

The 3<sup>rd</sup> Global 5G Event, Tokyo, Japan, 2017. 5.24~26

# 5G Collaboration with Other Industries

Prof. Kim, DongKu  
Chair, Executive Committee  
5G Forum

2017. 5. 24.

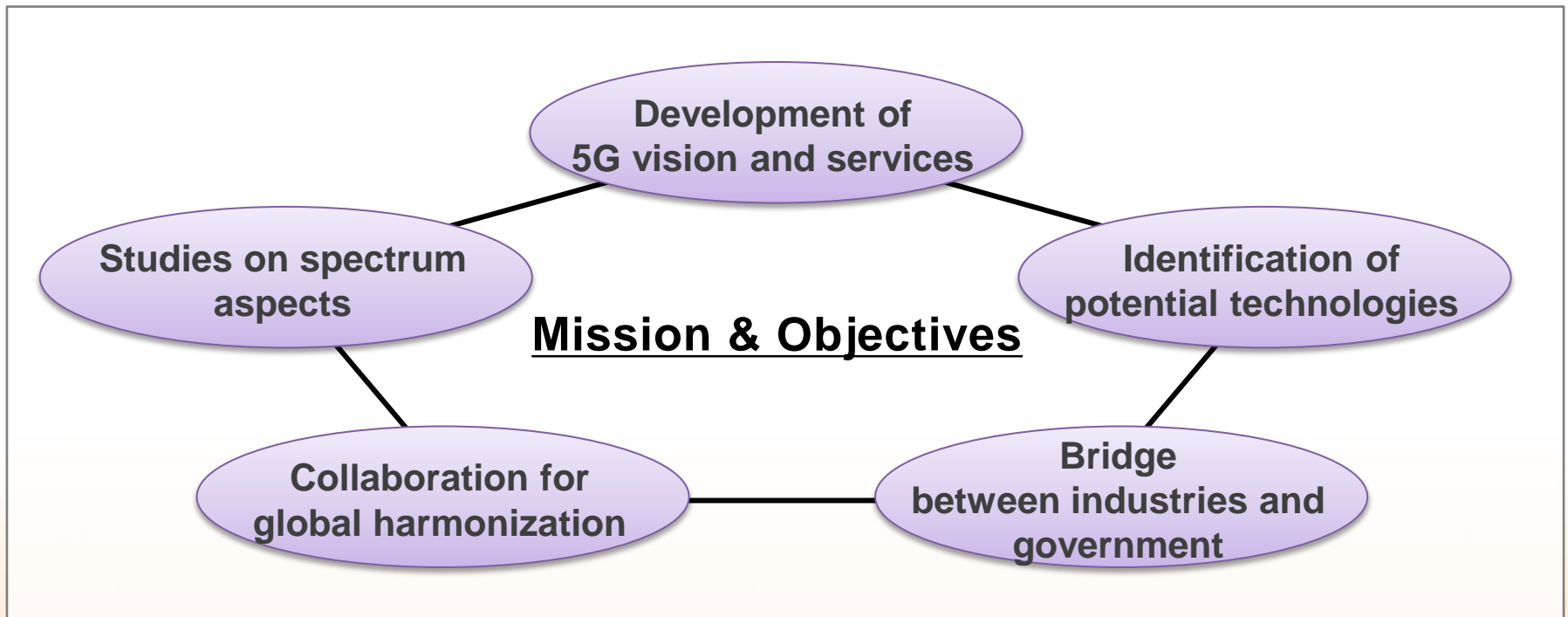


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## ***Global Leadership and Promotion in 5G Mobile Communications towards the 2020s***

