Regional Development Forum 2008

"Bridging the Standardization Gap in Developing Countries"

Tashkent, 10-11 June 2008

Next-generation networks on a mobile platform

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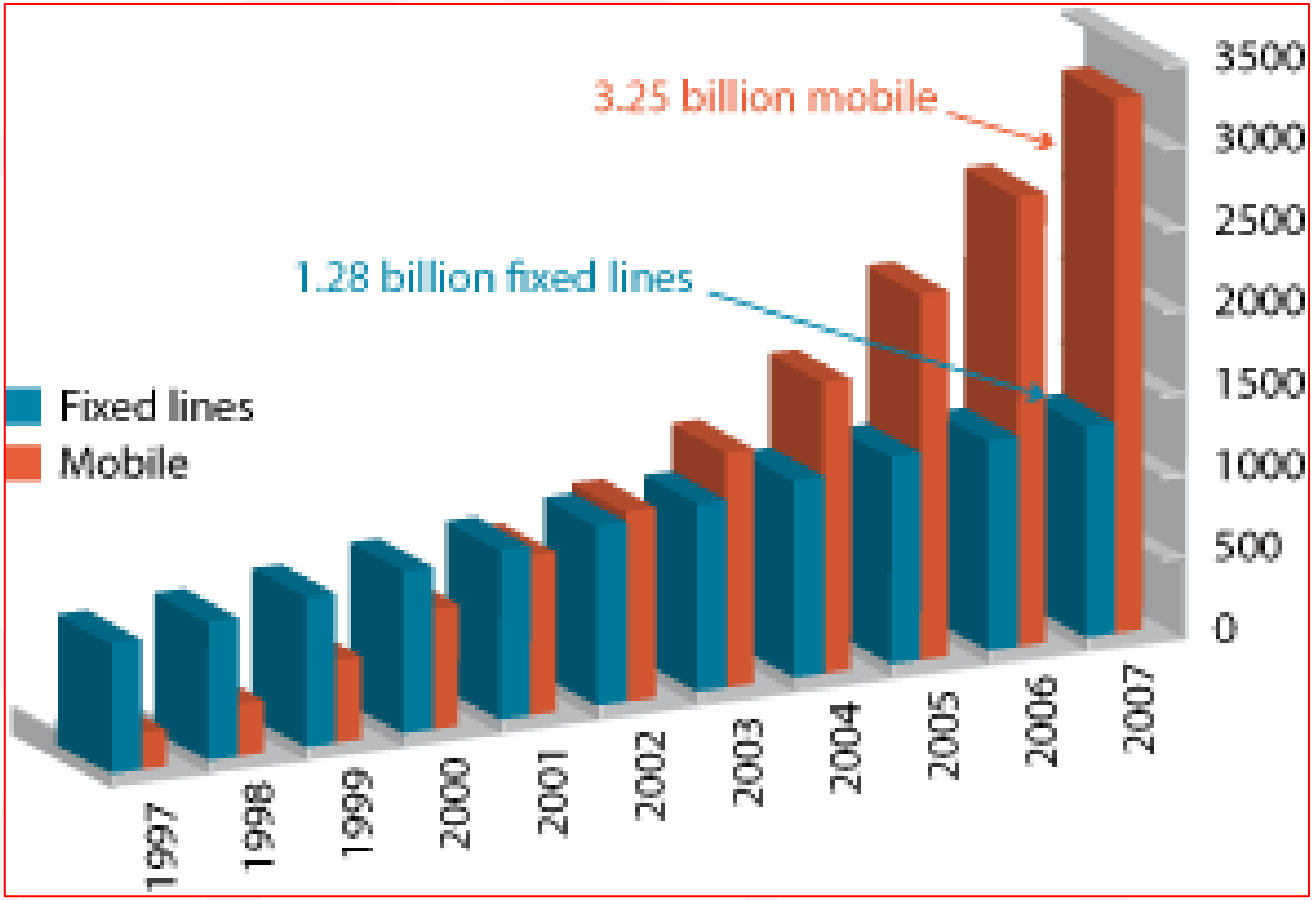
Mobility, ...

- Where is the growth in telecoms?
  - Mobile subscriptions!
- How will the next 1B subscribers connect?
  - Using mobile terminals!
- What will they be doing?
  - Talking? Of course.
  - SMS/IMing? Yes.
  - Surfing? YES!

} Convergence!

Global Mobility



Note — 2007 data are estimates.

Source: ITU World Telecommunication/ICT Indicators Database.

