



# 4G Vision & Proposal for CJK 4G Standardization Collaboration

2<sup>nd</sup> CJK Standard Information  
Exchange Meeting

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PG 01 Chair TTA



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# Part I : 3G and Beyond in Korea

## □ Part I : 3G and Beyond in Korea

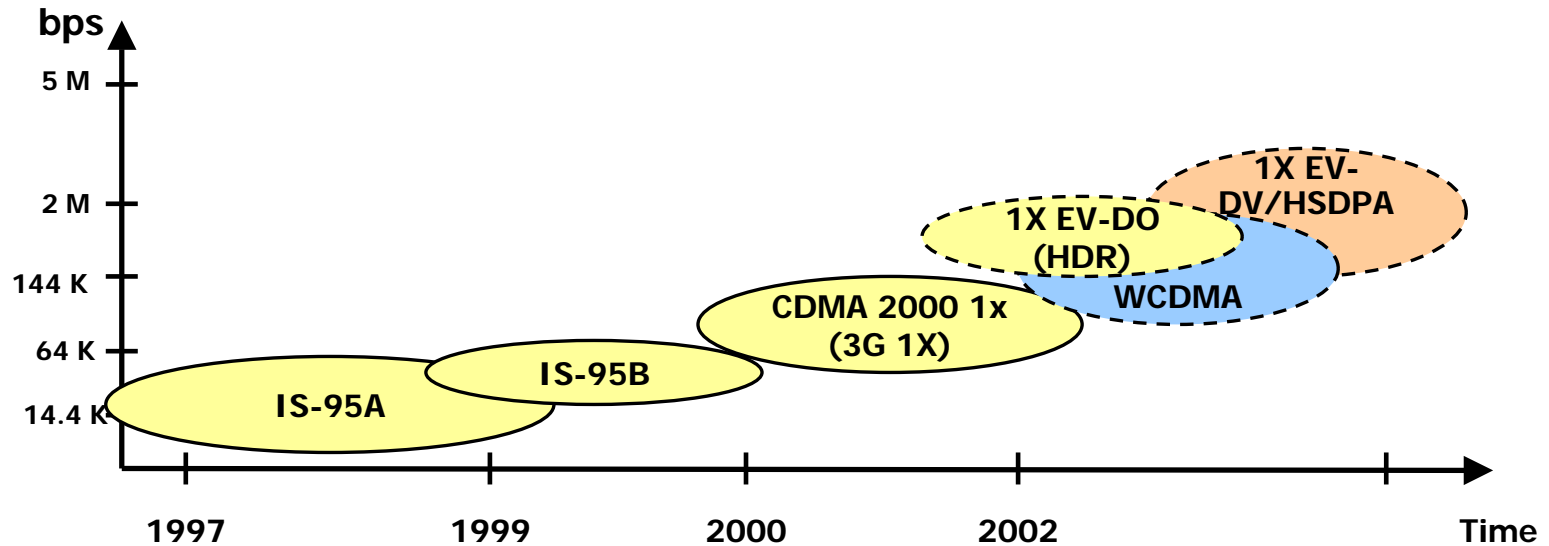
- Current Status on Mobile Communication in Korea
- Considerations for beyond IMT-2000 in Korea
- Future development of IMT-2000 in Korea
- Vision of systems beyond IMT-2000 in Korea

# Current status on Mobile communication in Korea – General Aspects

- ❑ Reorganization of Cellular/PCS (2G) providers.
  - Korea Telecom Freetel + Hansol PCS = KT Freetel (2001.5)
  - SK Telecom + STI = SK Telecom (January 2002)
  - LG Telecom
  
- ❑ 3 Licenses for IMT-2000 Service
  - Two Companies for WCDMA : KT iCom, SK IMT.
  - One company for MC-CDMA : LG Telecom
  
- ❑ Notes
  - KT is a parent company of both KT Freetel and KT iCom.
  - SK IMT is a affiliated company of SK Telecom.
  - LG Telecom has both 2G and IMT-2000(MC-CDMA) licenses.

# Current status on Mobile communication in Korea – Technical Aspects

## ❑ Network Evolution Roadmap

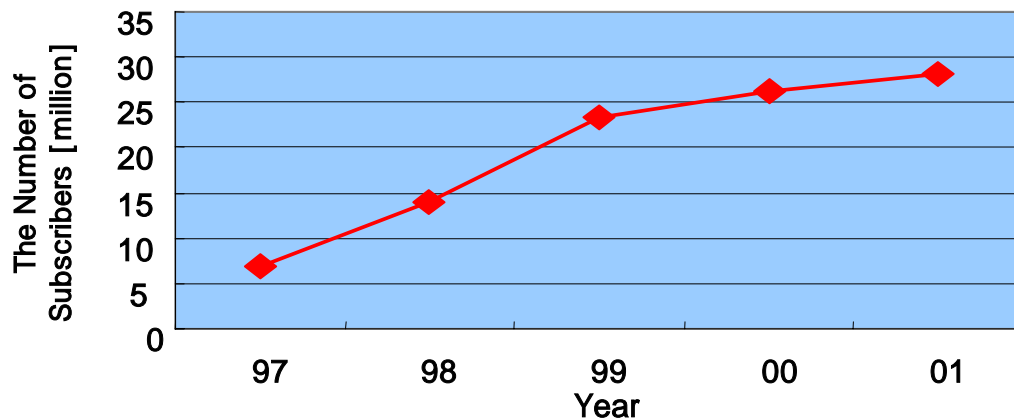


## ❑ Notes

- Cdma2000 1x service competition was started around the middle of 2001.
- 1X EV-DO and WCDMA technologies have been commercialized.

# Current status on Mobile communication in Korea – Market Aspects

- ❑ Voice subscribers have exploded in the past years.
  - The number of subscribers has increased much faster than expected.
  - Voice Market is getting saturated.



- ❑ Mobile Internet Services are emerging.
  - All carriers have set up mobile internet platform like WAP or ME.
  - Various services such as games, melody download, messaging, stock trading etc. are leading the data market.
  - Data service revenue is rapidly increasing.

