

# 5G Status and Preparation for B5G in Korea

Prof. LEE, HyeonWoo  
([woojaa@dankook.ac.kr](mailto:woojaa@dankook.ac.kr))

Professor, Dankook Univ. Korea  
Vice Chair, Executive Committee, 6G Forum  
Vice Chair, Mobile Standard Committee (TC11) , TTA

18th. Oct 2023



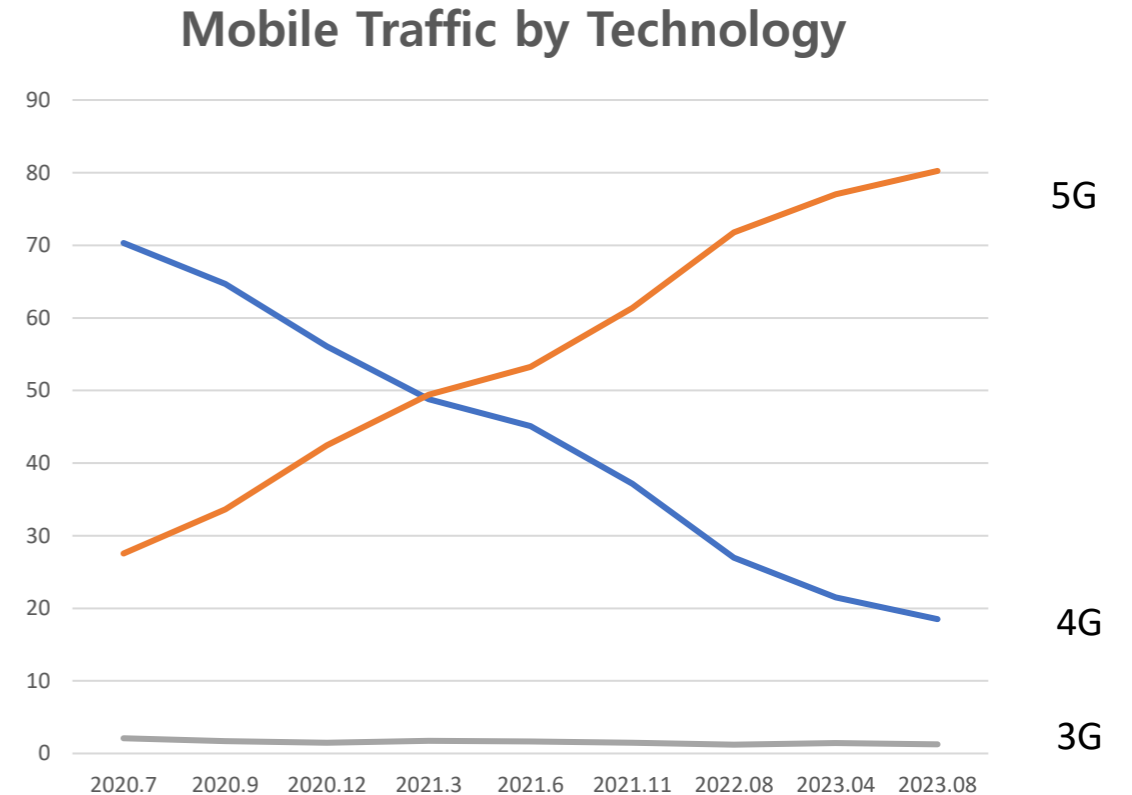
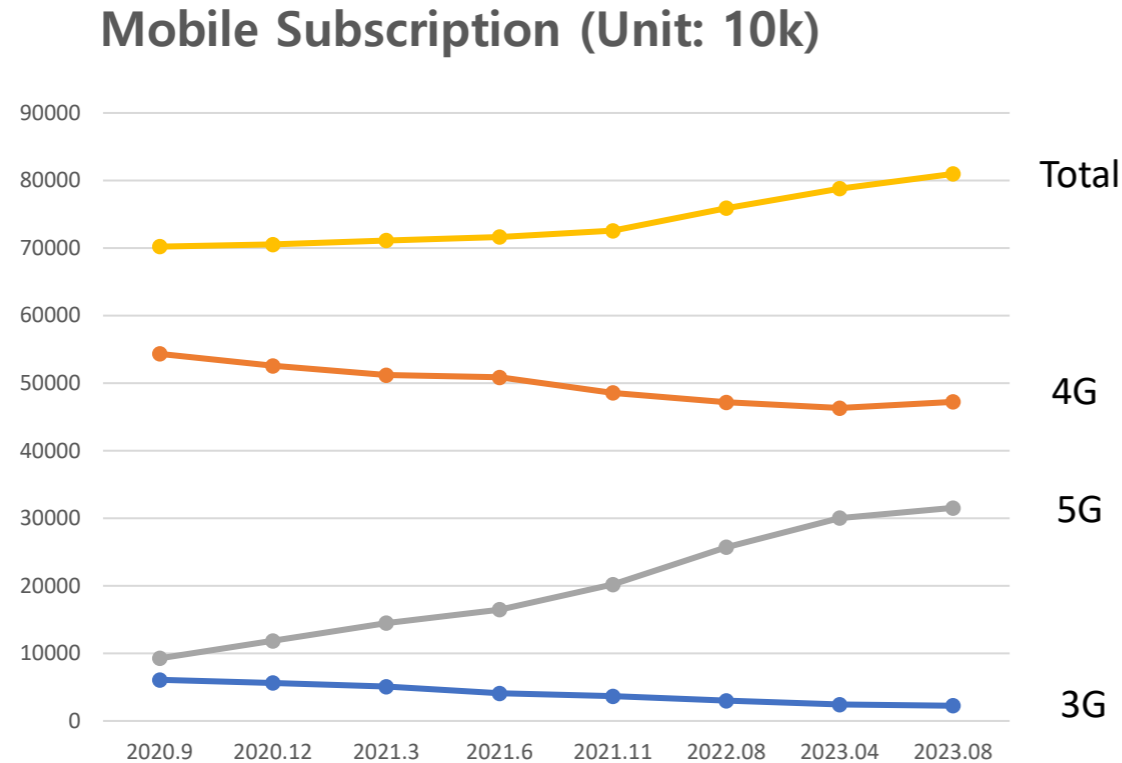