Graphic taken from ITU News, March 2008

Mobility in Developed World - Japan

Refs:

www.tca.or.jp/eng/database/annual/2003

www.tca.or.jp/eng/database/annual/2007

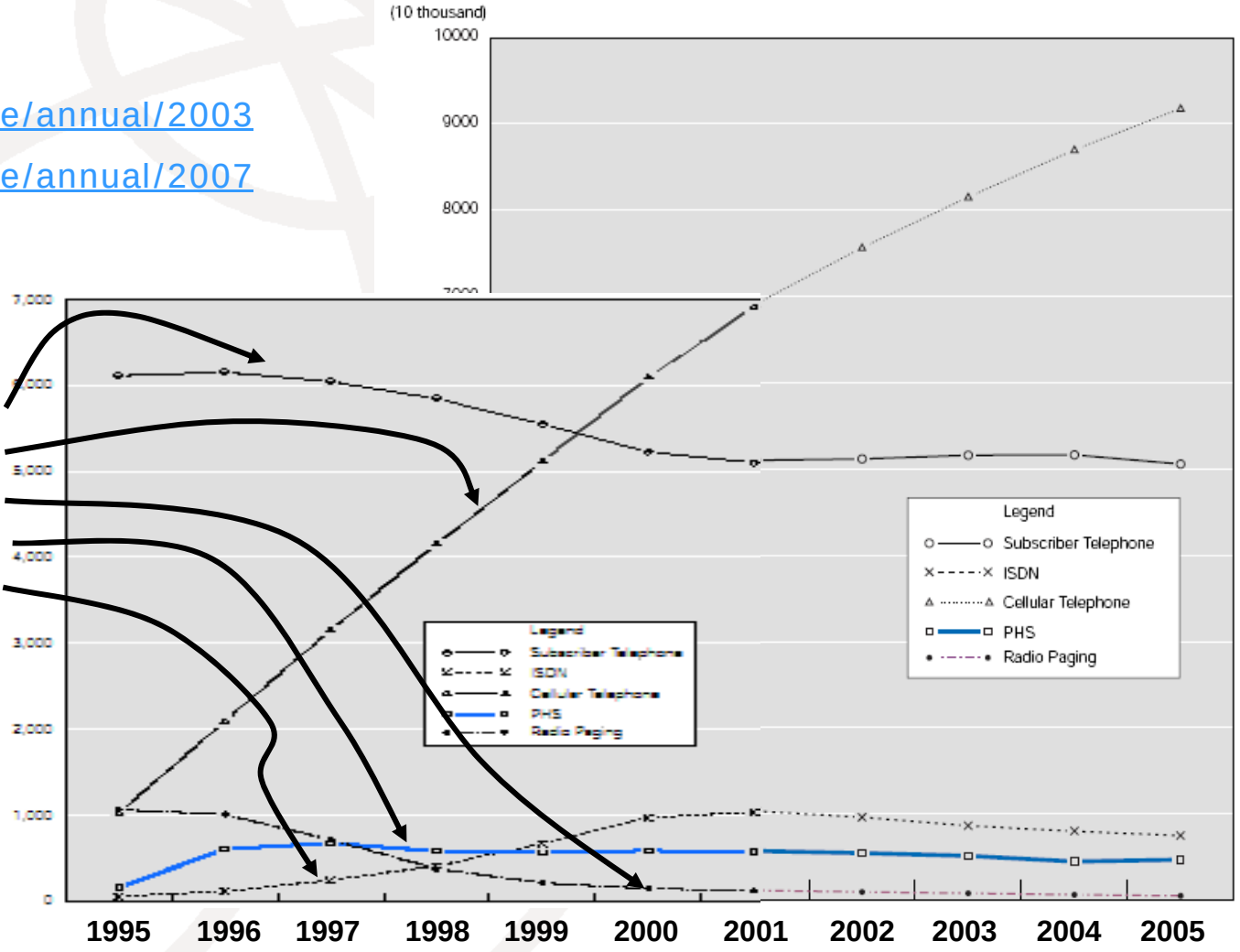
Fixed subscriber lines

Mobile subscribers

Paging

PHS

ISDN



Mobility in Developing World - Kenya

Figure 3:3 - Mobile Vs Fixed Networks Subscribers Market Share

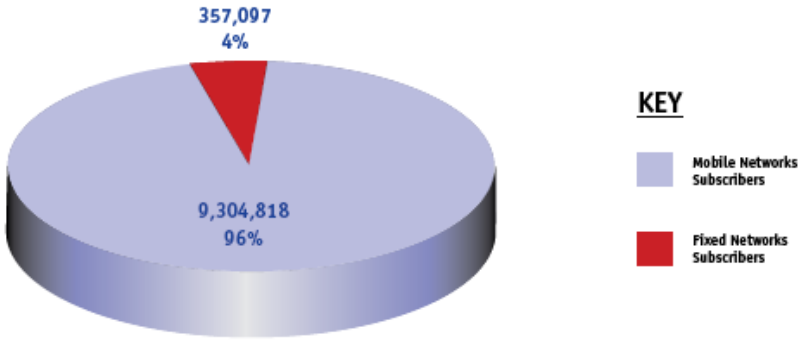
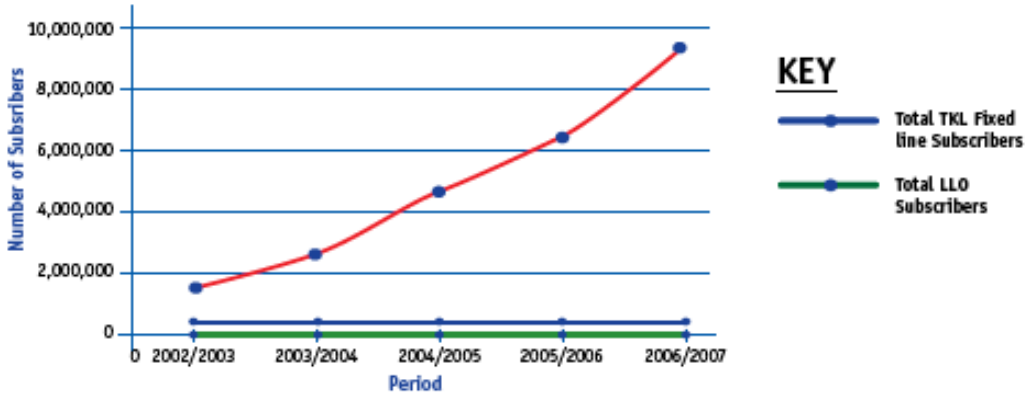


Figure 3:4 - Mobile Vs Fixed Line Growth



Communications Statistics

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Fixed Telephony Capacity	490,000	508,000	508,000	513,820	516,993	505,103
Connections	328,116	328,358	299,225	278,867	293,364	339,229
Payphones	9,264	9,964	9,978	8,915	7,232	5,045
Mobile Telephony Capacity	1,500,000	2,000,000	3,935,000	6,800,000	10,600,000	18,200,000
Connections	944,128	1,590,286	2,546,157	4,479,375	6,484,791	9,304,818
Payphones	805	814	*2,955	*14,240	*29,888	*19,755