# Considerations for Beyond IMT-2000 in Korea

## □ General Aspects

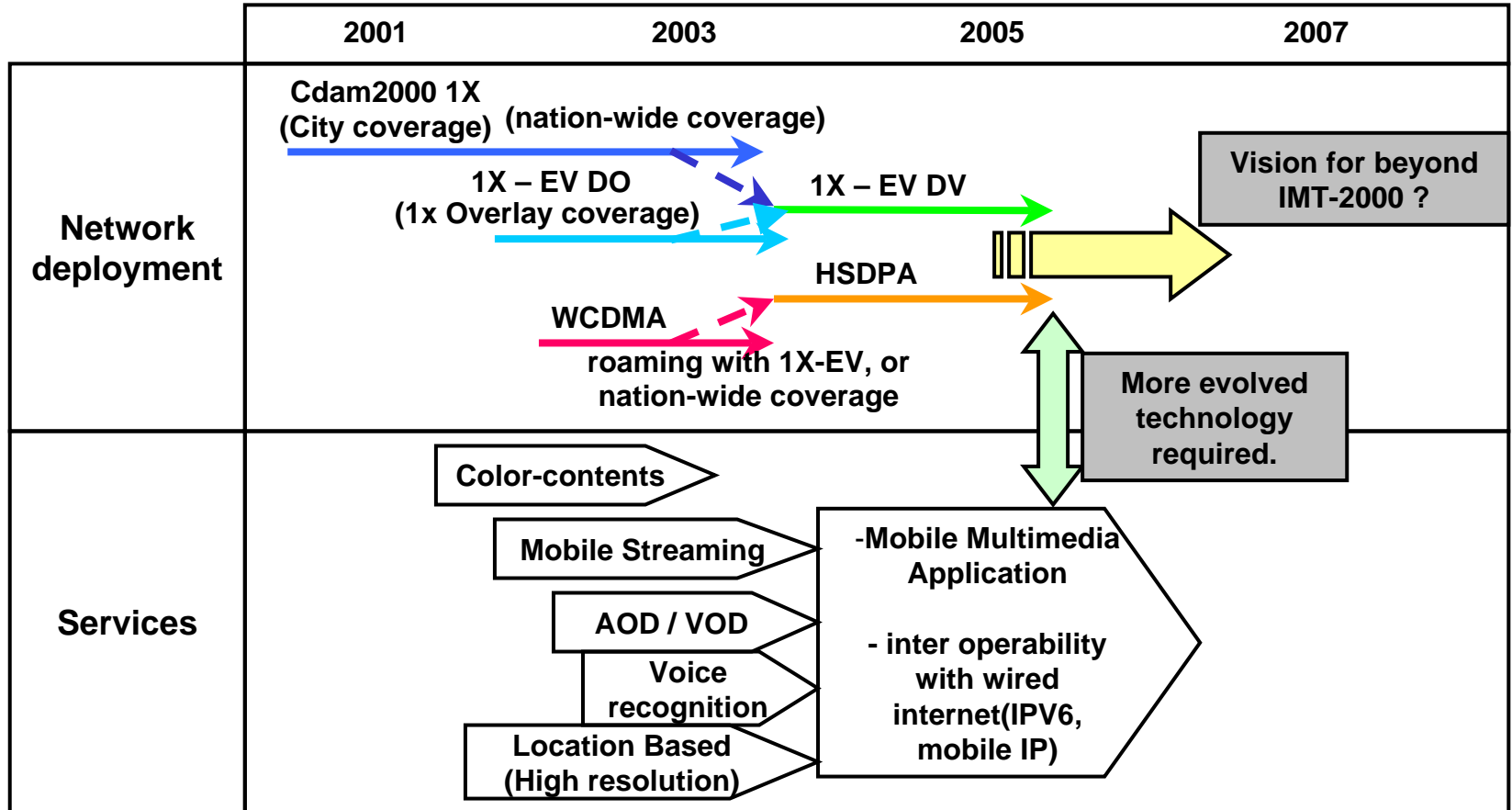
- Two companies- KT, SK Telecom have both WCDMA and cdma2000 licenses.
- Competition or Synergy between cdma2000 and WCDMA
  - ✓ Synergy can be obtained from harmonizing network by the affiliated companies.
    - Increased interest in All IP network for inter-operability.
  - ✓ Competition by the preference of market.

## □ Market Aspects

- Saturated voice market inspires carriers to compete in data market.
  - ✓ Evolved networks suitable for packet data services are required and will boom up new enhanced services.
  - ✓ This results in a expansion of 3G market while a shrink of 2G market.
  - ✓ But, slow increase of the number of total subscribers.
- The increase of data traffics needs for more spectral efficient technologies.

# Considerations for Beyond IMT-2000 in Korea

## IMT-2000(3G) and its evolution services(general forecast)









# Future development of IMT-2000 in Korea

## ❑ Concepts

- Higher data rate and More channel Capacity
- Support for high rate symmetric/asymmetric services based on IP-based network.
- Global Roaming among 3G Families.