# CONTENTS

**I** 5G Status

**II** B5G Preparation

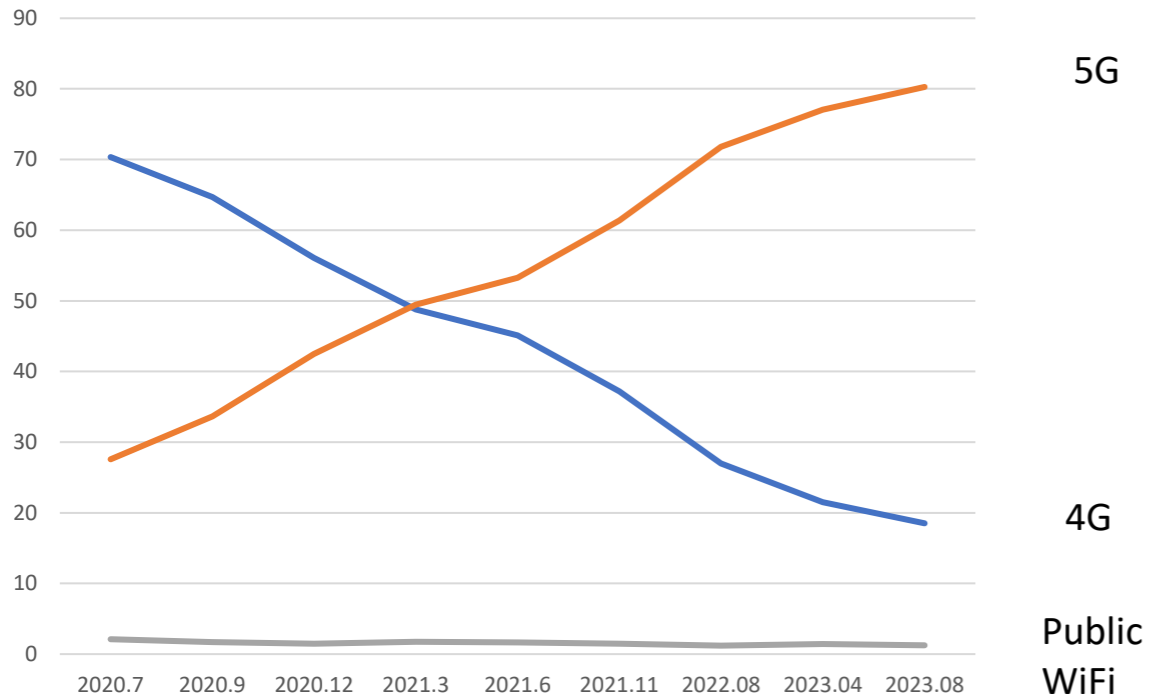
# 5G Subscription (as of 31· Aug. '23)