Postal Services Total Postal Outlets	891	890	872	861	768	721
Private Letterboxes	394,121	397,731	395,811	399,667	400,016	411,716
Letter posting Boxes	1,137	1,138	1,120	1,049	1,049	966
Public Counter Positions	1,429	1,394	1,378	1,377	1,388	1,388
Stamp Vending Machines	299	4,466	3,733	4,088	4,242	4,125
Private Operator Putlets	320	330	341	437	521	554
* *Includes Community Payphones*						

Ref: www.cck.go.ke/annual_reports/CCK%20Annual%20Report06-07.pdf

ITU-T Gives Mobility Prominence

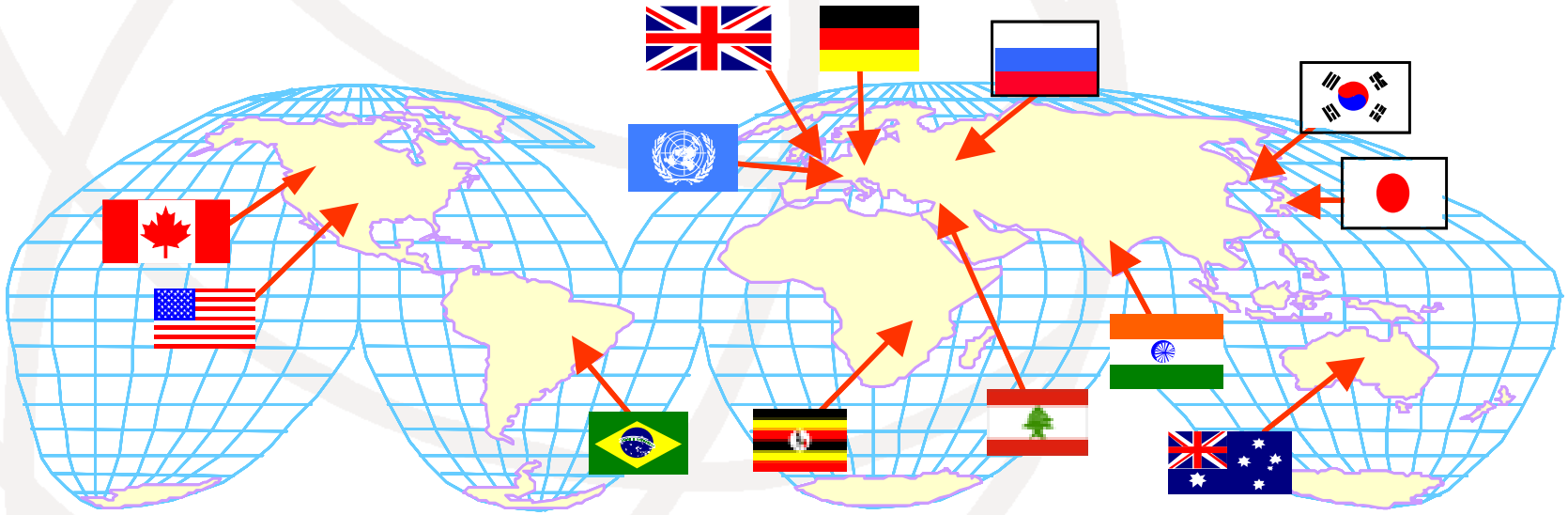
- Up to year 2000, mobility had been a WP in SG 11 which also deals with signalling and protocols, and Intelligent Networks
  - SG 11 has provided major contributions to modern telecoms in SS7, ISDN and Intelligent Networks

ITU-T Gives Mobility Prominence

- Based on assertions that mobility was becoming increasingly important and that work in this area needed greater visibility, WTSA-2000 created the Special Study Group (SSG) on “IMT-2000 and systems beyond”

Why was the SSG special?