## ❑ High level requirements(under discussion)

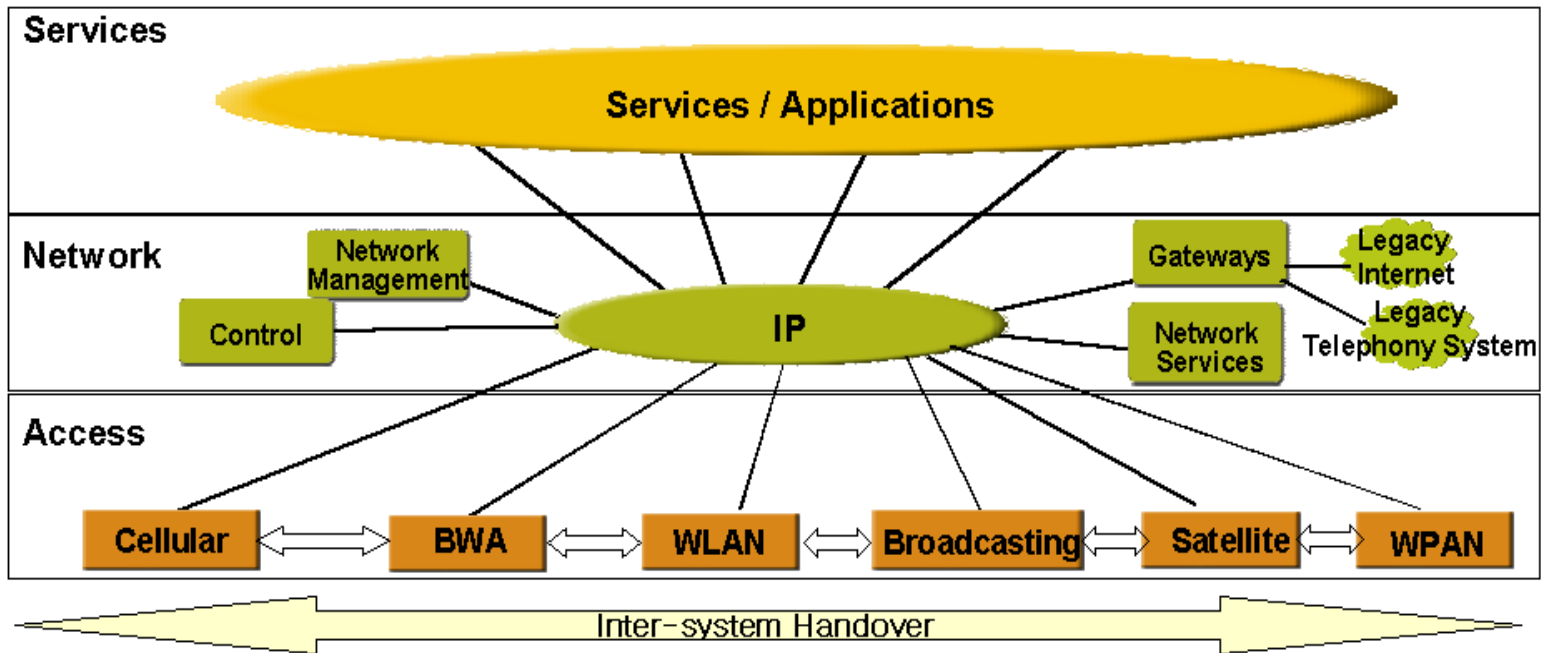
	2002	-----	2005
<b>Service</b>	symmetric		Symmetric/Asymmetric
<b>Core Network</b>	Circuit/Packet		IP based core network
<b>Access Network</b>	Cdma2000 1X, IX-EV DO WCDMA		Cdma2000 1x EV-DV WCDMA(HSDPA)
<b>Terminal</b>	Single/double mode		Multi mode
<b>Data rate</b>	at least 384kbps(vehicle)/ up to 10Mbps(pedestrian)		

# Vision of Systems beyond IMT-2000 in Korea

## - Long term Vision

### □ Concepts

- Convergence of heterogeneous wireless communication systems.
- Seamless services via different technologies.
- Supports for various QoS and CoS.
- All IP infra – end to end.



# Vision for Systems Beyond IMT-2000 in Korea

## - Systems Beyond IMT-2000

### ❑ Concepts

#### ➤ IP Centric

✓ IP- friendly end to end infra : All IP of service, access and core network

#### ➤ Convergence

✓ To converge following systems into IP centric.

- Mobile, BWA(broadband wireless access), Wireless LAN, Satellite, and Broadcast etc.

### ❑ High level requirements( being considered )

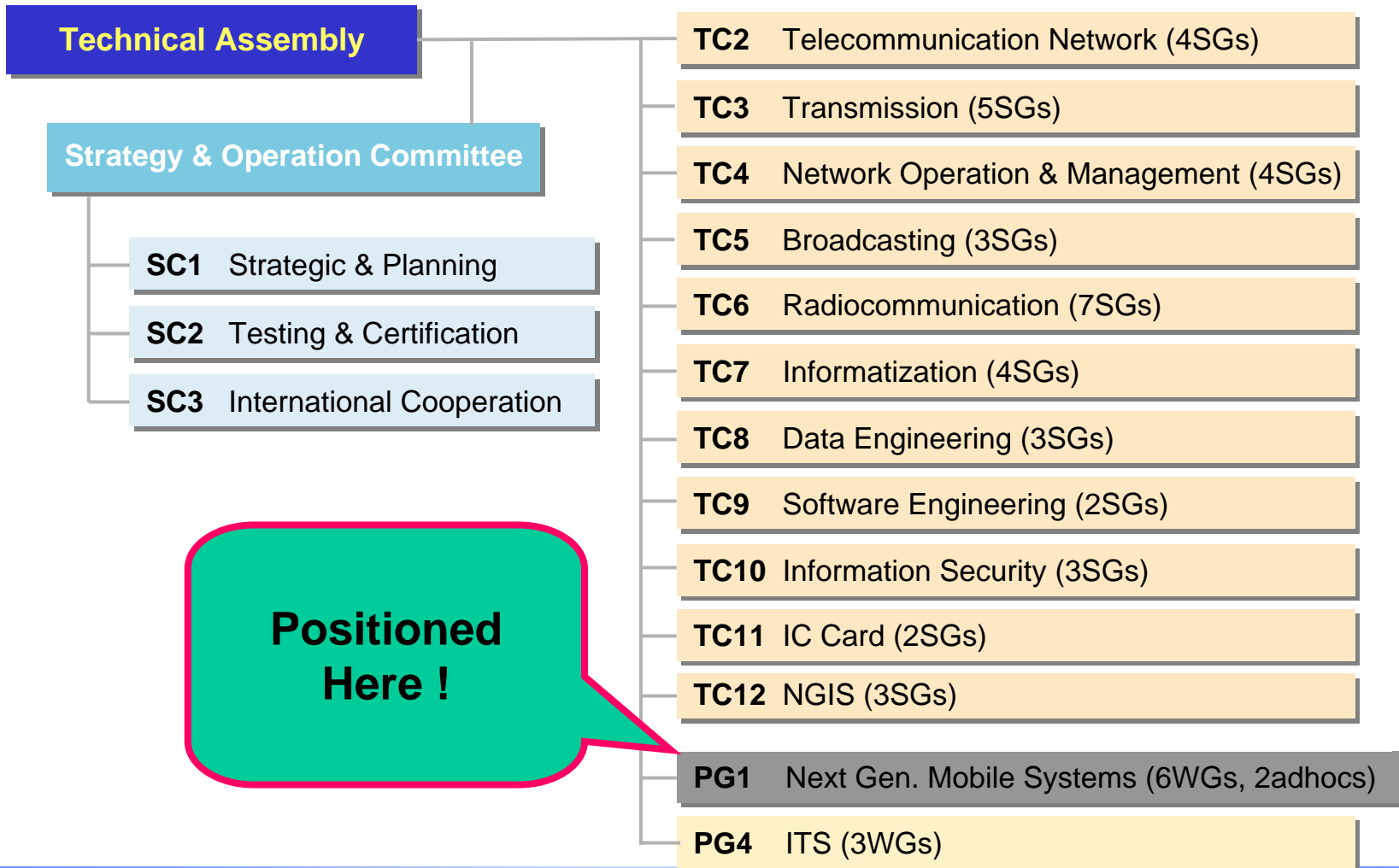
	around 2010
Service	Roaming/handover among different systems, High speed mobility, end to end QoS, etc.
Network	IP centric
Terminal	S/W Re-programmable, H/W Re-configurable
Data rate (bps)	at least 2M(vehicle)/at least 20M(pedestrian) up to 155Mbps(indoor)

