KT 5G progress

Hans Kim

Paving the road to 5G

'5G Vision' Declaration

MWC 2015
(Mar.2015)

5G Global Collaboration

5G Tech
Development
Lead

'5G Commercialization by 2019'
Declaration
MWC 2017
(Mar.2017)

**PyeongChang
5G Service**
(Feb.2018)

5G Olympics Preparation
Press Conference
(Feb.2016)

2nd Test Event
(Feb.2017)

'PyeongChang
5G-SIG Spec' Agreement
: World-First 5G Common Spec
(June 2016)

PyeongChang
5G System/ Device/Service
Development

5G SIG
First Call (Nov.2016)

GiGAtopia - Corporate Vision (2014)

GiGA Speed

< KT Broadband breakthrough >

Business Revitalized

Wired Speed-up

Wireless Speed-up

- 2 millions subscribers added ('16)

- ARPU 24% UP ('16)

GiGA internet Launched

LTE Launched
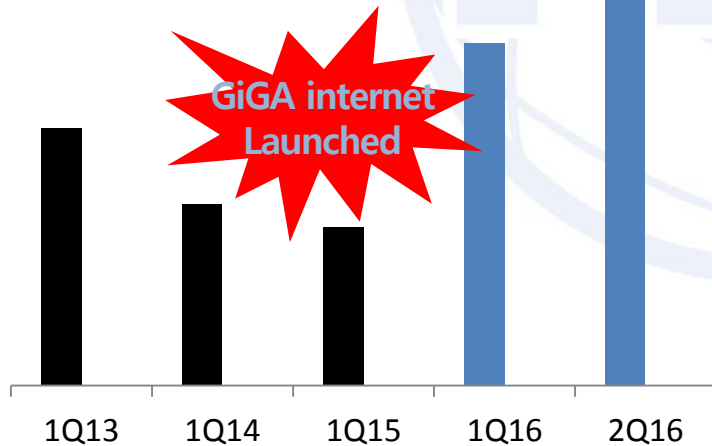
| 1Q13 | 1Q14 | 1Q15 | 1Q16 | 2Q16 |

| 1Q10 | 1Q11 | 1Q12 | 1Q14 | 1Q16 |
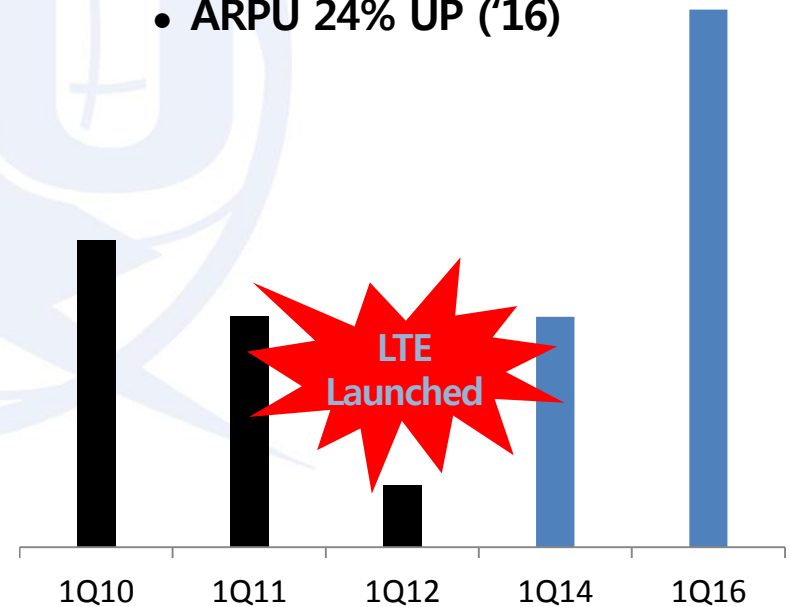
Life Liberated

Customer Life Changed

59.2% — QoE satisfaction
23.5% — Work Efficiency
13.3% — Life Enhancement
4.1% — Additional Services