- Significant freedom in conducting its business
- Large Management Team: strength in diversity:
  - viewpoints from vendors, operators and regulators
  - viewpoints from developed and developing countries



ITU-T Continues Mobility Prominence

- SSG developed good working relationships with ITU-R, 3GPP and 3GPP2 toward ensuring well-coordinated IMT-2000 Family Member specifications
  - Multiple iterations of Q.1741-series (3GPP) and Q.1742-series (3GPP2)

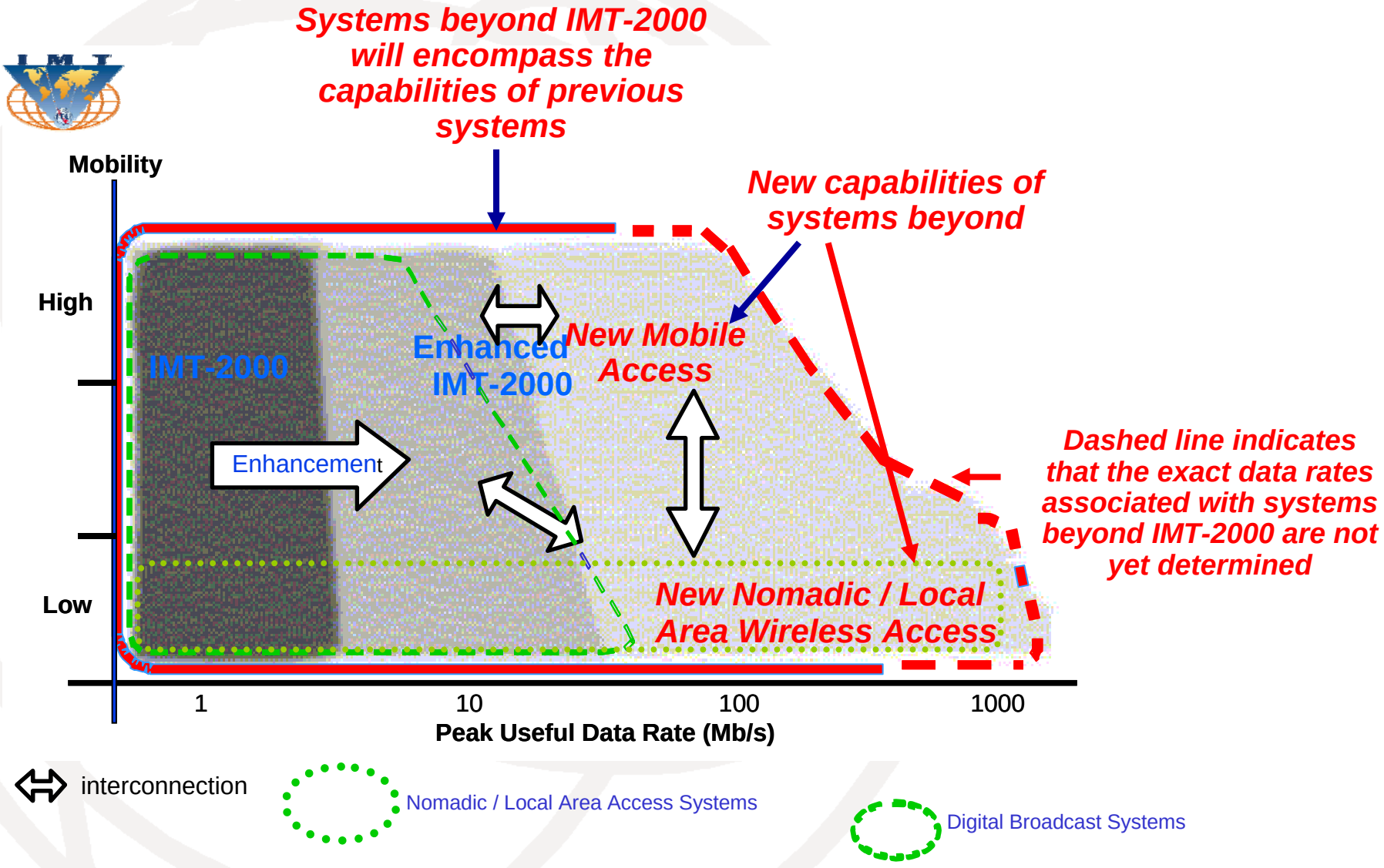
ITU-T Continues Mobility Prominence

- Based on the accomplishments of the SSG and the continuing growth of mobility, WTSA-2004 upgraded SSG to a regular SG: SG 19 “Mobile telecommunication networks”
  - Ongoing high interest demonstrated by appointment of eight Vice-Chairmen