# Part II : TTA PG01 Introduction

## □ Part II : TTA PG01 Introduction

- PG01 Position within TTA
- PG01 Structure
- PG01 3G and Beyond Working Group Activities
- Vision of systems beyond IMT-2000 in Korea

# TTA PG01 Project Group - Position



# TTA PG01 Project Group - Structure

## IMT2000 Project Group (PG01)

Chairman: Jin-Sung Choi (LG Electronics/Ins)

### System/Service Working Group (WG01.10)

Chairman: Jun-Cheoul Lee (KT Freetel)

### Beyond IMT-2000 Working Group (WG01.11)

Chairman: Kyu-Jin Wee (Radio Research Laboratory)

### Radio Access Network Working Group (WG01.12)

Chairman: Ho-Kyu Choi (Samsung Electronics)

### Core Network Working Group (WG01.13)

Chairman: Sang-Yong Kang (KTICOM)

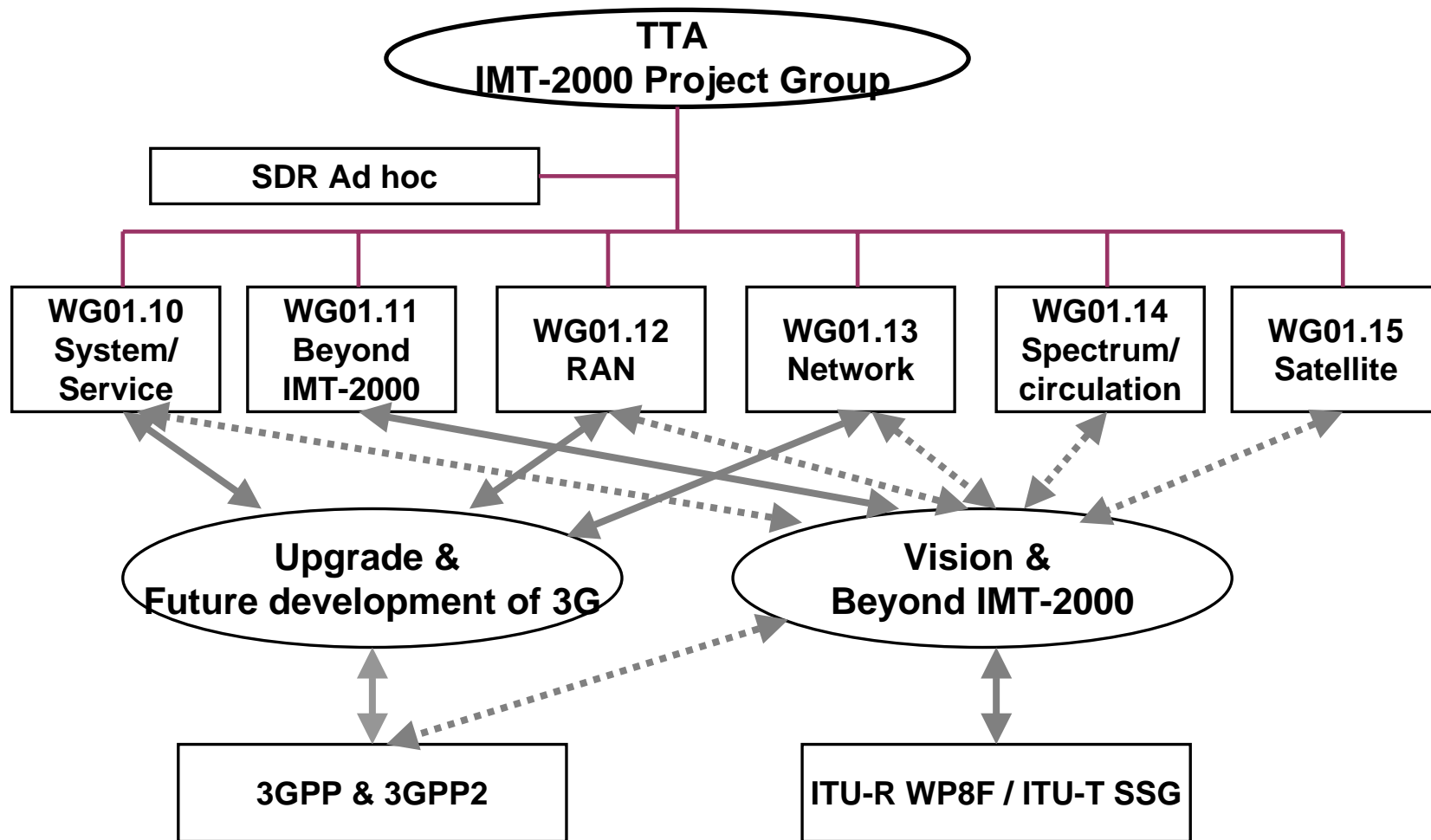
### Spectrum & Global Circulation Working Group (WG01.14)