**Private – Public Organization**

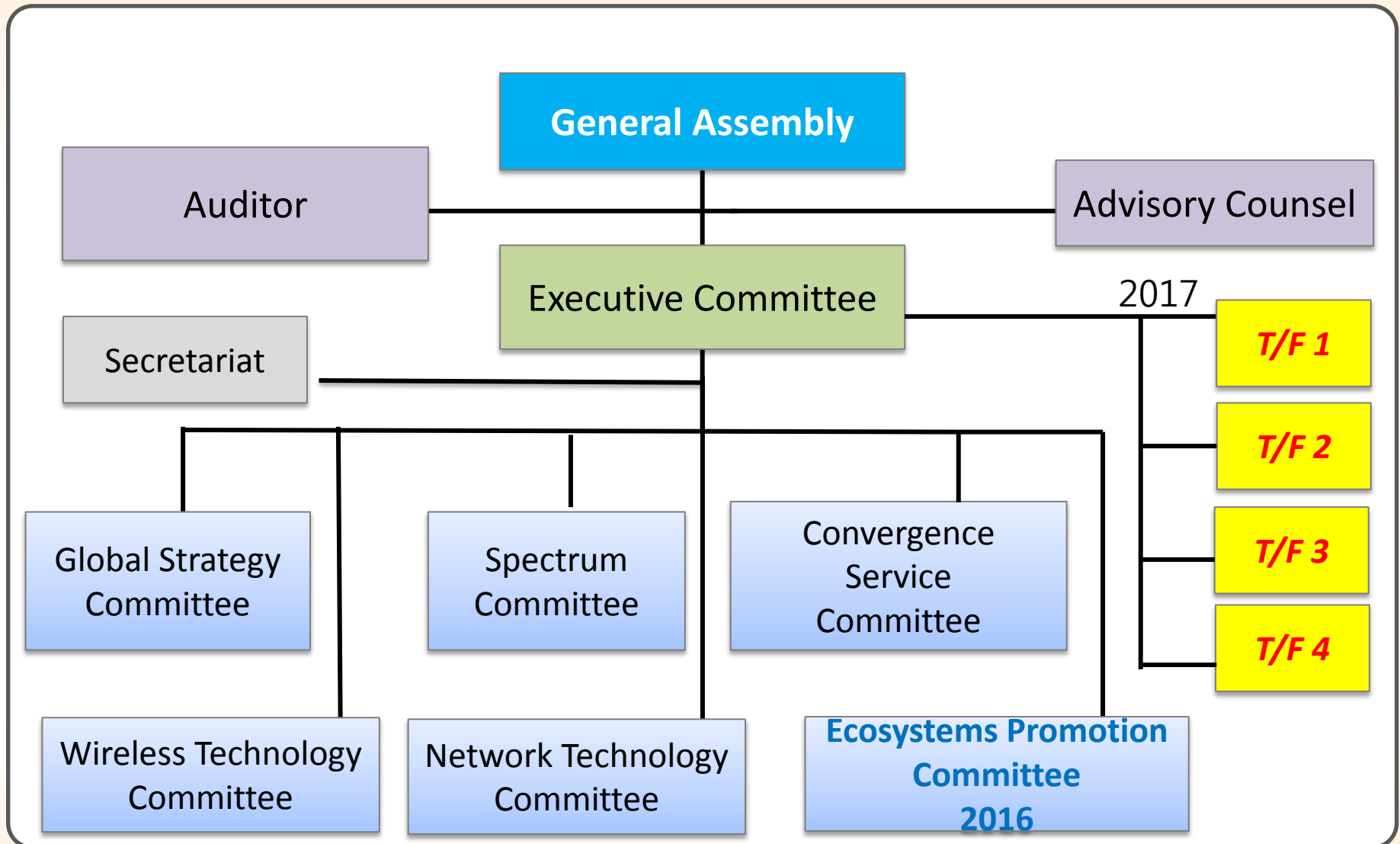


# 5G Forum: Organization (1/2)


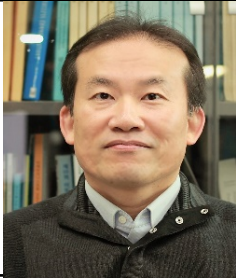





- **Public private partnership for the promotion of 5G Mobile communications**
  - Established May 30, 2013, Seoul, Open to global company/organization
- **Members (33 organizations/companies)**
  - Private Sector: Operators, Equipment (Handset, network) vendors, etc.
  - Public Sectors: ETRI, GiGa Korea Foundation.



# 5G Forum: Organization (2/2)



# 5G Forum – Leadership

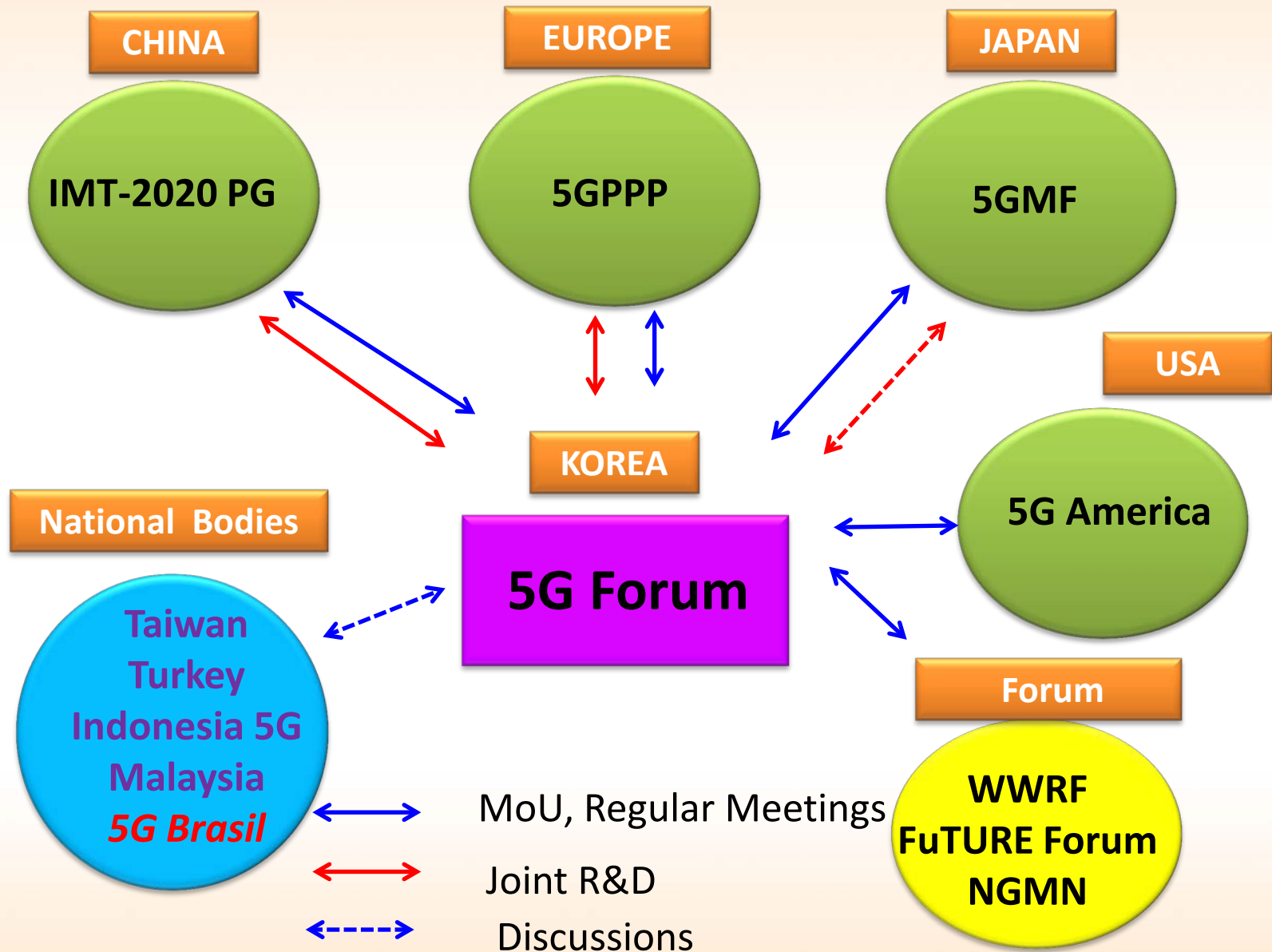
Organization	Chair	Vice Chair, Affiliation			
General Assembly	Chairman 	President Oh, SeungMok KT			
Executive Committee	Chair  Prof. Kim, DongKu, Yonsei Univ. 				
	Vice Chairs    	HK Chung (ETRI)   HC Park(KAIST)   JH Park(SKT)   KK Lee(TTA)			
Convergence Service Committee	Prof. Park, YongWan YeungNam Univ 	<i>ETRI, Samsung, Ajou Univ.</i>			