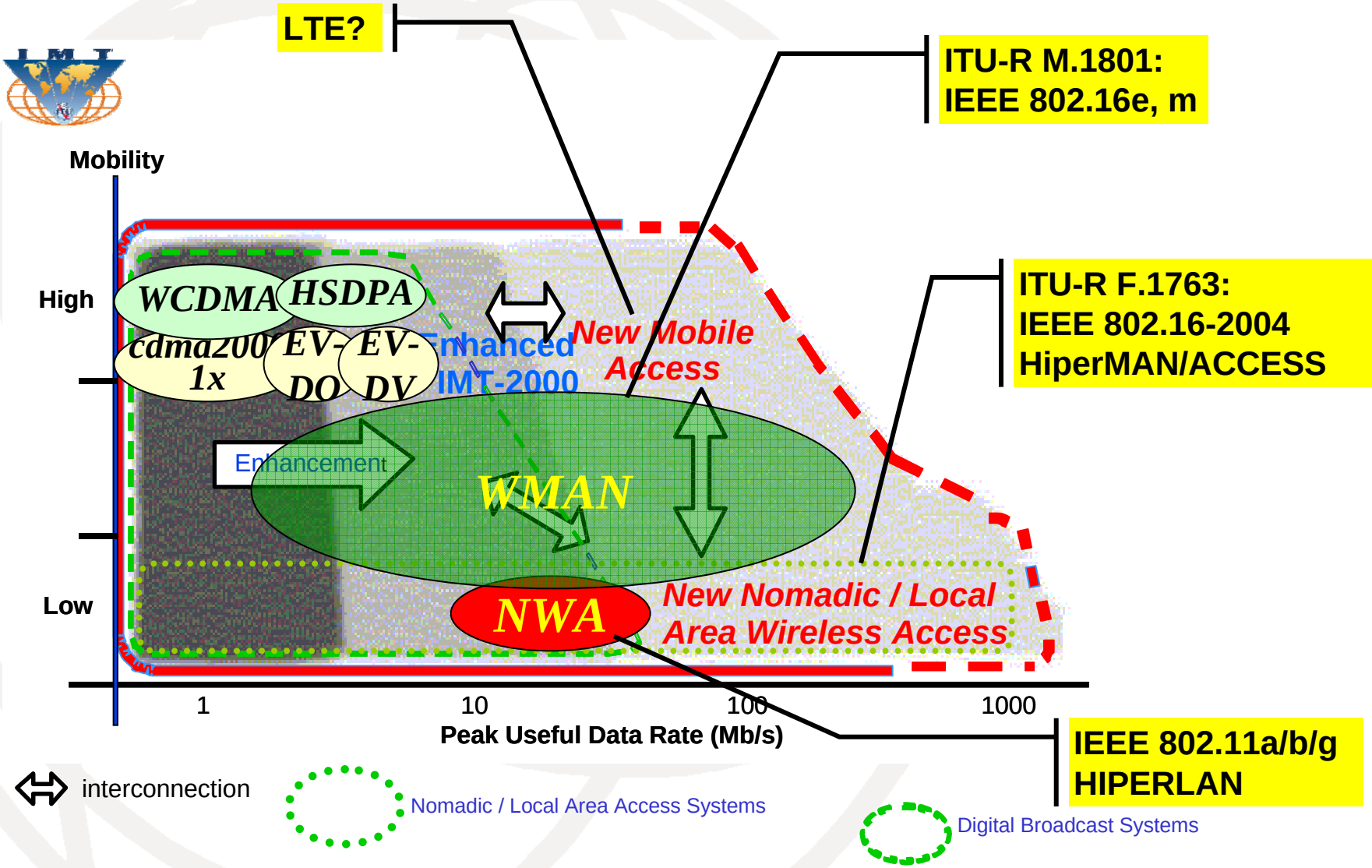
IMT-2000

- IMT-2000 Radio Access interfaces were dealt with in ITU-R WP 8F (prior to WRC-07) and now in WP 5D
  - Technologies described in ITU-R Rec. M.1457 ("-8" anticipated in 2008)
  - Recent addition: broadband wireless access OFDMA TDD WMAN (a.k.a. WiMAX); as others, this will evolve
- "IMT-Advanced" under discussion