Chairman: Woo-Ghee Chung (LG Telecom)

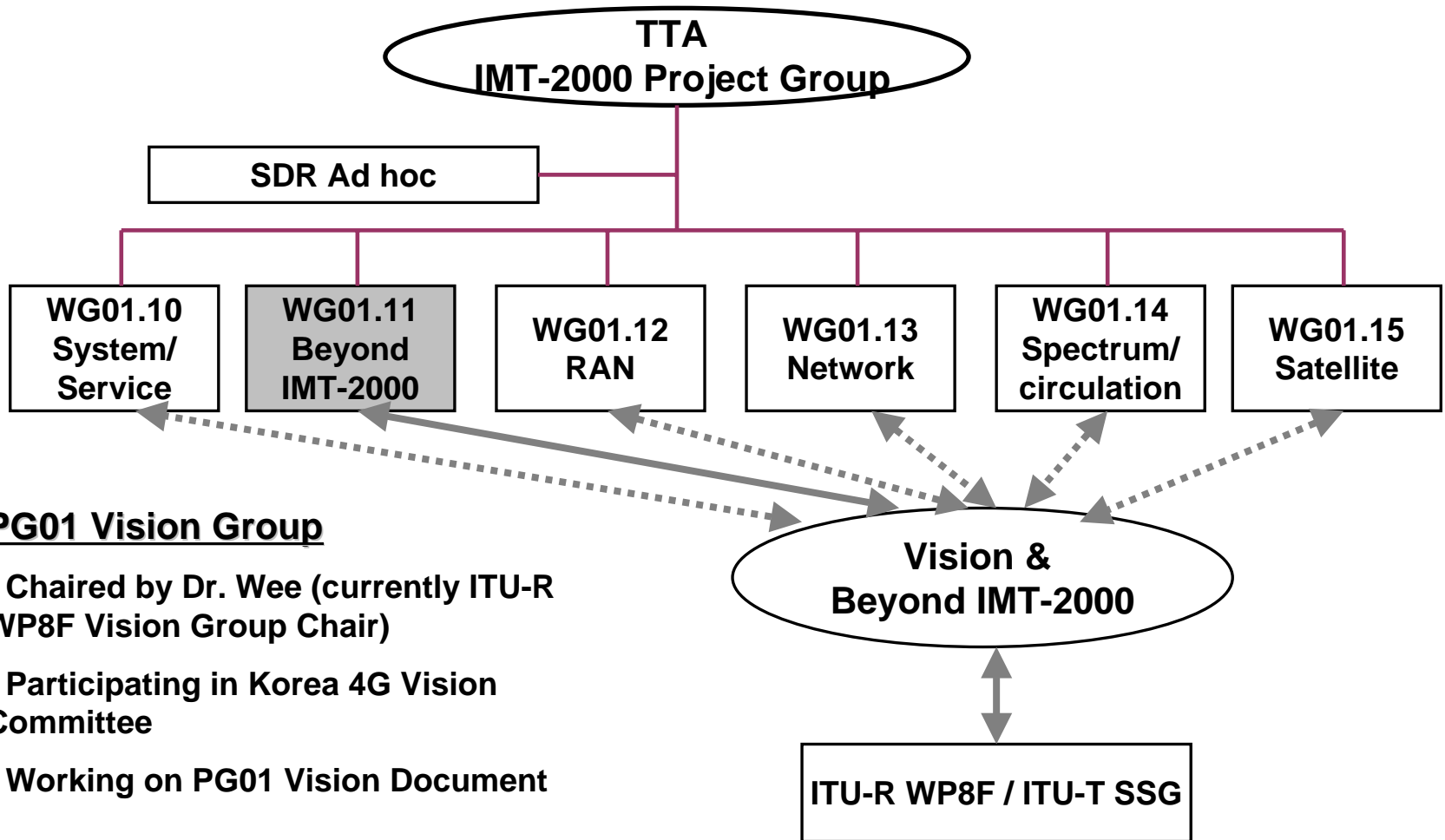
### Satellite Working Group (WG01.15)

Chairman: Kwang-Jae Lim (ETRI)