# 5G Forum – Leadership

Organization	Chair	Vice Chair Affiliation
Spectrum Committee	Prof. Hong, InKee KyungHee Univ.	<i>Radio Research Agency. ETRI, Samsung,</i>
Wireless Tech. Committee	Prof. Kang, ChoongGu Korea Univ	<i>Samsung, LG, ETRI, Ericsson-LG</i>
Network Tech. Committee	Dr. Cho, ChangGil, LGU+	<i>ETRI, LGU+</i>
Global Strategy Committee	Prof. Lee, HyeonWoo DanKook Univ.	<i>LG, Ericsson LG Samsung, ETRI</i>
Ecosystem Promotion Committee	Dr. Kwon, KyungIn Ericsson-LG	<i>SyncTechno</i>



# Global Collaboration for 5G





# Global Collaboration for 5G

## 5GPPP



## 5GMF



## IMT-2020 PG



## WWRF

## FuTure Forum



# Multilateral Joint Event MoU

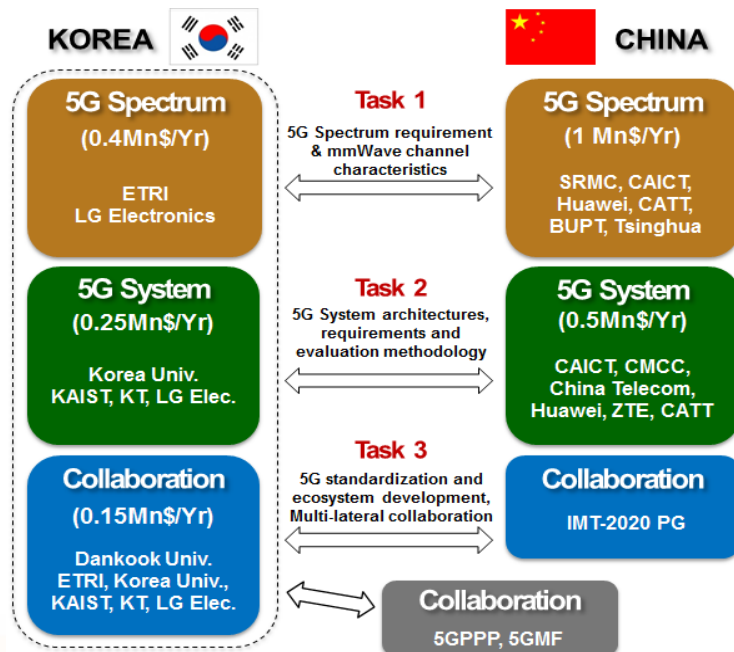
- 2015. 10. 20. Lisbon, During ICT 2015
- MoU among 5G Forum, 5GMF, 5GPPP, IMT-2020PG, 4G America
- Promote semi-annual joint global 5G events
  - 2016 Spring: China, Autumn: Europe
  - 2017. 5.24~25: Japan, **Autumn: Korea**
  - 2018: Spring: TBD, Autumn USA
- Collaborate in 5G System concept, Spectrum, Standard etc. as well



# Korea-China Joint 5G R&D

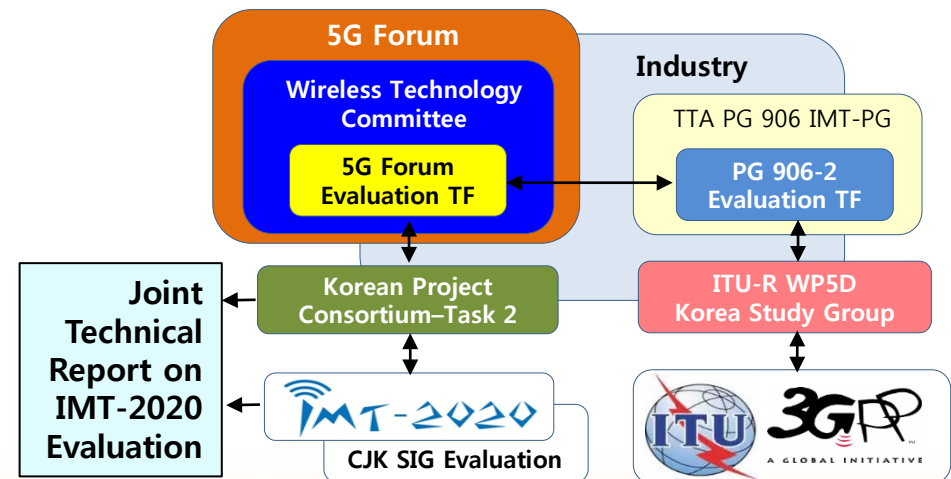
## • Korea-China Cooperative Research

- Project launched in June 2015
- 2 years with 1.6Mn\$ [2015-2016]
- Principal organization: ETRI



## • Task-2: Requirements & Evaluation

- To develop the system simulation models and scenarios for various 5G system architectures
- To derive the technical performance requirements and metrics
- To establish the 5G system evaluation methodology