No, 28%
Yes, 72%
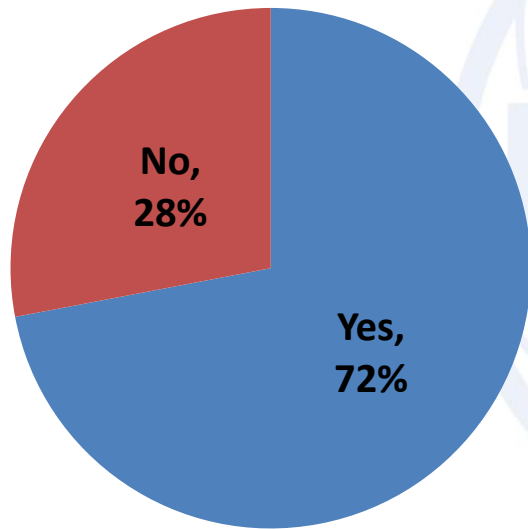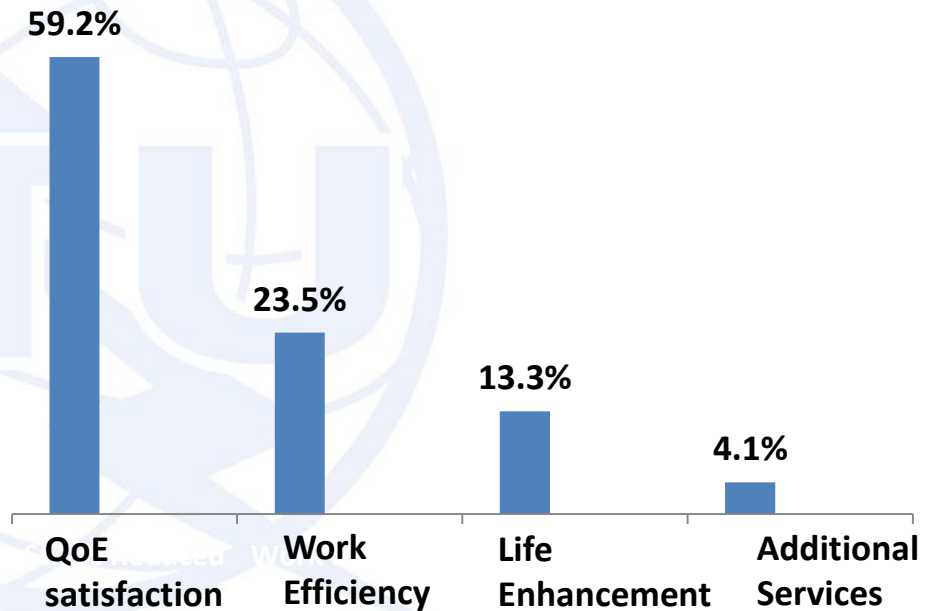
(Source: ET News, Korea)

Mobile Data Big-bang

- **The encounter with mobile data explosion**

Average LTE traffic per user

(MB)

4,000

3,000

2,000

1,000

0

36%
(19.6M)

58%
(32.6M)

69%
(40.3M)

LTE penetration(%)