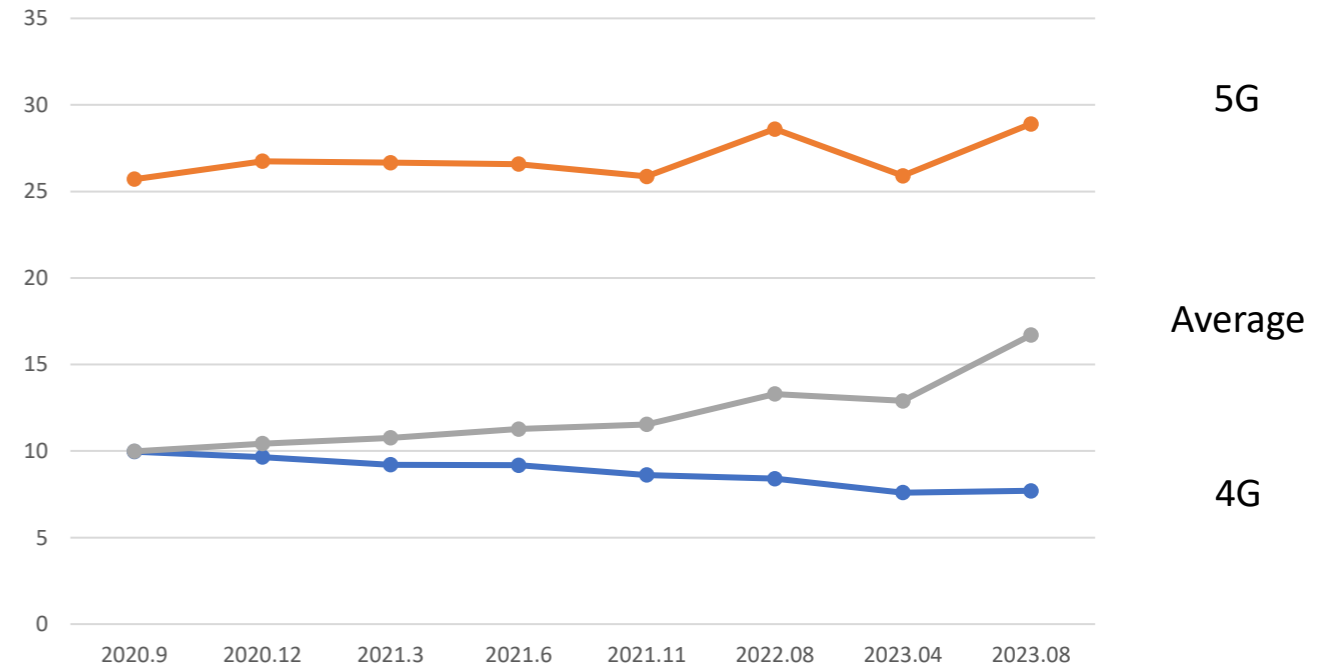
- 156% Mobile Penetration (81 Mn. Mobile subscription/ 52 Mn. Population)
- 5G Subscription
  - 31.5 Mn. 5G subscription
  - 38.9% 5G penetration ratio
  - 4.5 Years after commercialization start on April 2019.