# TTA PG01 Project Group – 3G and Beyond Activities

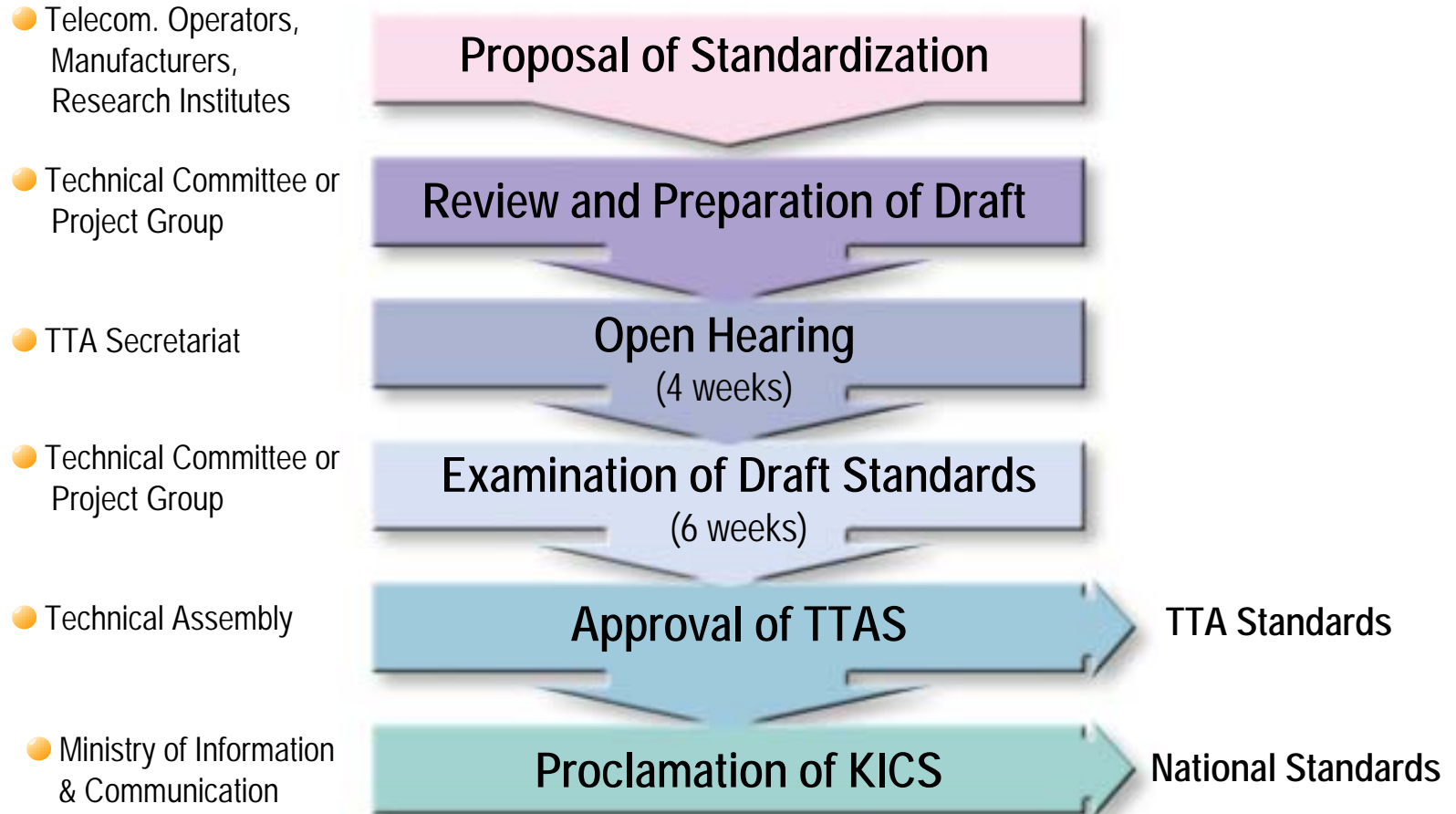


# TTA PG01 Project Group – Vision Group





# TTA PG01 Project Group – Standardization Procedure



KICS : Korean Information & Communication Standards

# TTA PG01 Project Group – Collaboration with Korea IT Forums

- ❑ 2nd Joint workshop between TTA/TC and for a in Oct 10, 2002
- ❑ to avoid duplicated work (mapping between TTA/TC and Forum)
- ❑ closer cooperation (cross participating in the meetings)
- ❑ 29 fora : Internet, eCommerce, Multimedia, Network & transmission, Software, Information, D-contents, etc.

# Part III : Korea 4G Vision Committee Introduction

- ❑ **Part III : Introduction of Korea 4G Vision Studies Committee of Mobile Communication**
  - **Introduction**
  - **Main Tasks**
  - **4G Vision of ETRI**
  - **3G and Beyond Schedule of ITU**
  - **4G R&D Schedule of ETRI**

# Korea 4G Vision Studies Committee of Mobile Communication - Introduction

- ❑ Official Committee Sponsored by Korean Government
- ❑ Established in Feb. 2002
- ❑ Chaired by Dr. Yim (TTA Secretary General)
- ❑ Members are from Various Affiliation including Operators, Manufacturers, TTA, Research Institute, Universities
- ❑ Meeting regularly (quarter base)
- ❑ Working on Korea 4G Vision Document
- ❑ Working closely with TTA PG01
- ❑ Advising Korea ETRI 4G Research and Development