'12.6   '12.12   '13.6   '13.12   '14.6   '14.12   '15.6   '15.12   '20 (Year)
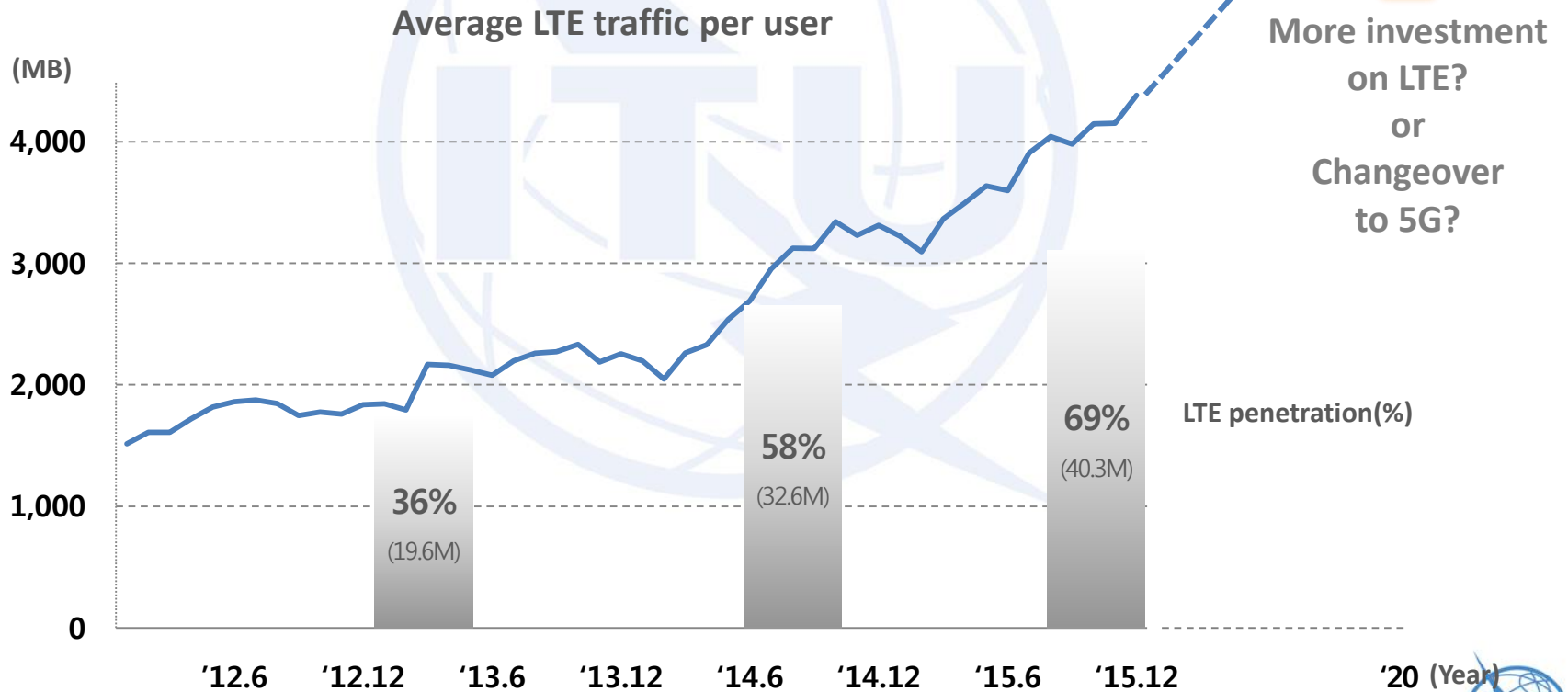
More investment
on LTE?
or
Changeover
to 5G?

Boosting Customer Experience

Data Speed

20Gbps

300Mbps

~4Mbps

Full-HD Video Streaming

LTE

5G

Latency

400ms

20ms

1ms

Voice/Telepresence

LTE

5G

Massive Connectivity

60,000

2,000(active)

200(active)