Systems beyond IMT-2000: Figure 2 / ITU-R Rec. M.1645



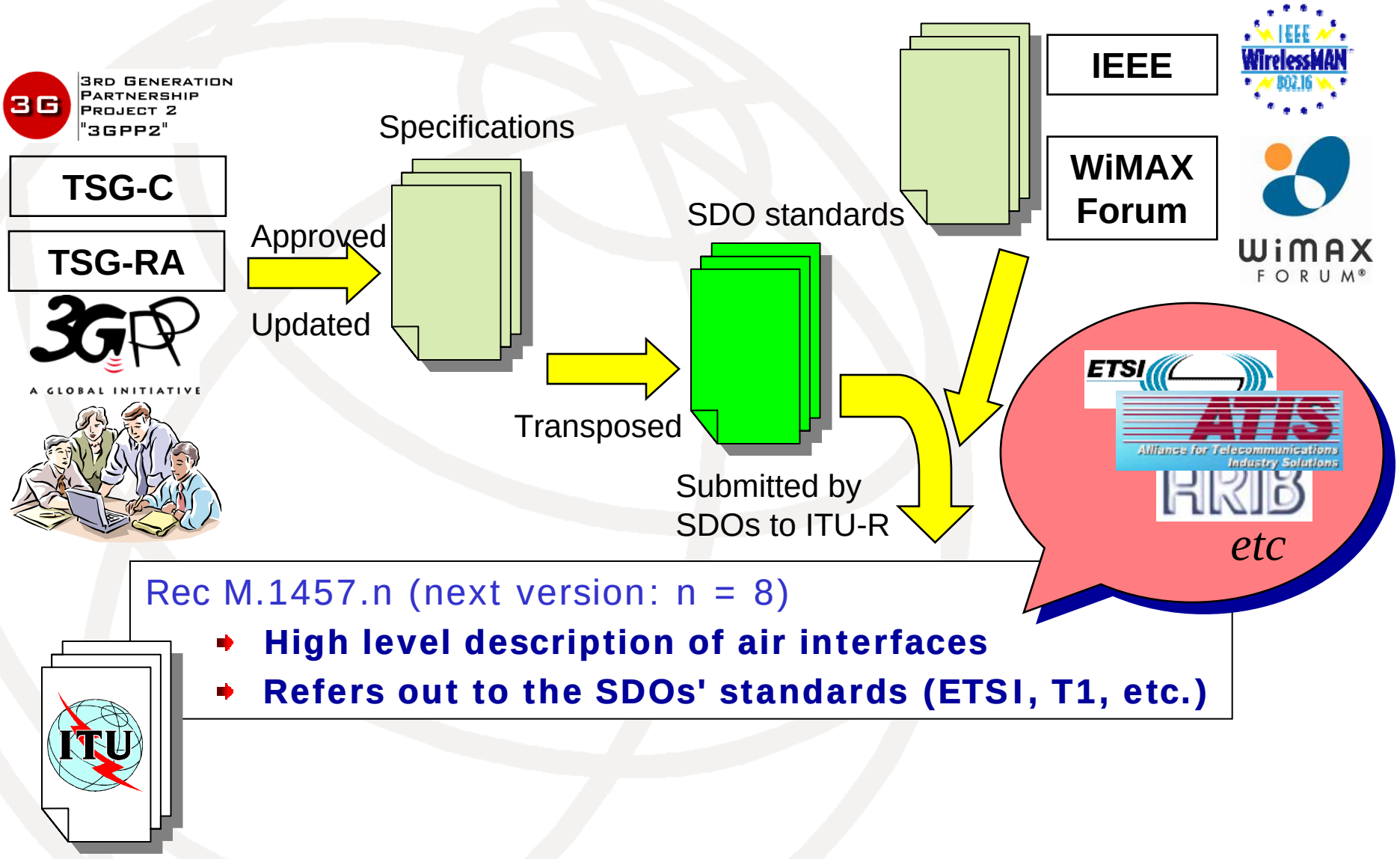
Systems beyond IMT-2000: Figure 2/M.1645 with notes