# Korea-EU Joint 5G R&D

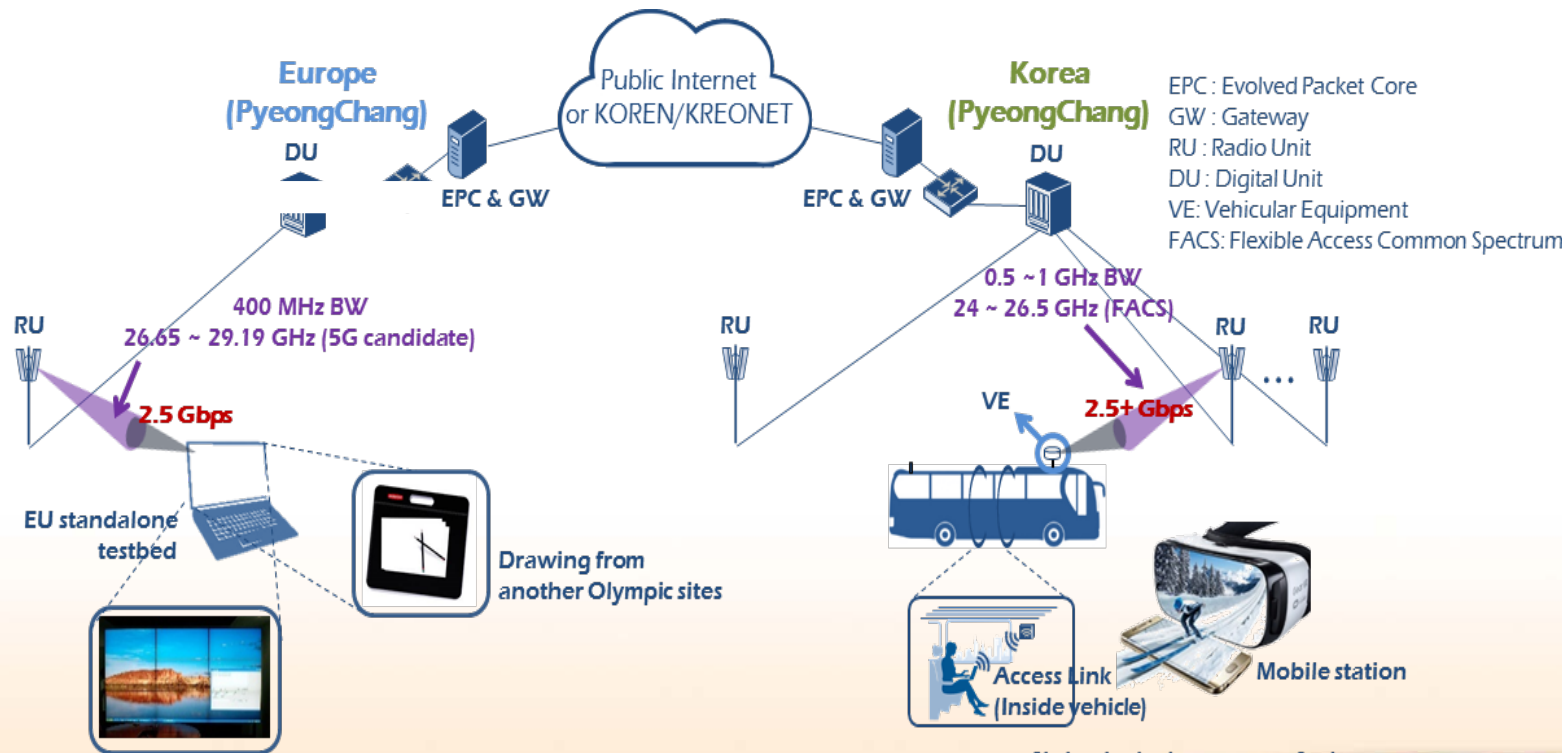
## PoC and Service Scenario

### 5G CHAMPION

5G Communication with a Heterogeneous, Agile Mobile network in the Pyeongchang Winter Olympic competition