Dense Stadium

LTE

5G
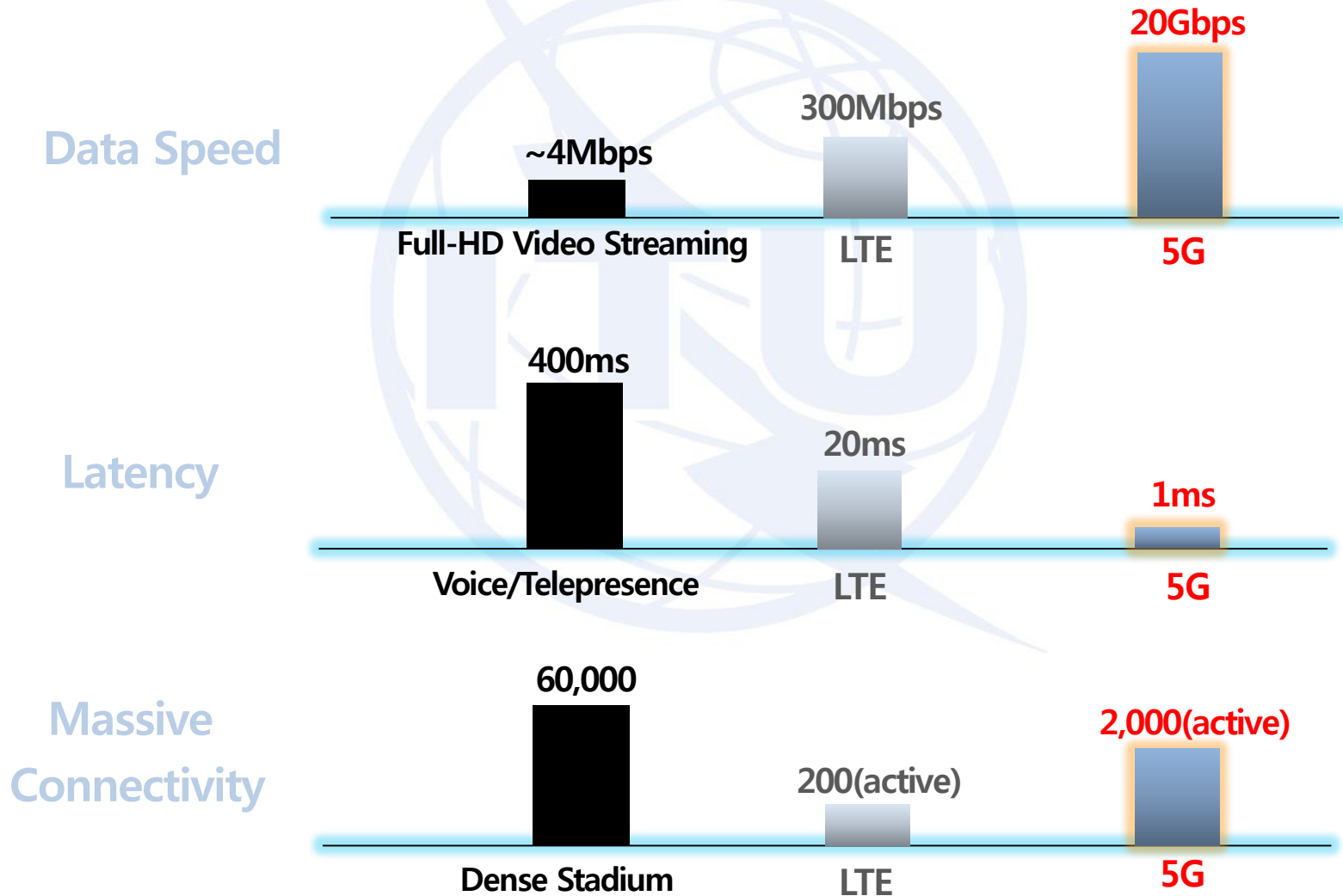
E2E GiGA infrastructure

Convergence Services

Virtualized & Soft Core

Unified & Self-Organizing O&M

Edge Cloud

Unified Transport Network (Fixed + Wireless)

Massive MIMO

V2X/MTC

GiGA Wired

GiGA Wifi

Multi-RAT Interworking

LTE

WiFi

5G (<6GHz & mmWave)
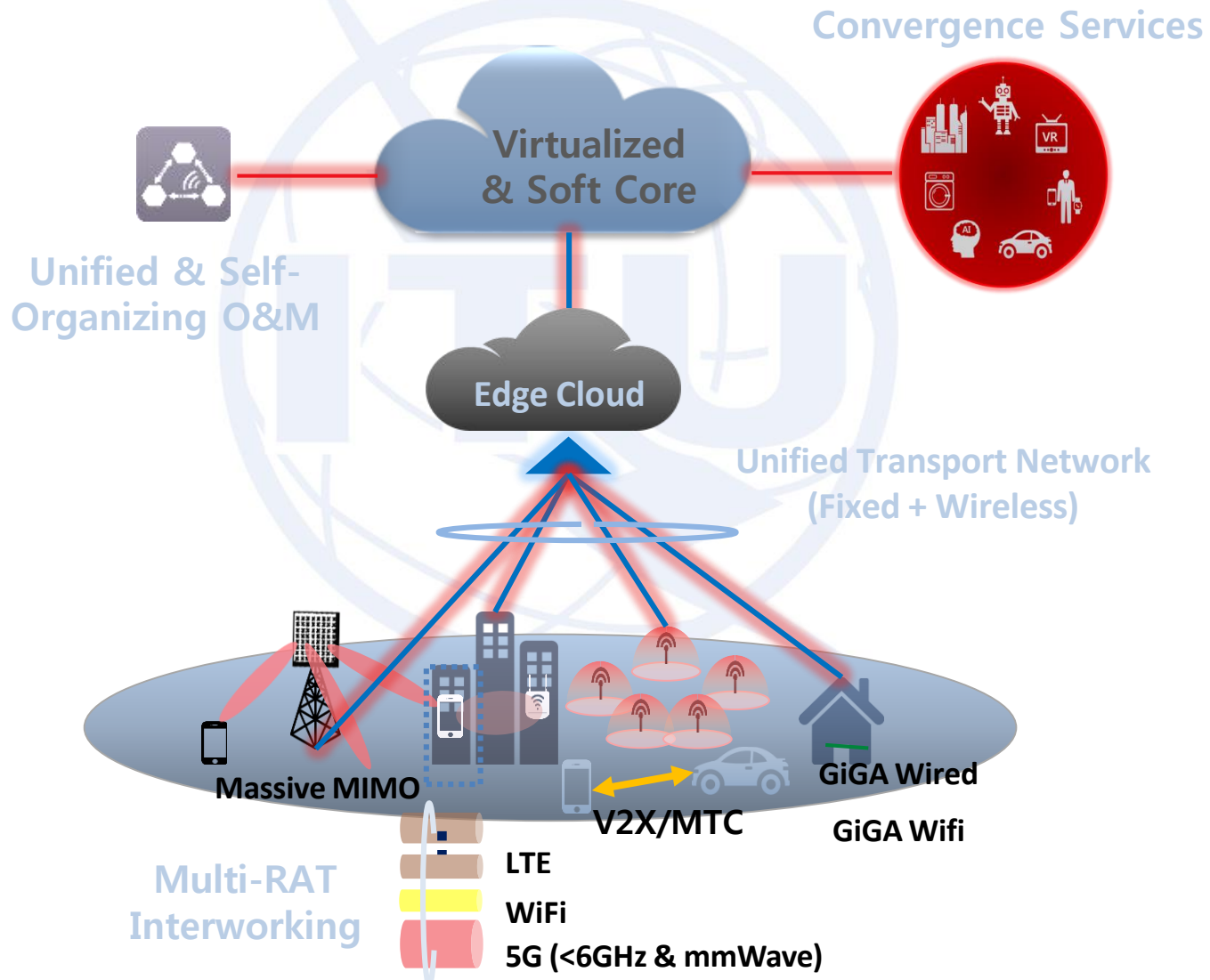
Global collaboration