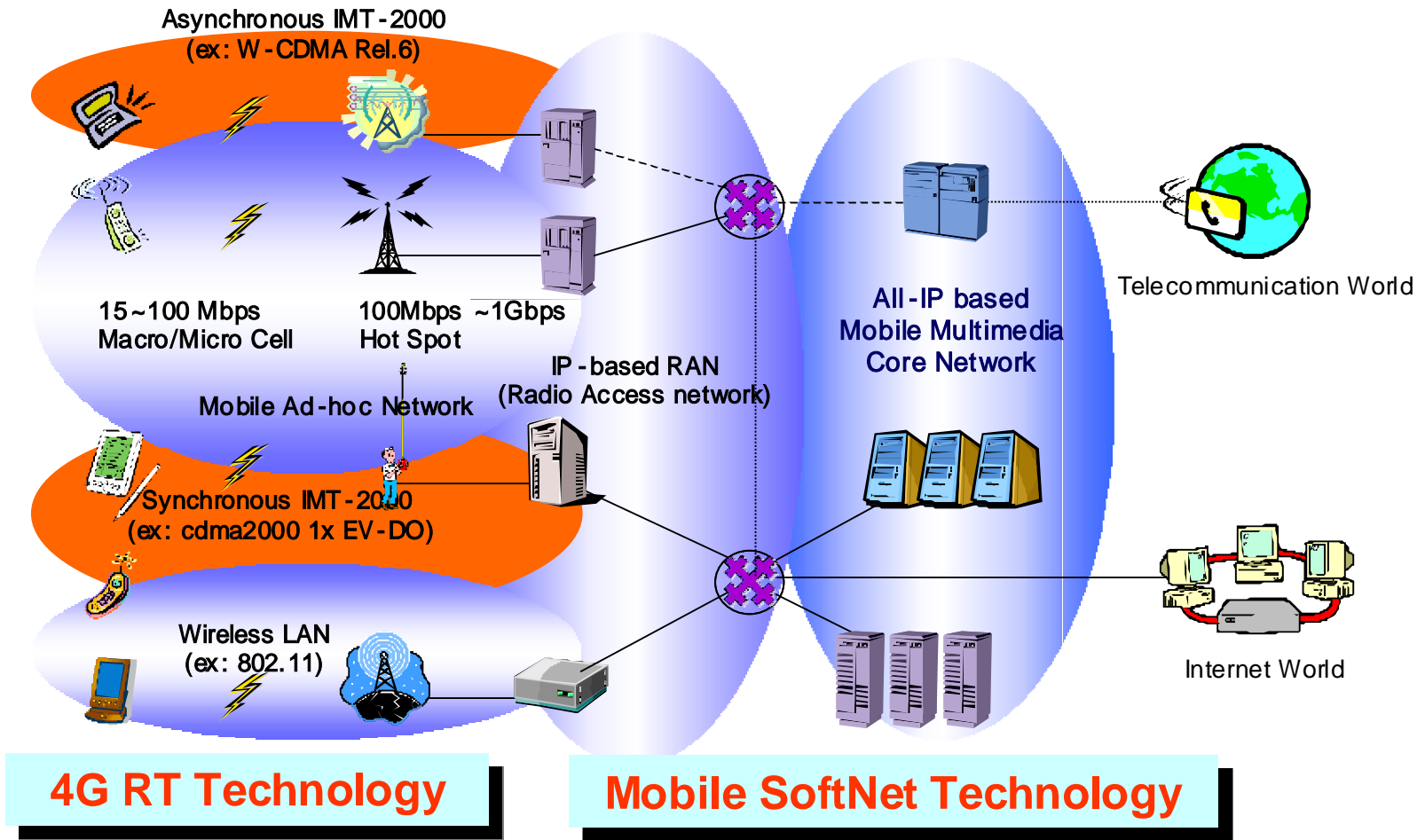


# Korea 4G Vision Studies Committee of Mobile Communication – Main Tasks

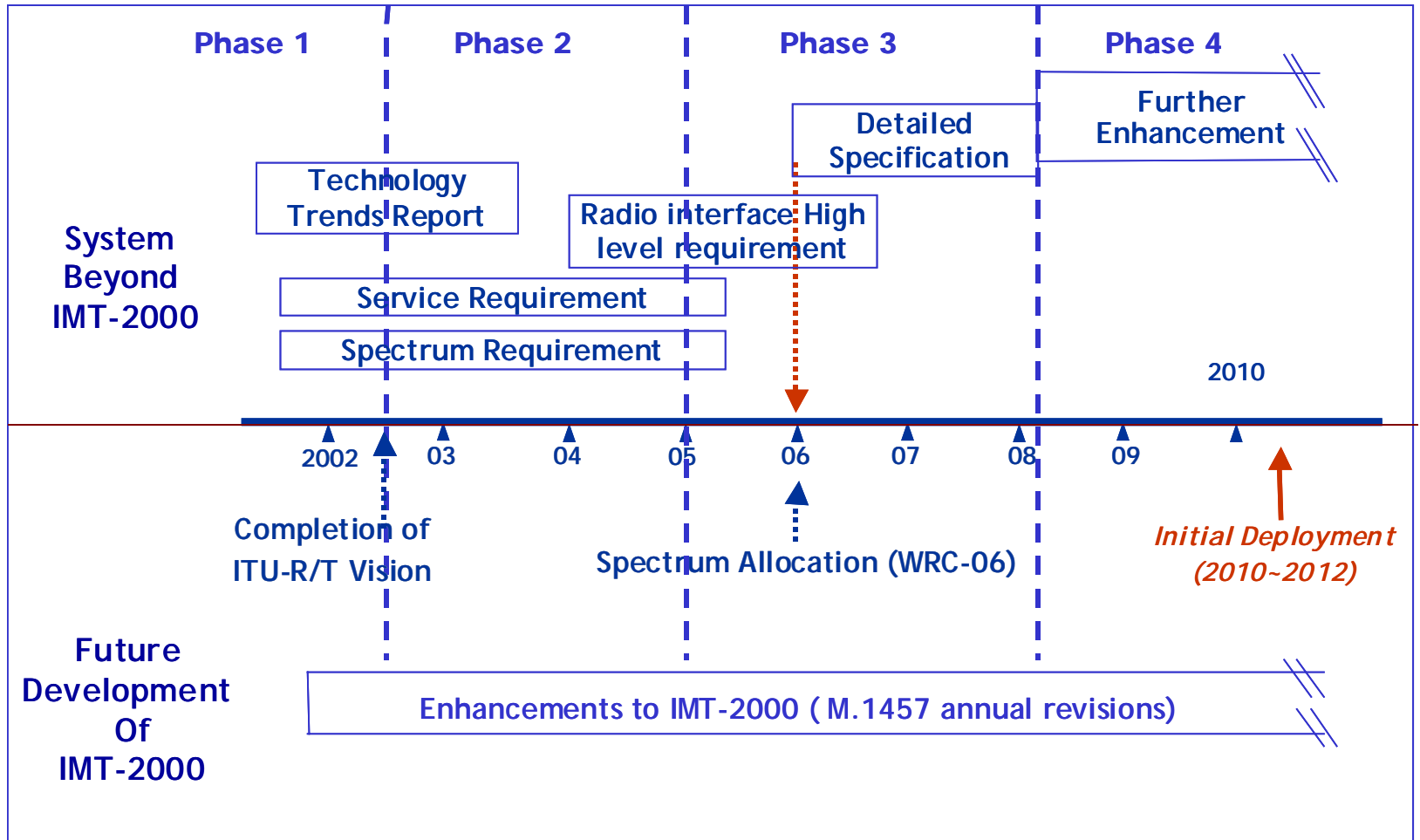
- ❑ Provide the vision of mobile communication technology & service development.
- ❑ Provide directions for 4th generation mobile communication technology development.
- ❑ Provide directions for mobile communication standardization
- ❑ Provide plans for cooperation of industry, study, research in both nationally and internationally.