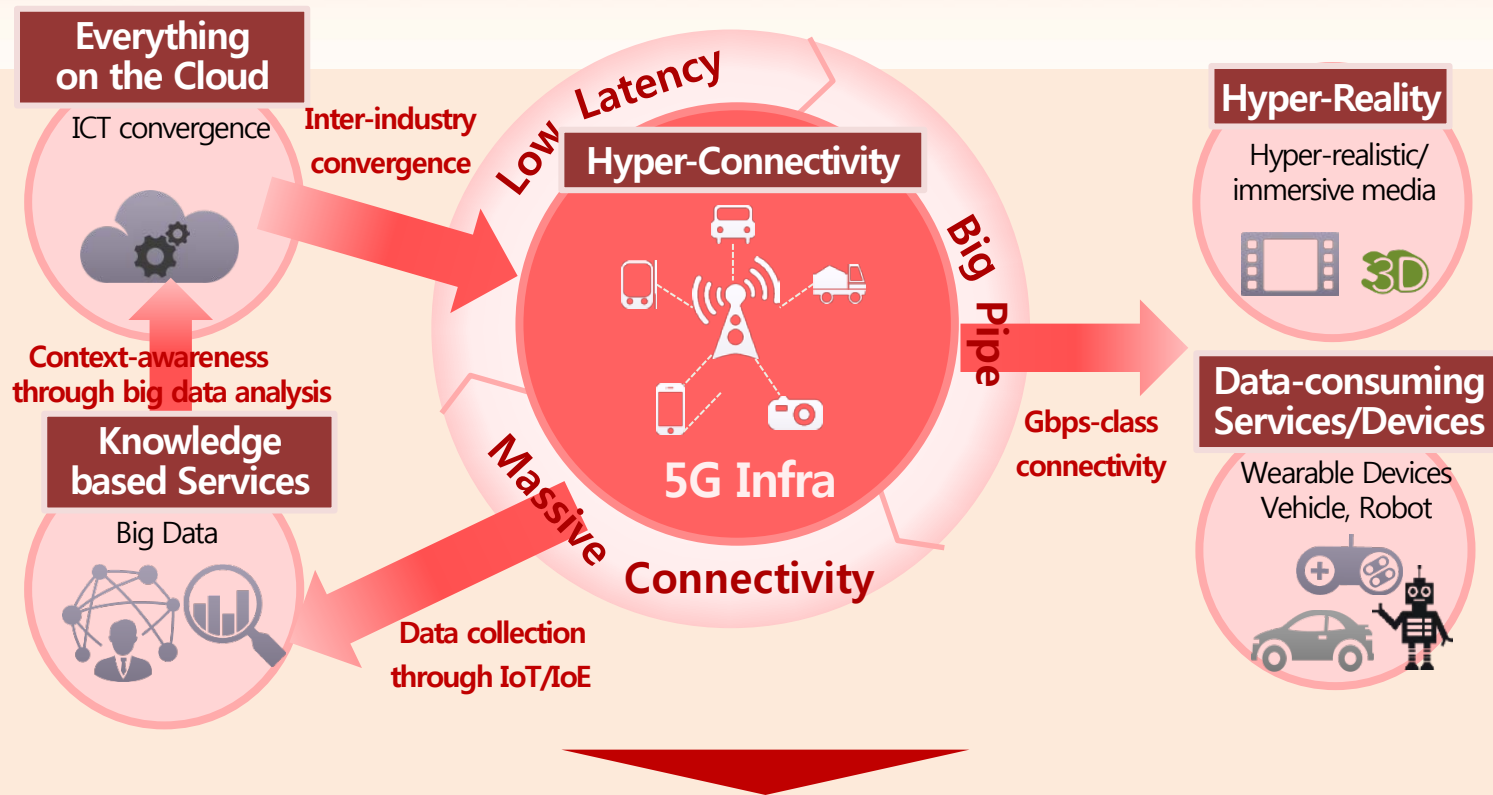


5GCHAMPION project aims at developing the first 5G system PoC in the conjunction with the 2018 Pyeongchang Winter Olympics.



Sitting in the bus you can feel the exhilaration of Olympic game

# ITU 5G Three Scenarios



**Immersive, Intelligent, Omni-present, Autonomous, and Public Services**



# Service Classification (ITU vs 5G Forum)

## 5G Capability-Centric Classification by ITU-R

Enhanced Mobile Broadband (eMBB)

Ultra-reliable and Low Latency Communication (uLLC)

Massive Machine Type Communication (mMTC)

## USER-Centric Services by 5G Forum

Immersive

Autonomous

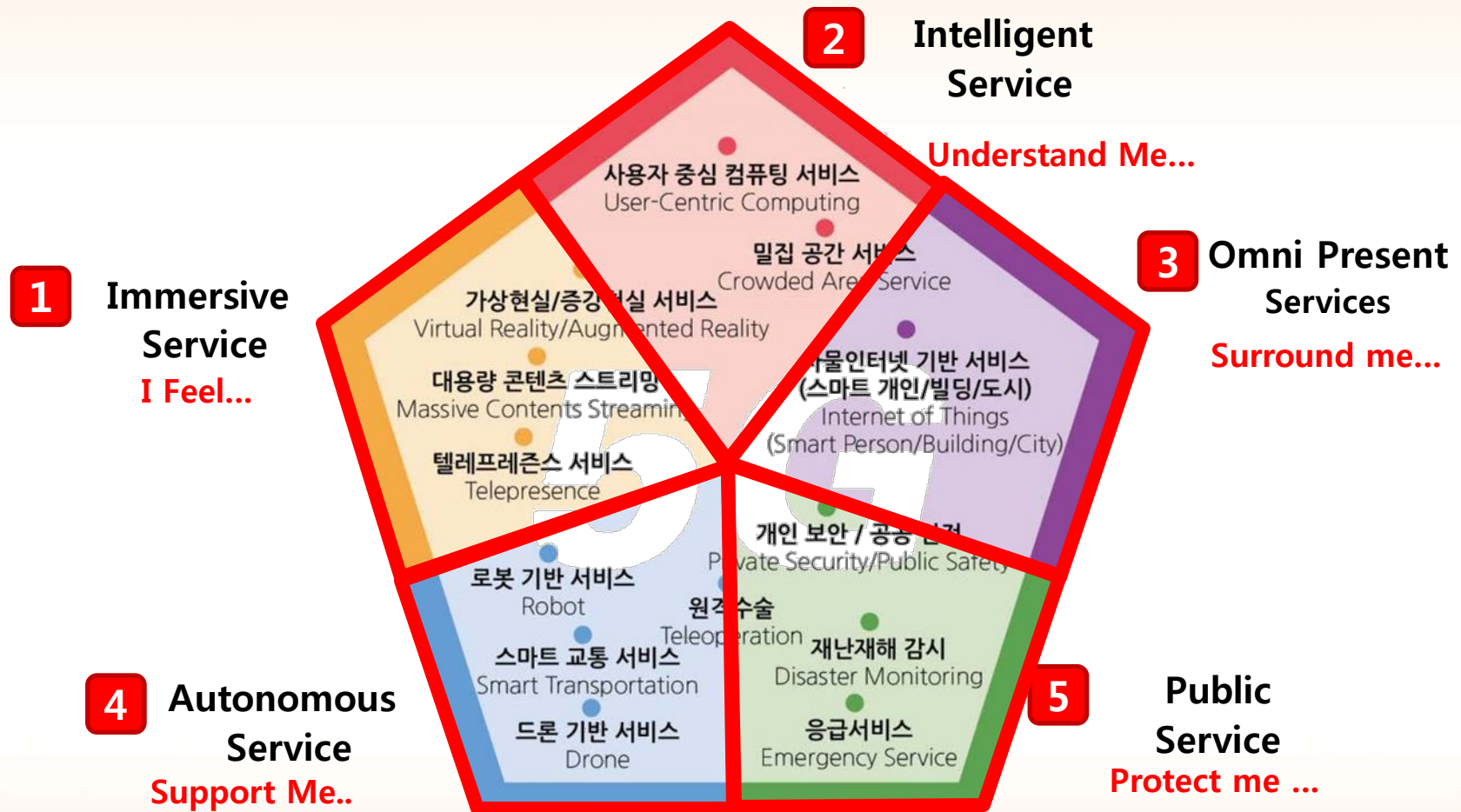
Intelligent

5대 분야  
(5G+타산업  
융합서비스)