# 5G Traffic (as of 31. Aug. '23)

## Mobile Traffic by Technology



## Monthly Avg. User Traffic (GB)



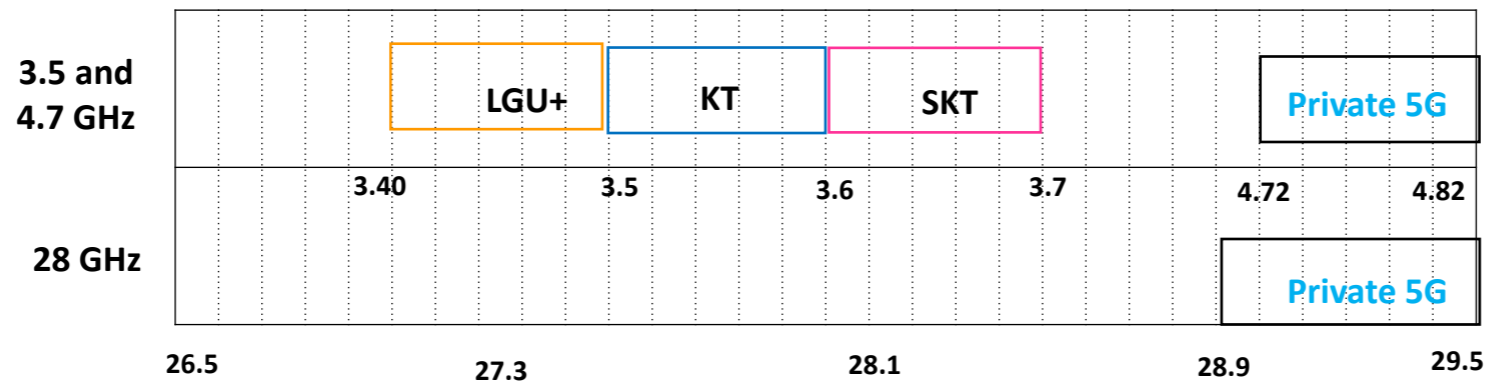
### - 5G Traffic

- 80% of total mobile traffic consumed by 5G and 18% by 4G LTE
- 28.9 GB/Month/user by 5G and 7.7 GB/Month/user by 4G LTE

# 5G Spectrum

- Spectrum on 3.5 GHz band
  - LGU+ had 80 MHz while KT, SKT had 100 MHz spectrum in 3.5 GHz in year 2019
  - Recently, LGU+ acquired additional 20 MHz and started service with whole 100 MHz.
  - Migrates from NSA (Non Stand Alone) mode to SA (Stand Alone) gradually
- Spectrum license for 3 mobile operators on 28 GHz were early terminated
  - 28 GHz network deployments were less than original plan
  - New licensing conditions for potential new operator are under preparation

< 5G Spectrum (Public and Private) >



# 5G Service for NPN (Non Public Network) use

- Local/Private 5G Brand name in Korea is "eUm-5G")
  - Derived from eMBB, URLLc, mMTC usage scenarios of 5G
- 23 Organizations in 39 locations got eUm-5G spectrum as of July '23,