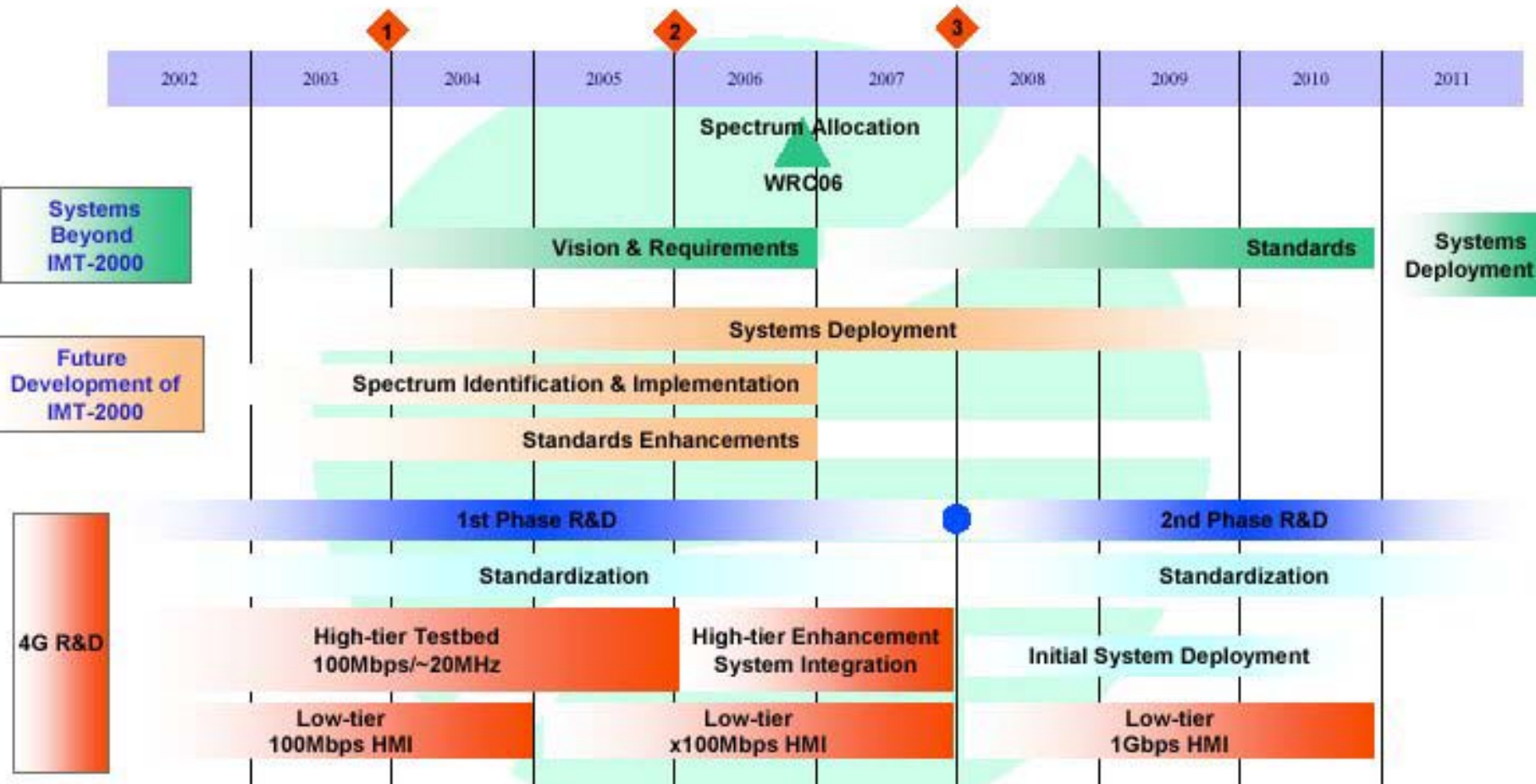
# Korea 4G Vision Studies Committee of Mobile Communication – 4G Vision of ETRI



# Korea 4G Vision Studies Committee of Mobile Communication – Beyond 3G Schedule of ITU



# Korea 4G Vision Studies Committee of Mobile Communication – 4G R&D Schedule of ETRI





# Part IV : CJK Collaboration on 4G Standardization

## ☐ Part IV : CJK Collaboration on 4G Standardization

- Environments
- Needs
- CJK Collaboration General Proposal
- CJK Collaboration Action Proposal

# CJK Collaboration on 4G Standardization – Environments

- ❑ 3GPP/3GPP2 started to think about vision
  - 3GPP Rel6 and beyond
  - 3GPP2 Rel D and beyond
- ❑ All IP Harmonization is on-going
- ❑ ITU-R WP8F Vision Group is working on Vision Recommendation
- ❑ East Asian countries are working hard on their own next generation technology developments.
- ❑ Handheld devices are getting more and more intelligent. This means more detailed specification should be proved to be OK particularly for mobile internet roaming.

# CJK Collaboration on 4G Standardization – Needs

- ❑ Regional Collaboration is mutual beneficial.
- ❑ East Asian Market Volume is huge.
- ❑ East Asian Countries can lead the market as well as technology.
- ❑ Handset Roaming becomes a serious issue.
- ❑ International Standards are becoming more and more important.
- ❑ Industry wants SDOs to do things for them. For examples, handset roaming, Interoperability Test
- ❑ Beyond 3G (or 4G) standard needs more tight collaboration.

# CJK Collaboration on 4G Standardization – General Proposal

- ❑ It is time to work together.
- ❑ Industry is ready for collaboration.
- ❑ The following collaboration items are proposed for the area of IMT-2000 and beyond
  - IMT-2000 and beyond information Sharing
  - 3GPP/PP2 Key issue discussion, Vision Setup
  - Handset circulation issue discussion including IOT
  - Regional Requirement Findings (e.g., Regulatory issue)
  - Multi-Vendor IOT arrangement
  - Mobile Internet Platform Standard
  - 4G Information Sharing (hopefully, joint forum?)
- ❑ Regular meetings and appropriate technical groups and contact points should be arranged.

# CJK Collaboration on 4G Standardization – Action Proposal

## CJK 4G Working Group Establishment

- At least contact points at this meeting

## CJK 4G WG Activity Plan

- ~ 2002/12 : Working Group Establishment
- 2003/1 ~ 2003/12 : 4G R&D Information Sharing and Vision Doc.
- 2004/1 ~ 2004/12 : 4G R&D Standardization Collaboration

## Regular Meetings