Omnipresent

Public

# 5G Convergence Services Description

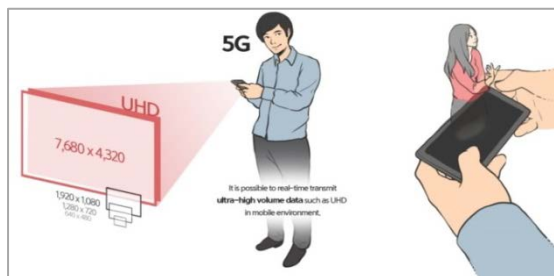




# Immersive Services

## Concept

Ultra Density Media + Networked Media + Immersive Device



360° Video

8K UHD, 3D, VR/AR,

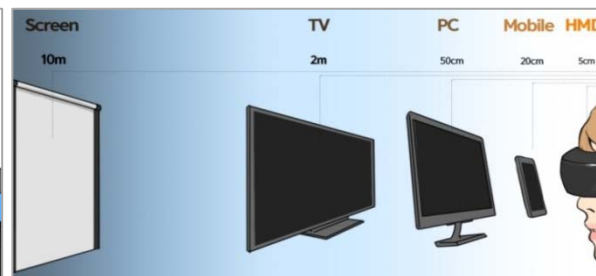
Hologram



360° real-time video broadcasting

Synch View (personal View)

Personal Broadcasting Contents Sharing,  
Mobile IPTV



HMD, non-HMD

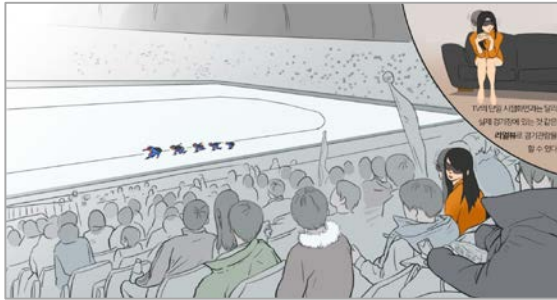
※ Full HD : ~6Mbps, UHD : ~100Mbps

※ 8K(7,680\*4,320, 60fps) 360 Video: ~258Mbps

# Immersive Services

## Use Cases

### Real Time VR



Remote experiences without  
going to stadium or concert hall

### Real time AR



Combining real and digital  
objects  
=> Education, e-commerce

### Real Time Mobile Hologram



Real time streaming by Hologram



# Intelligent Services

## Concept / Use Cases

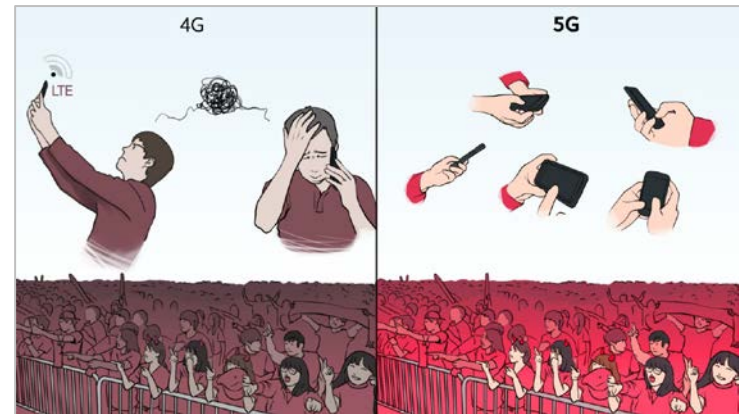
Provisioning intelligent network and services capabilities, knowing me, following me, and replacing me, which requires 5G capability.

### User-centric Computing



Big Data based information processing  
from massive sensors  
⇒ Life coaching, Health care,  
Disaster prevention

### Crowded Area Services



Customized services in dense environment  
→ Localized SNS/Advertisement

# Omni-present Services

## Concept / Use Cases

Smart City, User Benefits due to connected objects in surrounding environment, Remotely accessing, perceiving, manipulating virtual objects or processes.



- **Smart personal network:** By wearable devices (Infotainment, Healthcare, Mobile Concierge)
- **Smart Building:** Energy, Security management
- **Smart City:** Traffic , Energy management

### [Healthcare]

Personal Health monitoring  
(Heart beat, Blood pressure , Blood sugar etc. )  
→ Sports, food menu recommendation,  
Consultation to doctors



# Autonomous Services

## Concept / Use Cases: Vehicle

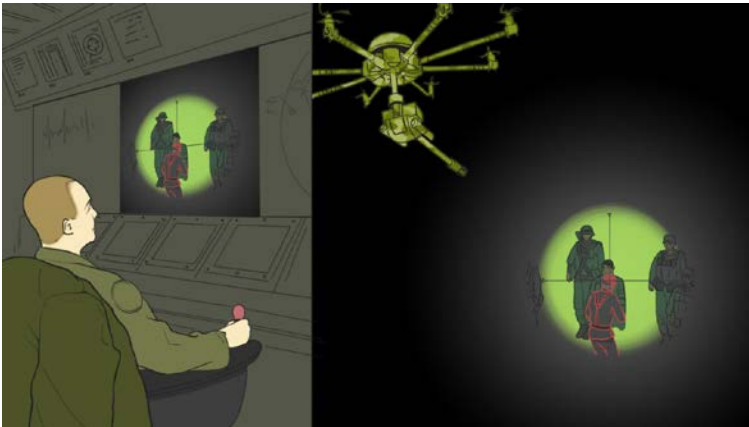
Safe Transportation Service and entertainment on the move  
(smart office on the move)