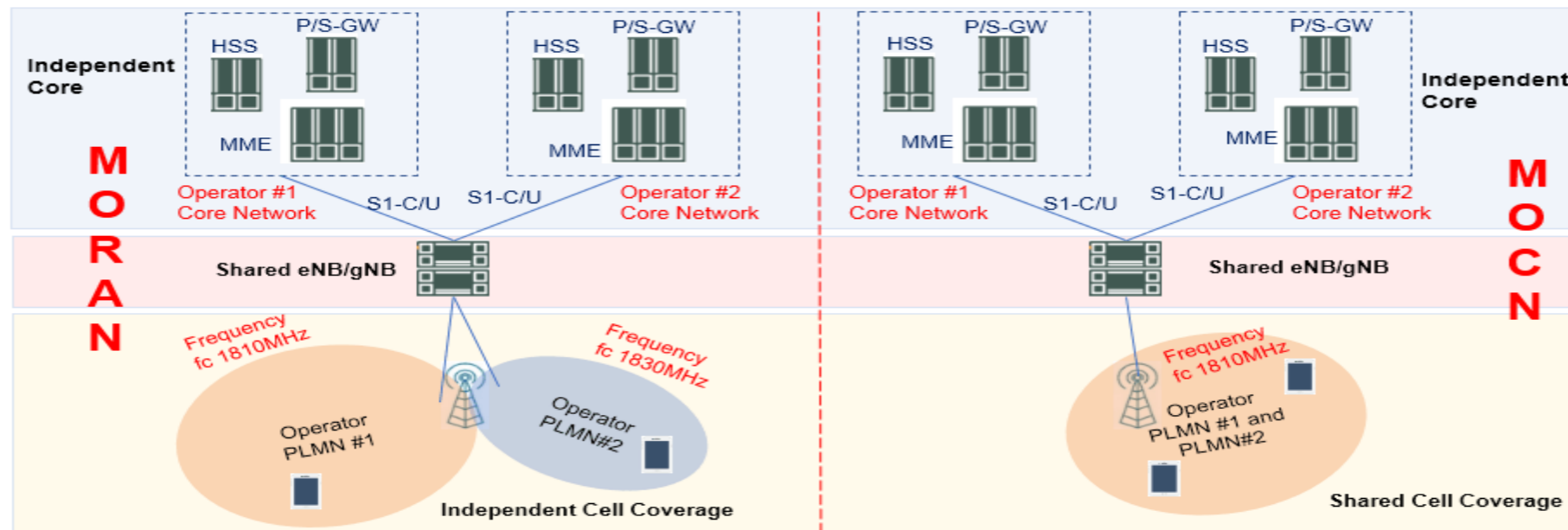


Source: "eUm 5G supporting Activities", LEE SangYun, KCA, eUm 5G workshop, 2023.08.25

# 5G Network Sharing in Rural Areas

- 5G users can have access to the high-speed network regardless of the carrier they are subscribed to in 131 rural areas (remote coastal and farm towns) across the country.
- 5G network sharing is based on MOCN (Multi Operator Core Network) specified in 3GPP.
- Three MNO will complete deployment in phases by 1H 2024.
  - \* SKT, KT, LG Uplus