5G R&D Center
(opened in July 2015)

SAMSUNG

intel

NEC

ERICSSON

QUALCOMM

HUAWEI

NOKIA

ZTE

5G open ecosystem with
global leading system and chipset/device vendors

5G Roadmap

2016	2017	2018	2019
1st Test Event	**2nd Test Event**	**PyeongChang Winter Olympics 5G Pre-Commercial Service**	**5G Commercial Service**

Broadcasting Service

Experiential Service

IoT Service
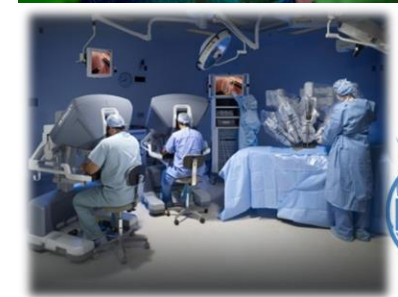
5G Services

eMBB
Enhanced Mobile Broadband

Peak Data Rate: $\sim 20Gbps$

User Experience Data Rate: $\sim 1Gbps$

URLLC
Ultra-Reliable & Low Latency Communication

Ultra Reliability: $10^{-5} (PER)$

Ultra Low Latency: $\sim 1ms\ (UP)$

mIoT
Massive Internet of Things

Connection Density: $\sim 10^6 devices/km^2$

Area Traffic Capacity: $\sim 10Mbps\ /m^2$

eV2X
Enhanced Vehicle to Anything

Mobility: $\sim 500km/h$

Omni Point View ('17.2.4, Cross-Country Worldcup)

✓ Tracking position of each player on the stadium

✓ Virtualized video streaming in player's point of view

360° VR Live ('17.2.16, Figure Skating Championships)

2nd floor stand of the stadium
VR Live Zone

360° VR

360°VR
Waiting Zone

360°VR
Around Rink

360°VR
Kiss & Cry Zone

Time-slice ('17.2.16, Figure Skating Championships)

100 cameras installation

Adjust angle to watch

360° Multi View

Watch the match scenes at 360 degree

Free Time-slice

Watch your favorite scenes

Differentiation

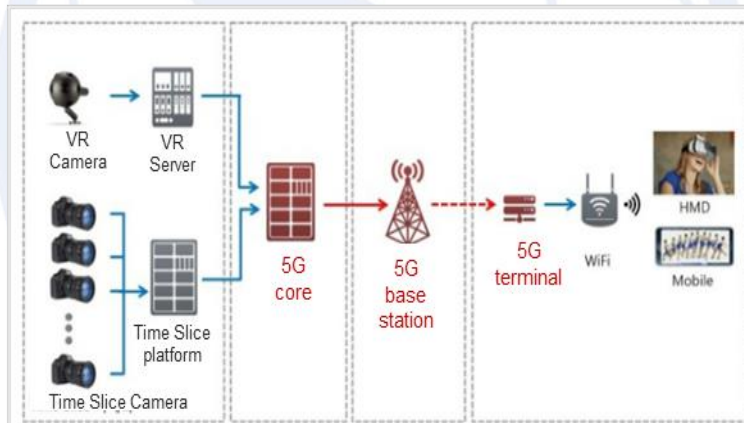2014 Sochi Olympics

Sync View

Trialed 5G services at FIFA U-20 World Cup tournament ('17. 05.20~06.11)