# Autonomous Services

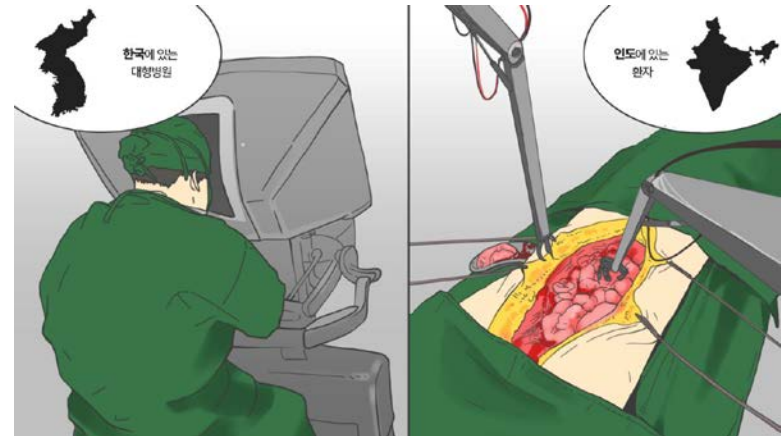
## Concept / Use Cases: All other Unmanned Vehicles: Drone & Robot

### Drone



- **Surveillance Network:** Mobile CCTC
- **Disaster Monitoring:** monitoring, evacuation in harsh environment where human access is limited
- **Logistics**
- **Military purpose:** Enemy monitoring, operation

### Robot



### Robot control based services

- **Tele-operation:** Remote medical surgery
- **Smart Industrialization:** Robot based automation

## Concept / Use Cases

- **Disaster Monitoring**  
→ Remote monitoring and estimation
- **Public Safety/Private Security**  
→ Networked services for evacuation  
→ CCTV, Sensors based security monitoring
- **Emergency Services**  
→ Fast reaction for remote areas (mountain, marine environment) e.g. remote diagnostic and surgery