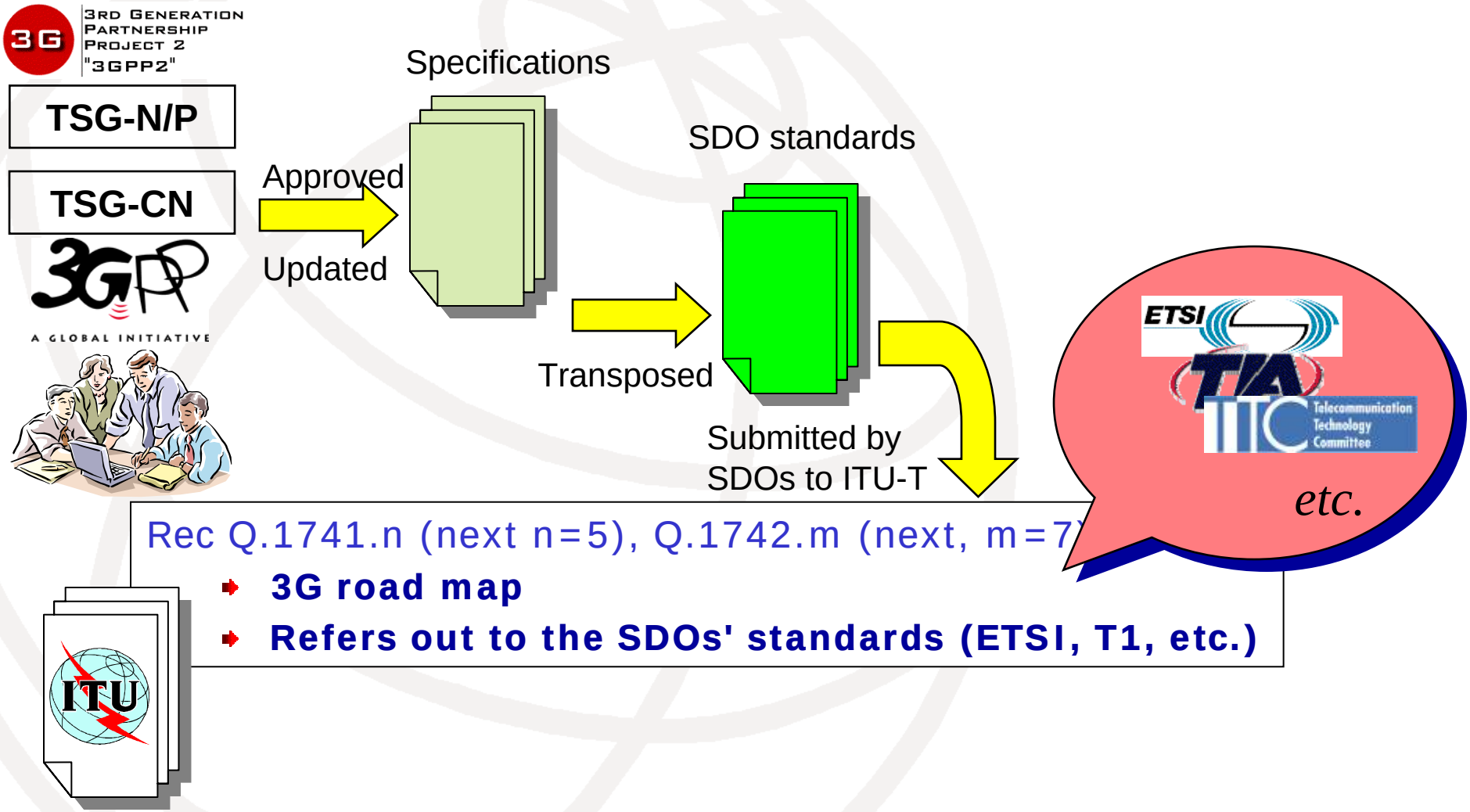
IMT-2000 in ITU-T

- Users will only get “service” if there are both:
  - Radio access interfaces
  - A suitable core network infrastructure
- Hence need for ITU-R and ITU-T to continue to work closely together to ensure a “complete package”
  - It’s not only about radio access, “wired” users expect broadband access, too!