360° VR Live

System Diagram

Interactive Time Slice

Convergence focused

Energy

kt-MEG

Automobile

BlueLink
Truck & Bus with kt

Surveillance

기가 IoT 홈캠

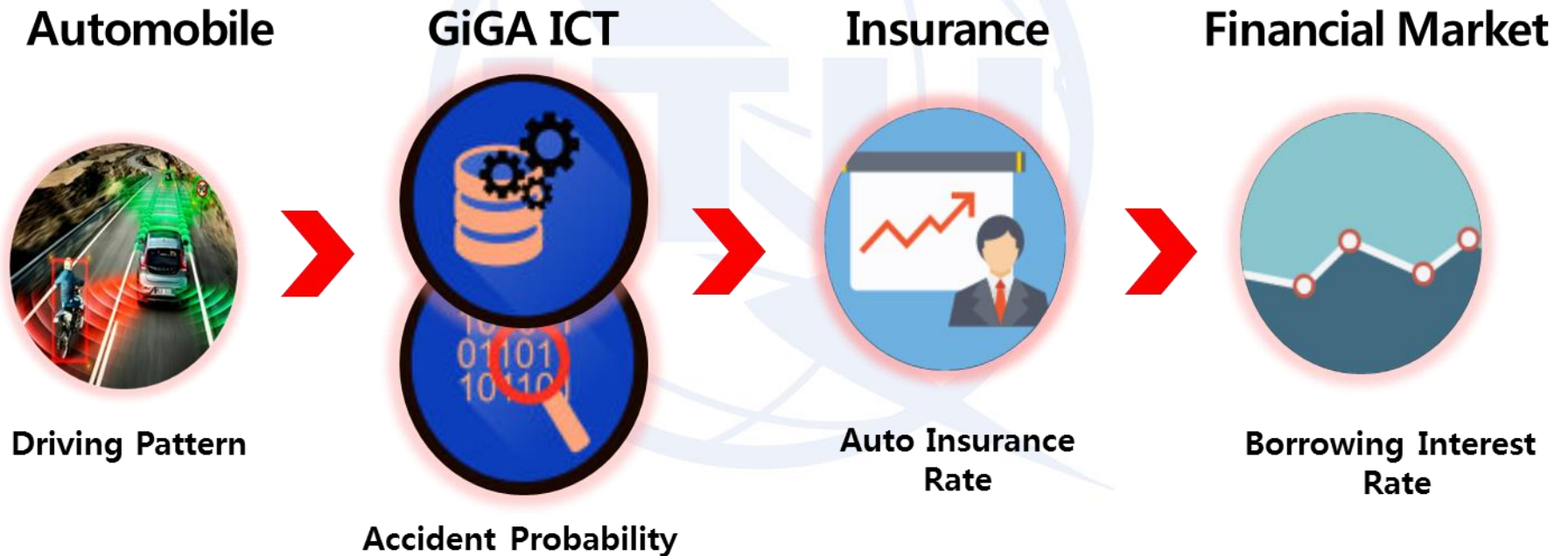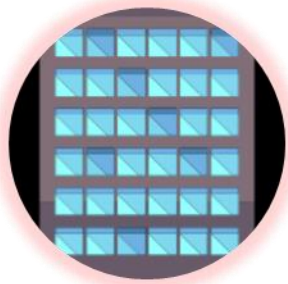**Entertainment**

Klive
K-POP EXPERIENCE

Health

HOOH
HEALTHCARE

Consecutive Chaining of Converged Industries (1)

Automobile

Driving Pattern

GiGA ICT

Accident Probability

Insurance

Auto Insurance Rate

Financial Market

Borrowing Interest Rate

Consecutive Chaining of Converged Industries (2)

Smart Home Building, Factory

Energy Usage Pattern

GiGA ICT

Energy Consumption Prediction

Power Generation

Fuel Expense

Resources Market

Oil / Gas Price

Exponential Acceleration

The Way Forward

Hyper Connectivity
to connect 10s billions IoT devices

Super High Speed
to deliver exponentially generated data

True Cloud Infrastructure
to compute dramatically accumulated information

Intelligence
to analyze & decide extremely accurate direction

Thank you

kt
korea telecom | PyeongChang 2018