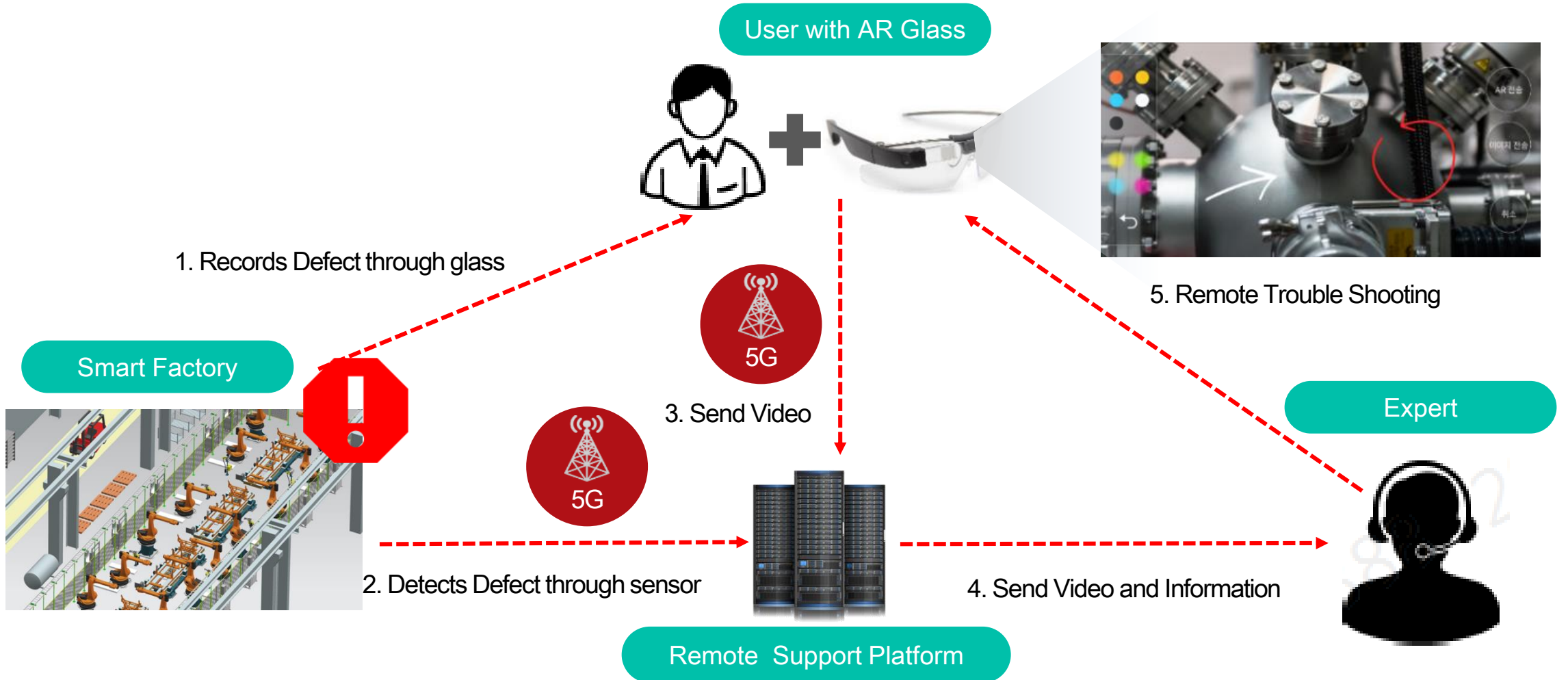
## 5G based AGV (Automated Guided Vehicle)



- Automated Vehicle with more Mobility since based on **Wireless Connection**.
- Can be applied to **indoors and outdoor** environment

# 03 | 5G Key Services - ⑤ AR Glass (Remote Trouble Shooting)

By using AR technology applied to a special glasses, trouble on equipment/system on the working field can be managed remotely by specialists.