<Concept of MOCN specified in 3GPP>



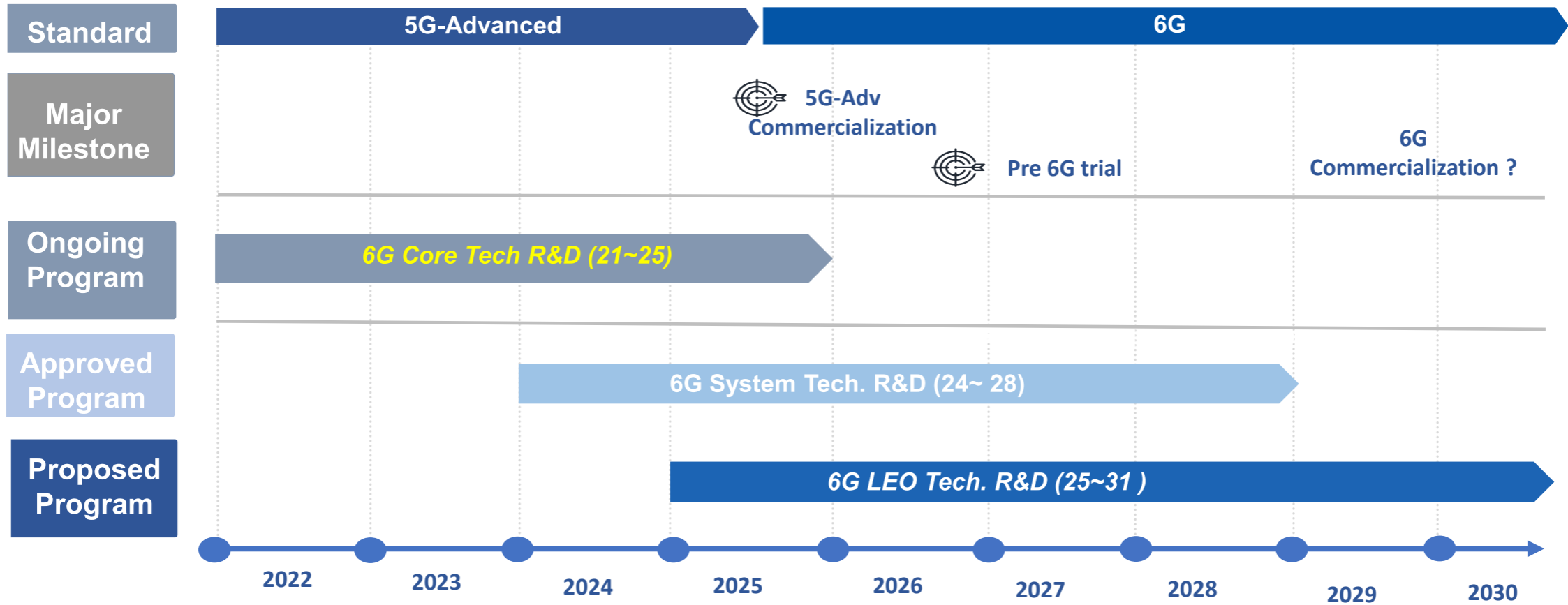


**I 5G Status**

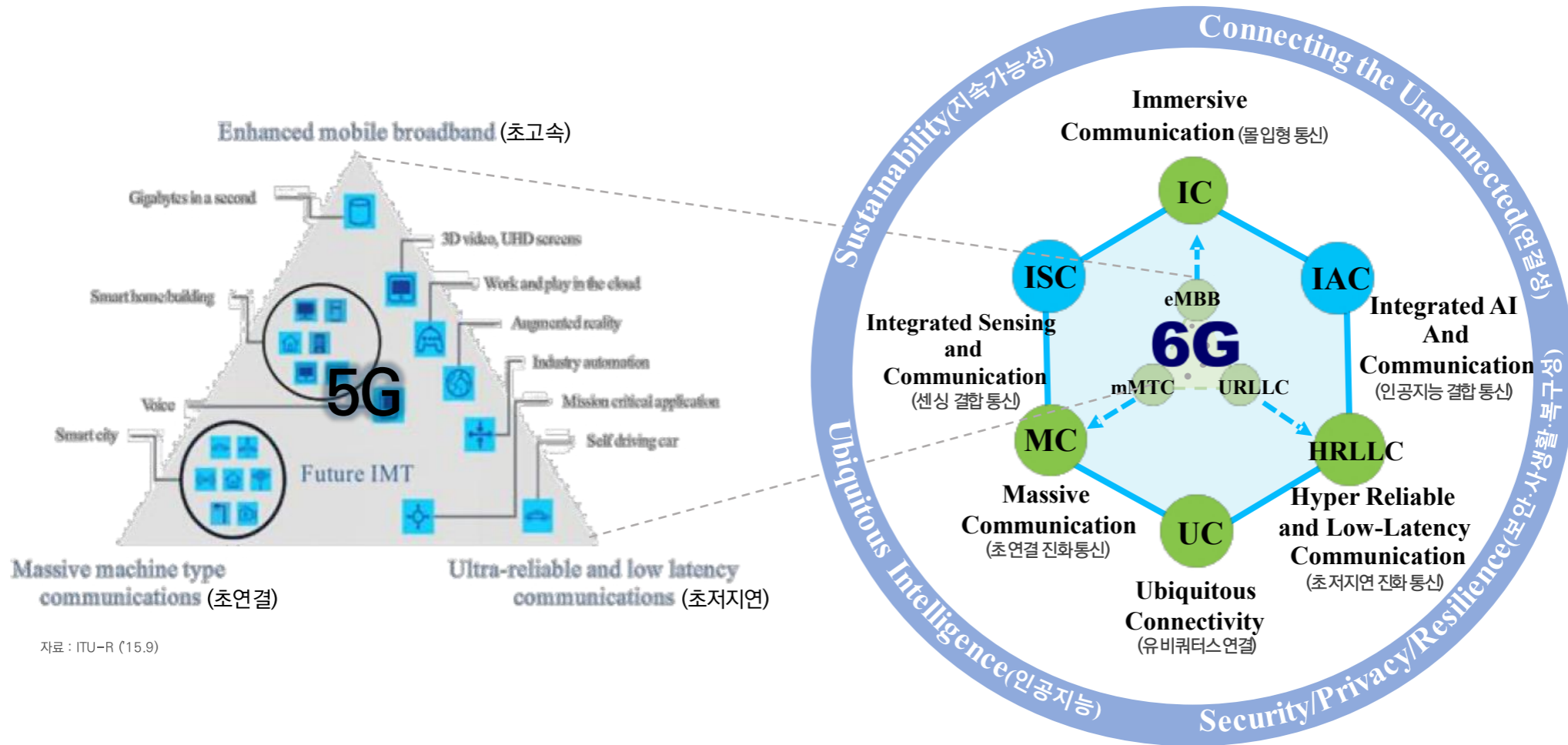
**II B5G Preparation**



# Continual Government R&D Programs Toward 6G

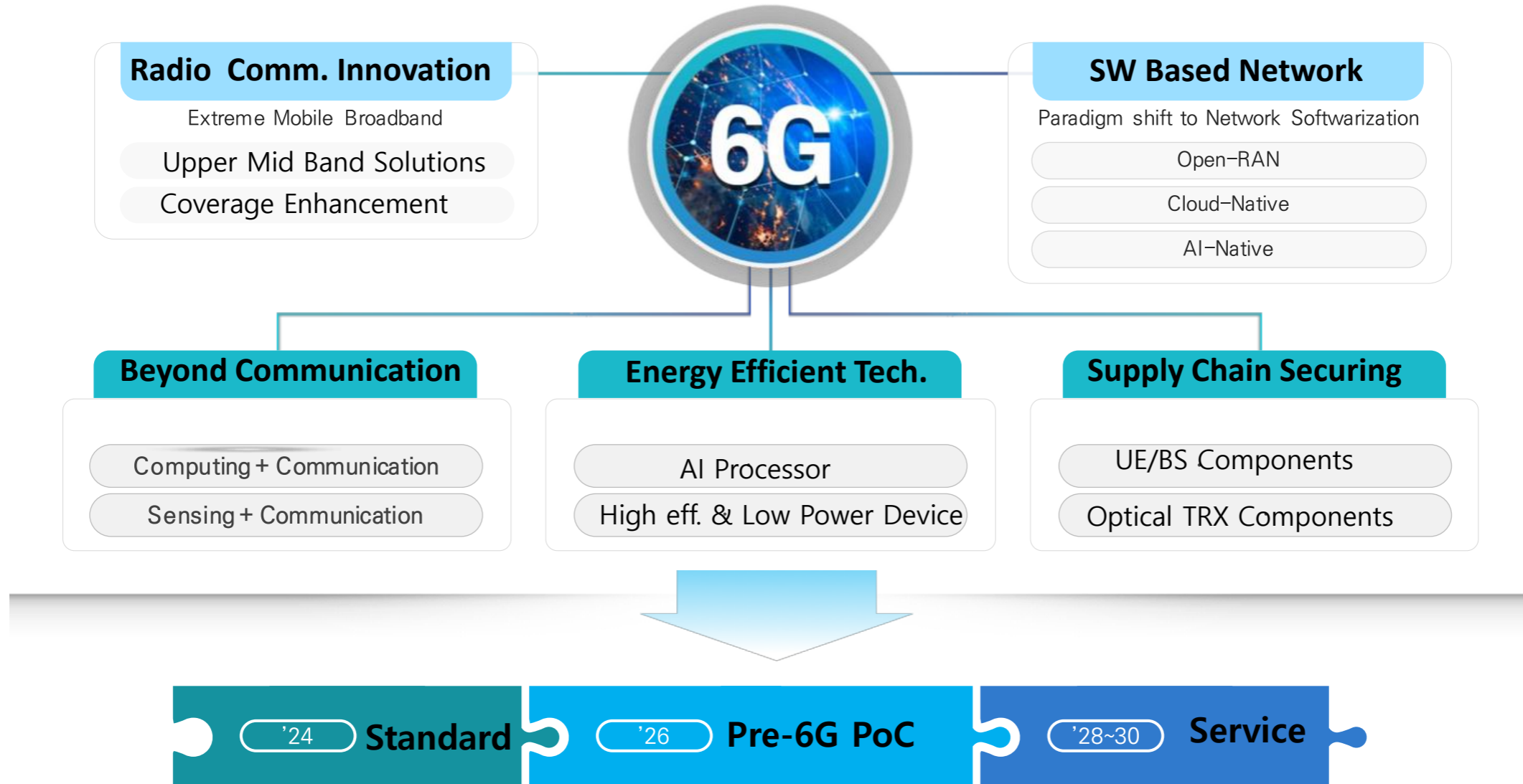


# 6G as Enhancement of 5G with New features



Source: "6G R&D Direction of Korea ", CHOI SungHo, IITP, TTA TC 11 Workshop, 2023.08.09

# 6G System Technology R&D Direction



Source: "6G R&D Direction of Korea", CHOI SungHo, IITP, TTA TC 11 Workshop, 2023.08.09

# 6G R&D International Collaboration

## Joint Research and Technology Exchange with Overseas Major Countries



### USA

6G R&D joint research  
In University-focused public offering way  
(美 National Science Foundation (NSF),  
2 projects in '21)  
\* Planning 3 new projects every year

### China

6G Ultra-high frequency (THz)  
technology research and standards cooperation  
technology joint research  
(中 China Academy of Information Communication  
Technology (CAICT), 1 project in '21)

### Finland

Joint research on next generation  
low latency · hyper trust communication  
technology with Finland  
((KOR)ETRI- (FIN)Oulu University,  
2 projects in '21)