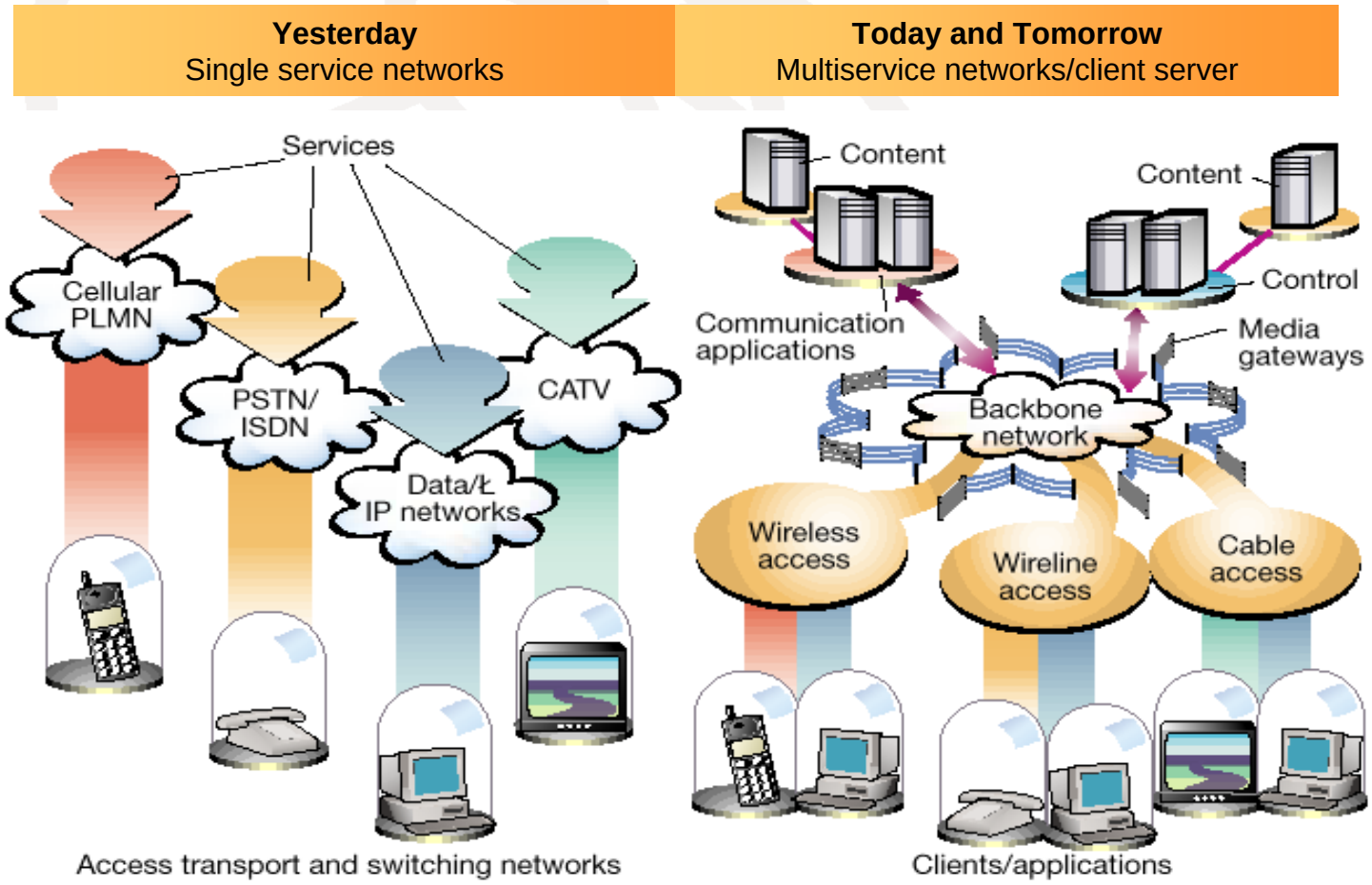
IMT-2000: 3GPPs & ITU-R WP 8F/5D



IMT-2000: 3GPPs & ITU-T SSG/SG 19



Migration towards an IP-based backbone network is taking place



Convergence is at the heart of NGNs

- Next Generation Networks:
  - Packet-based transfer
  - Independence of service-related functions from underlying transport technologies
  - Generalised mobility
  - Broadband capabilities, end-to-end QoS
  - Converged services: independent of fixed or mobile access

NGN-GSI & Fixed-Mobile Convergence

- Closely related co-operating Questions across Study Groups:
  - Q.2/19: Mobility management
  - Q.5/19: Convergence of evolving IMT-2000 networks with evolving fixed networks
  - Q.6/13: NGN mobility and fixed-mobile convergence
  - Q.29/16: Mobility for Multimedia Systems and Services
- Working closely together!

What about ITU-D (1 of 3)?

- SSG Question: IMT-2000 Handbook
  - Issue 1 developed in cooperation with ITU-R and ITU-D
- SG 19 continues this Question
  - Issue 2 will add some material
- Next study period - refocused:
  - What is needed to describe technically reasonable step-by-step migration scenarios to NGN networks?

What about ITU-D (2 of 3)?

- ITU-D has a significant IMT-2000 and NGN program:
  - Previous Study Period (2002-2006)
    - 10-1/1 Impact of the convergence of telecom, broadcasting and information technologies
    - 19/1 Implementation of IP telephony in developing countries
    - 10-1/2 Communications for rural and remote areas
    - 18/2 Strategy for migration of mobile networks to IMT-2000 and beyond
    - 19/2 Strategy for migration ... to packet-switched networks
    - 20-1/2 Access technologies for broadband communications

What about ITU-D (3 of 3)?

- ITU-D has a significant IMT-2000 and NGN program:
  - Current Study Period (2006-2010)
    - 19-1/1 Implementation of IP telephony in developing countries
    - 10-2/2 Telecommunications for rural and remote areas
    - 18-1/2 Implementation aspects of IMT-2000 and information-sharing on systems beyond IMT-2000 for developing countries
    - 19-1/2 Strategy for migration from existing networks to next-generation networks for developing countries
    - 20-2/2 Examination of access technologies for broadband telecommunications

Future studies

- Fixed-Mobile Convergence well recognized as a key aspect of NGN
- Work will continue in next study period:
  - Continuation and update of FMC and Mobility Management Questions
  - New Question: MM mechanisms supporting multi-connections for multiple access technologies
  - Likely merging of SG 19 into NGN SG

Summary and Conclusions

- Mobility is fundamental to modern telecoms
- IMT-2000 is a core and evolving ITU activity:
  - R sector for radio access
  - T sector for wired access and core network infrastructure
  - D sector to support application and migration in developing countries
- NGNs build on IMT-2000 and other new access capabilities with a new infrastructure based on packet transfer, separated service and transport
- Fixed-Mobile Convergence a key topic in current and future NGN studies