Public Safety

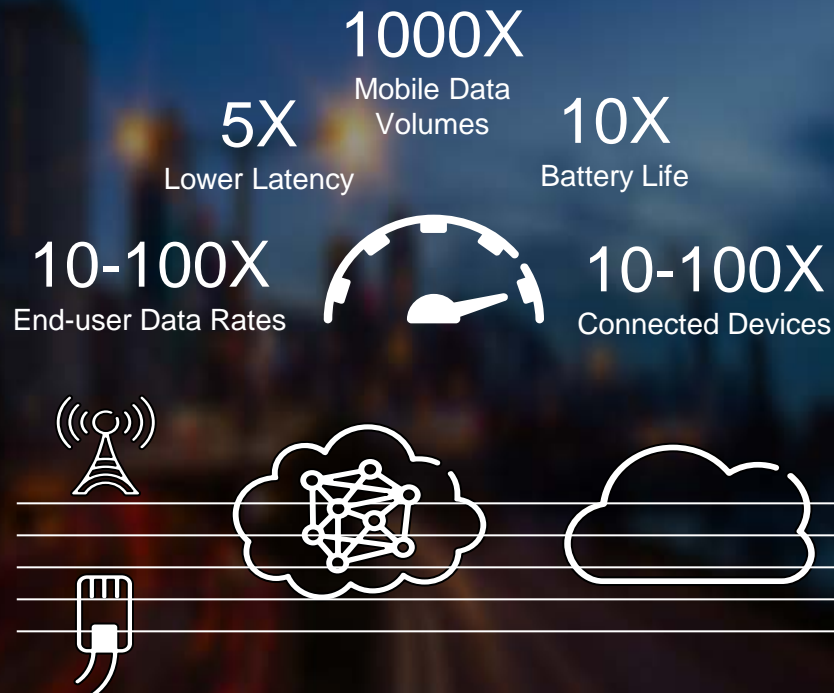


Emergency Services





# One network – multiple industries

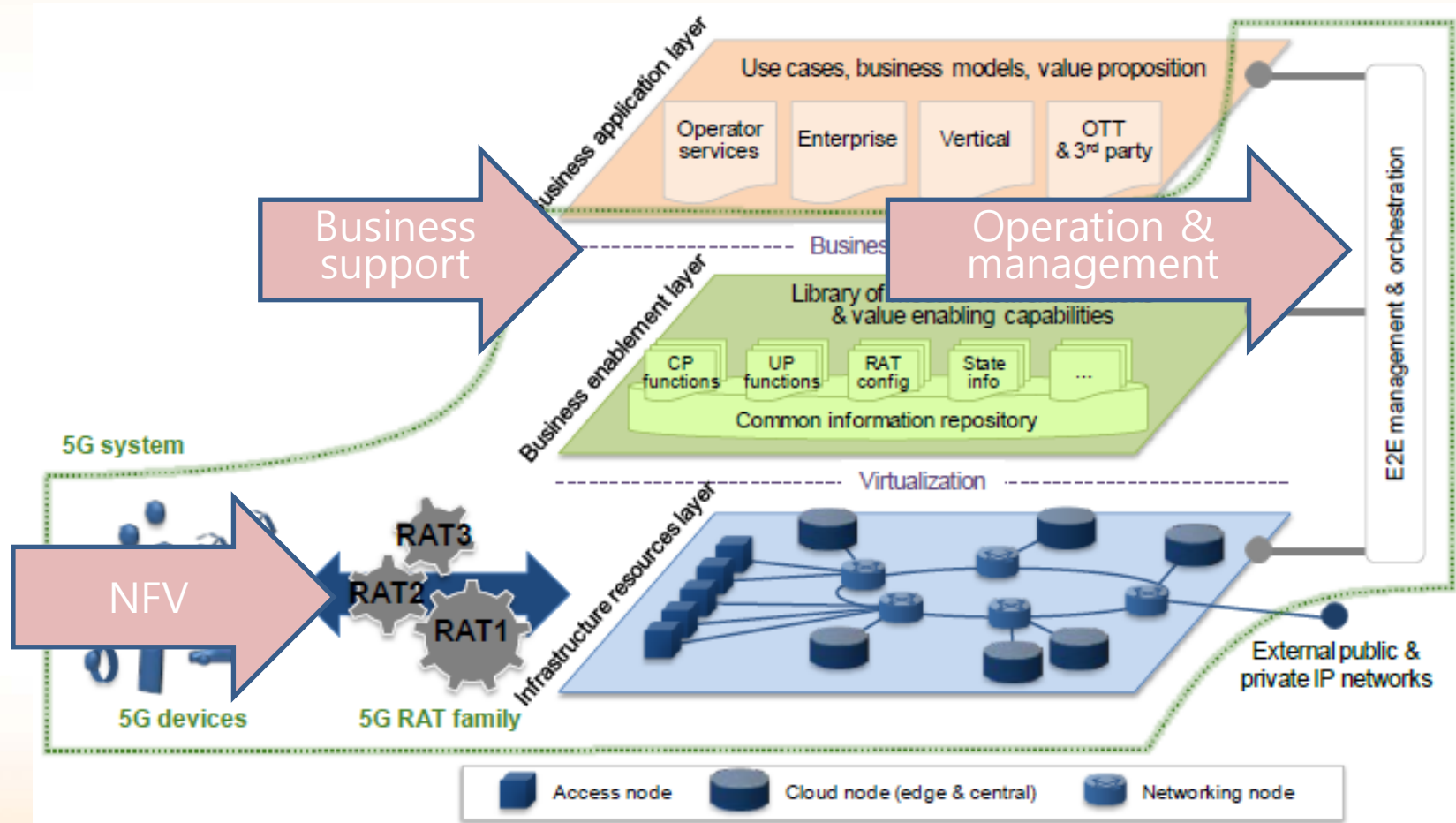


A common network platform with  
Dynamic and Secure Network Slices



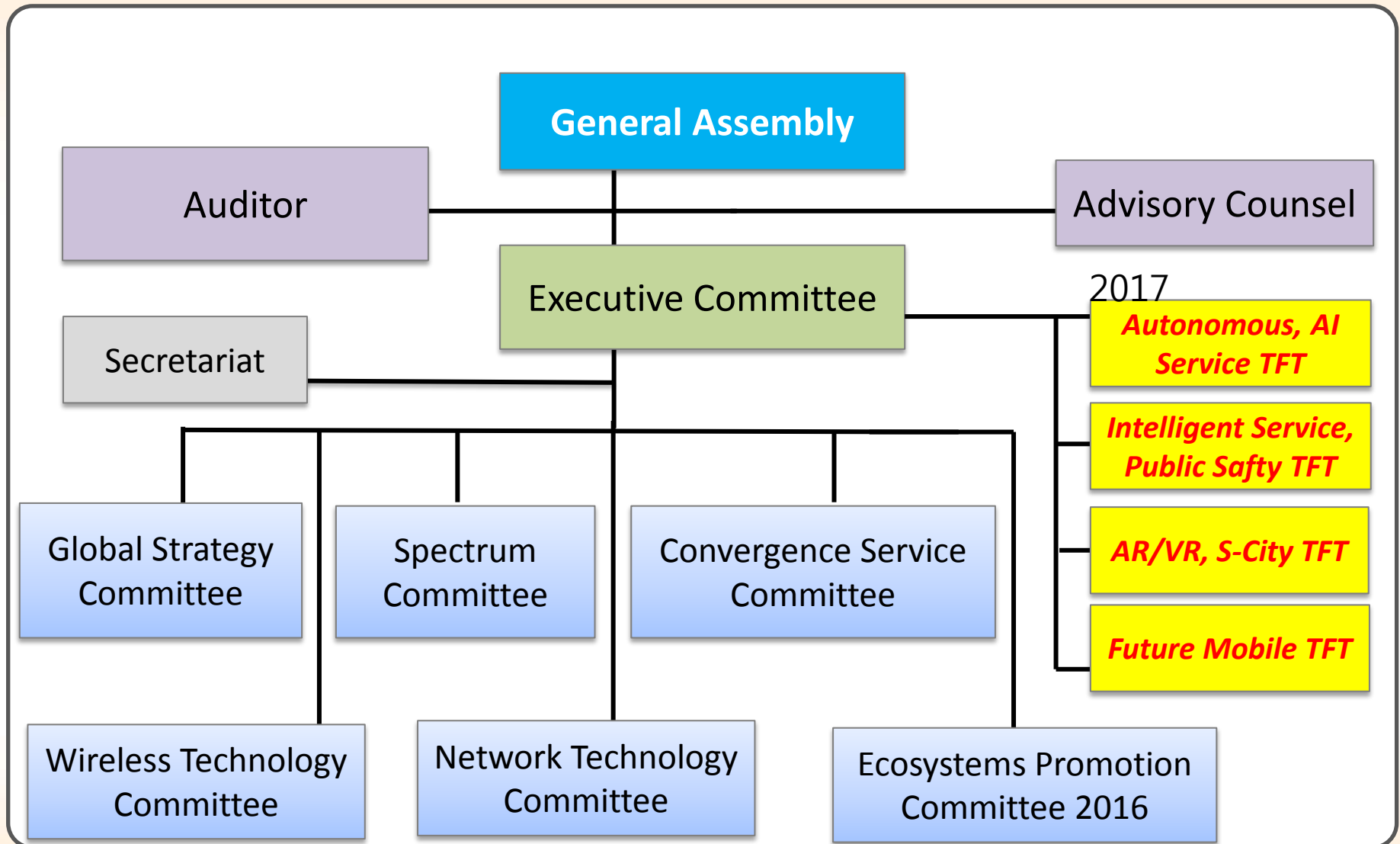
# 5G Technology for vertical integration #2

## Network architecture for vertical integration



Source : NGMN 5G white paper, 2015

# 5G Forum: Organization (2/2)





# 4<sup>th</sup> Global Joint 5G Event

The 4<sup>th</sup> Global 5G Event is scheduled during Nov. 22-24, 2017 in Seoul, Korea



Source: allhotel.tistory.com



Source: Lotte World Adventure



Thank You !!