## 6G International Cooperation

MoU  
with Global 6G Organizations



5G Forum

Next G. Alliance



5G Forum

6G SNS IA

6G Global 2022

Fueling the 6G flight

Date : 2022.11.01(TUE)-2022.11.02(WED)



International Events

'6G Global'

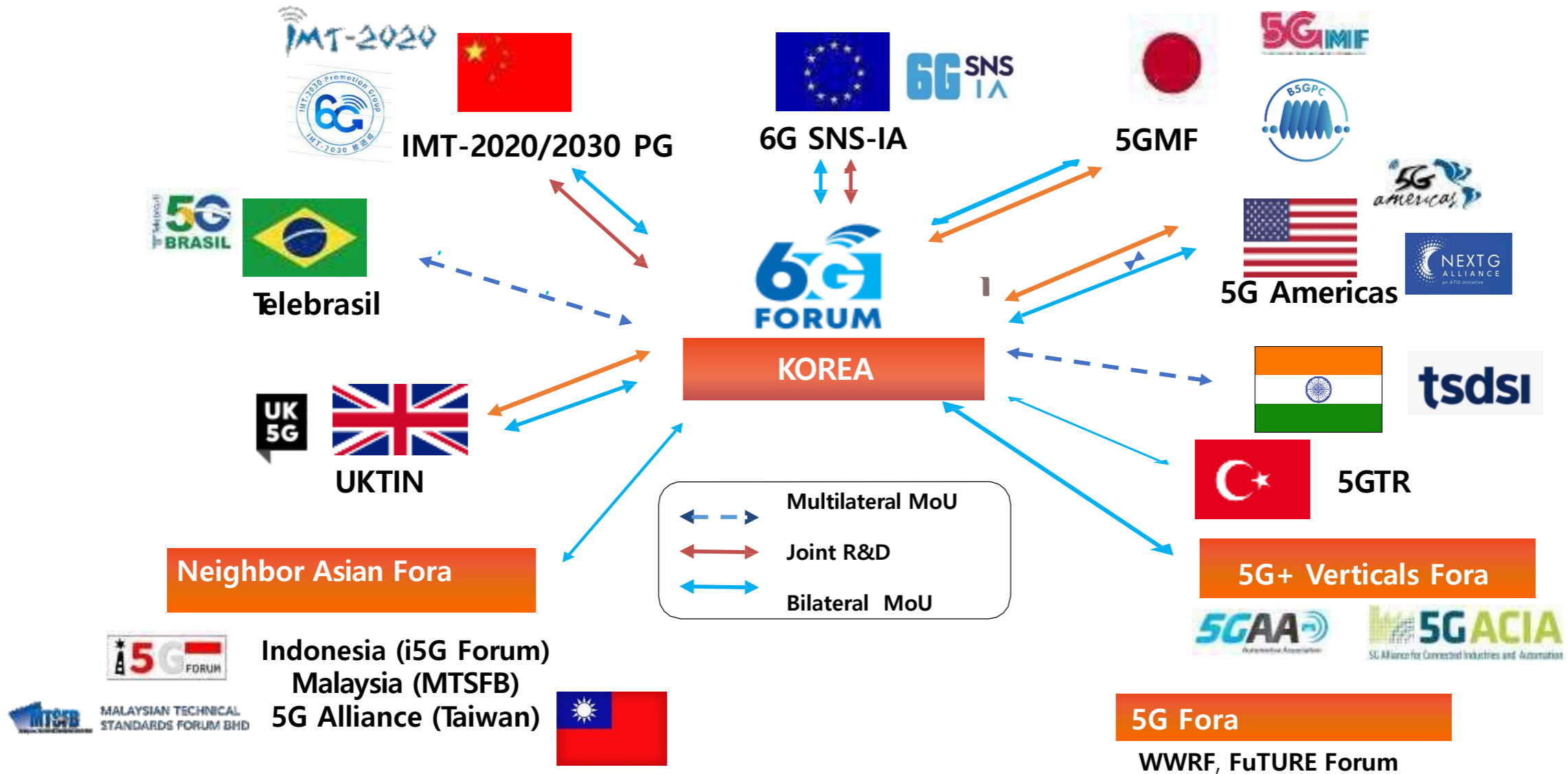
2020~2023



Preparation



# 5G/B5G Global Collaborations



# Thank You !!