kt **5G** AR Glass

IN

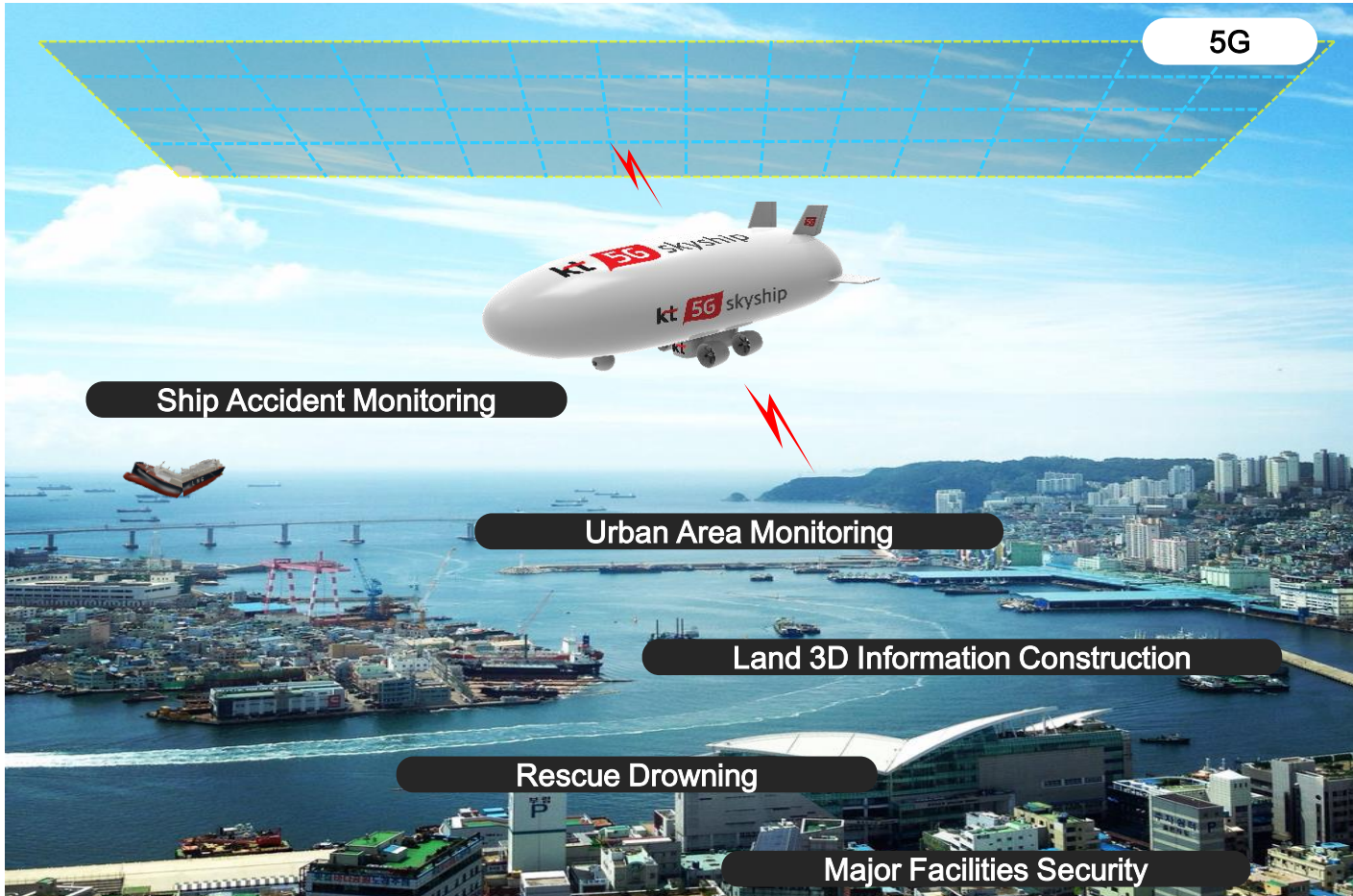
*SRT*



# 03 | KT 5G Skyship

5G enabled high-quality, real-time communication & surveillance platform

## Disaster Monitoring



## Forest fire management



## Skyscan

