



Trends and Challenges in ICT Standardization

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The World is Mobile



WORLD POPULATION

4 Births per second



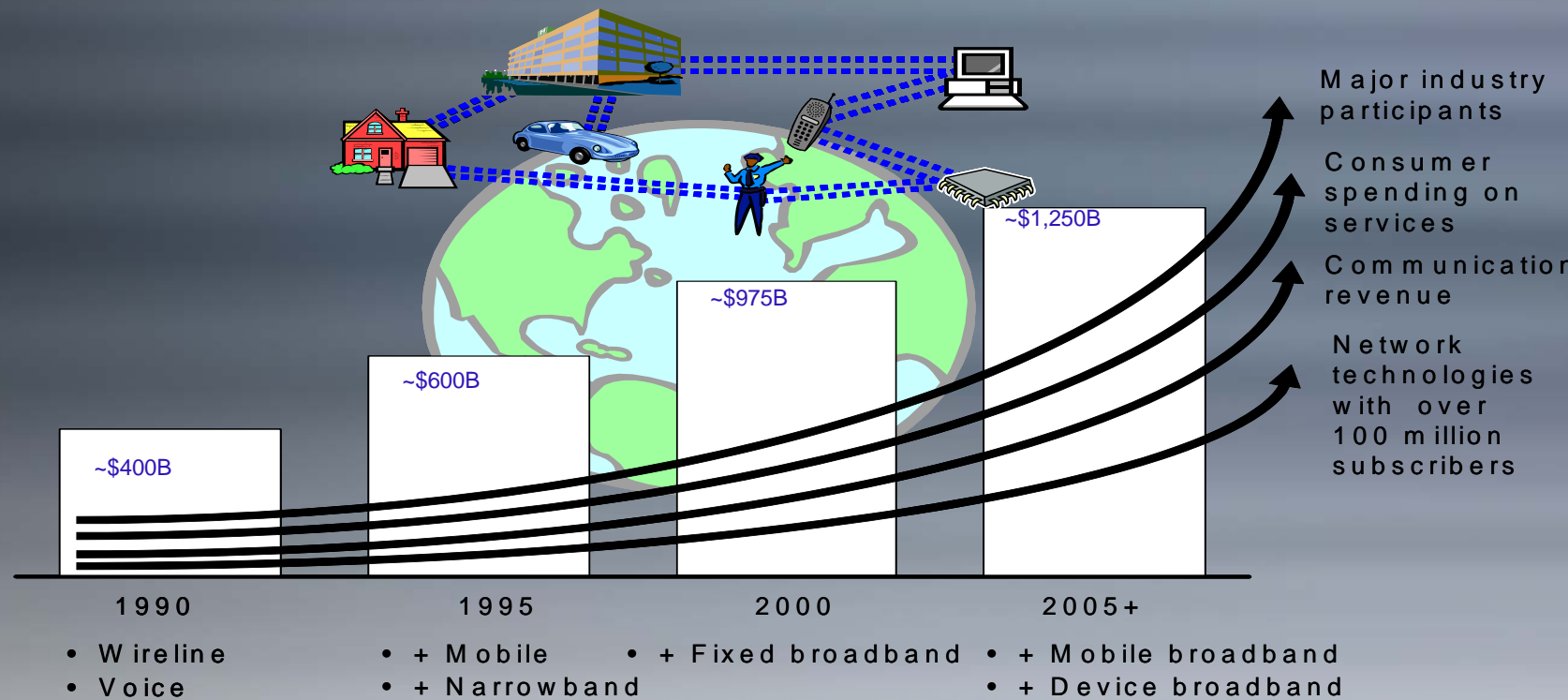
MOBILE PHONE

32 Sold per second

More than 13 of them in Asia*

More than 7 of them in India

The Race to Unwire the World



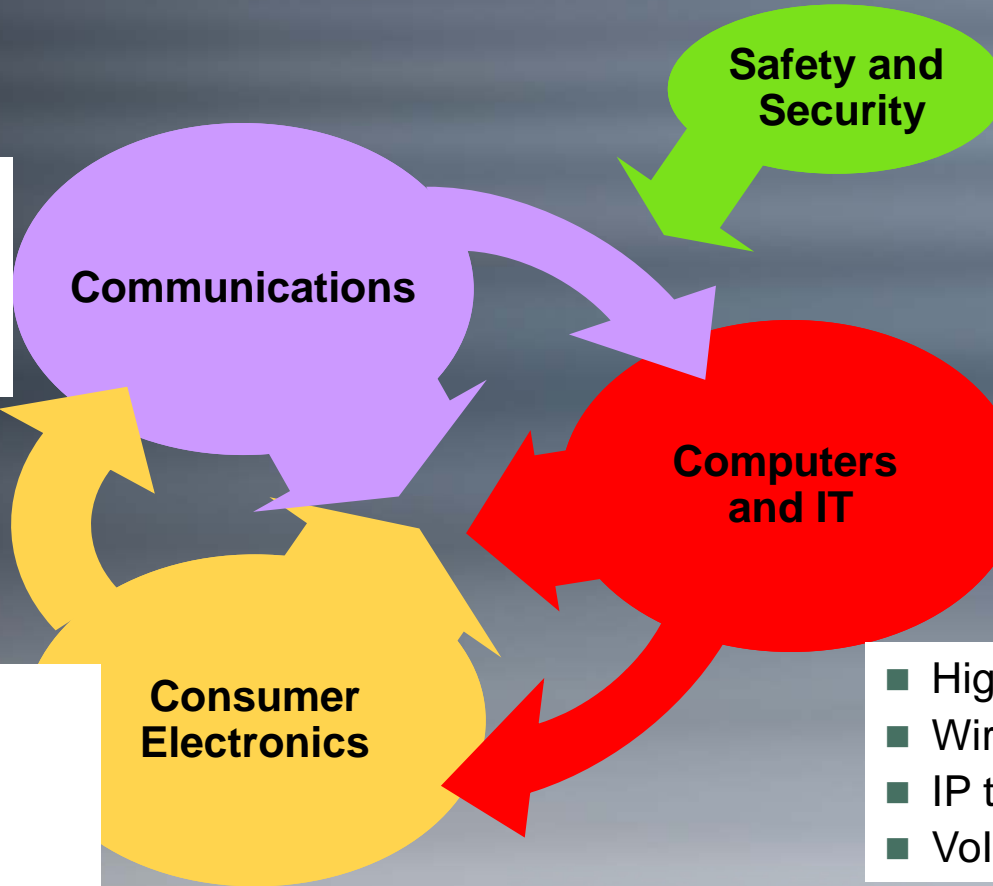
Digitization of Practically Everything



Convergence ...The Morphing Technology Landscape



- WLAN
- Broadband Wireless
- Broadband to Home



- Scalable Military Electronics
- Interoperable Communications

- Entertainment Moves to Digital
- Personal Digital Devices

- High Performance PCs
- Wireless IP
- IP to and in the Home
- VoIP in the Enterprise

Emergence of Third Screen



TV (Delivered Video)-
the First Screen



PC (Delivered Internet)-
the Second Screen



Device Formerly Known As
Cell Phone -
Delivers Converged services



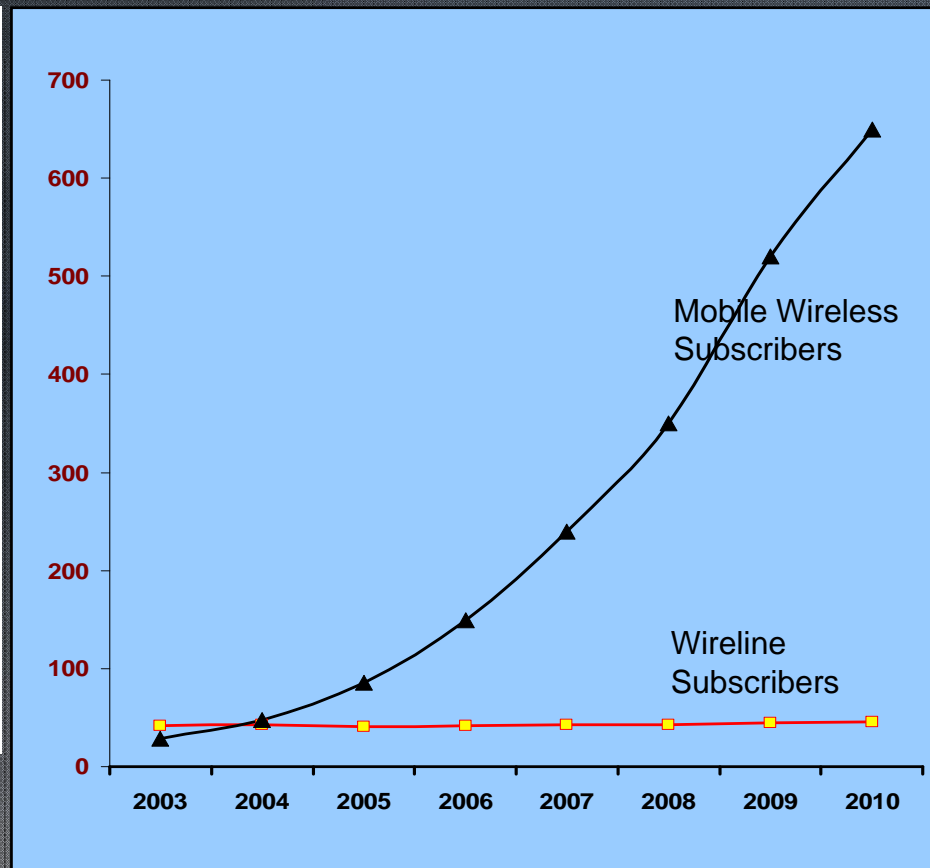
Explosion of Mobile Broadband



India – leading the World in Mobile Telecom



Indian Telecom Statistics	December 09
Total Telephone Subscriber Base	543.20 million
Wireless Subscription	506.04 million
New Additional in Wireless	17.65 million
Overall Teledensity	46.32
Broadband Subscription	7.57 million



- India is the fastest growing cellular market in the world
- Has become the 2nd largest market after china early this year
- India is adding 18-20 Million new wireless subscribers every month

Source : TRAI Press Release , December 09

Adoption of Global Mobile standards has helped this growth in India



India initially chose GSM as the standard technology for Mobile cellular services

However later CDMA also got adopted and a dual technology regime was implemented

For 3G, India selected WCDMA though no technology is prescribed and rules permit all ITU/other SDO recognized technologies.

- **Considering a 5+5 MHz spectrum, most operators are expected to deploy WCDMA technology**
- **5+5 MHz may not be enough to rollout a meaning full broadband network using LTE FDD**

For BWA similarly no technology is prescribed but the spectrum is TDD which limits the choice to TDD technologies

- **Considering a 20 MHz spectrum in 2.3 GHz, operators can use WiMAX 802.16e or LTE-TDD**

India has strong Eco System for telecom equipment



- India today has a
 - A strong domestic telecom equipment demand
 - India Needs about \$ 30-50 Billion telecom equipment annually during next three year
 - Local manufacturing facilities set up by global players – Nokia, Motorola, Ericsson, etc
 - Strong Software eco system
 - New Indian manufacturers start ups have started emerging – e.g. Tejas, Coral

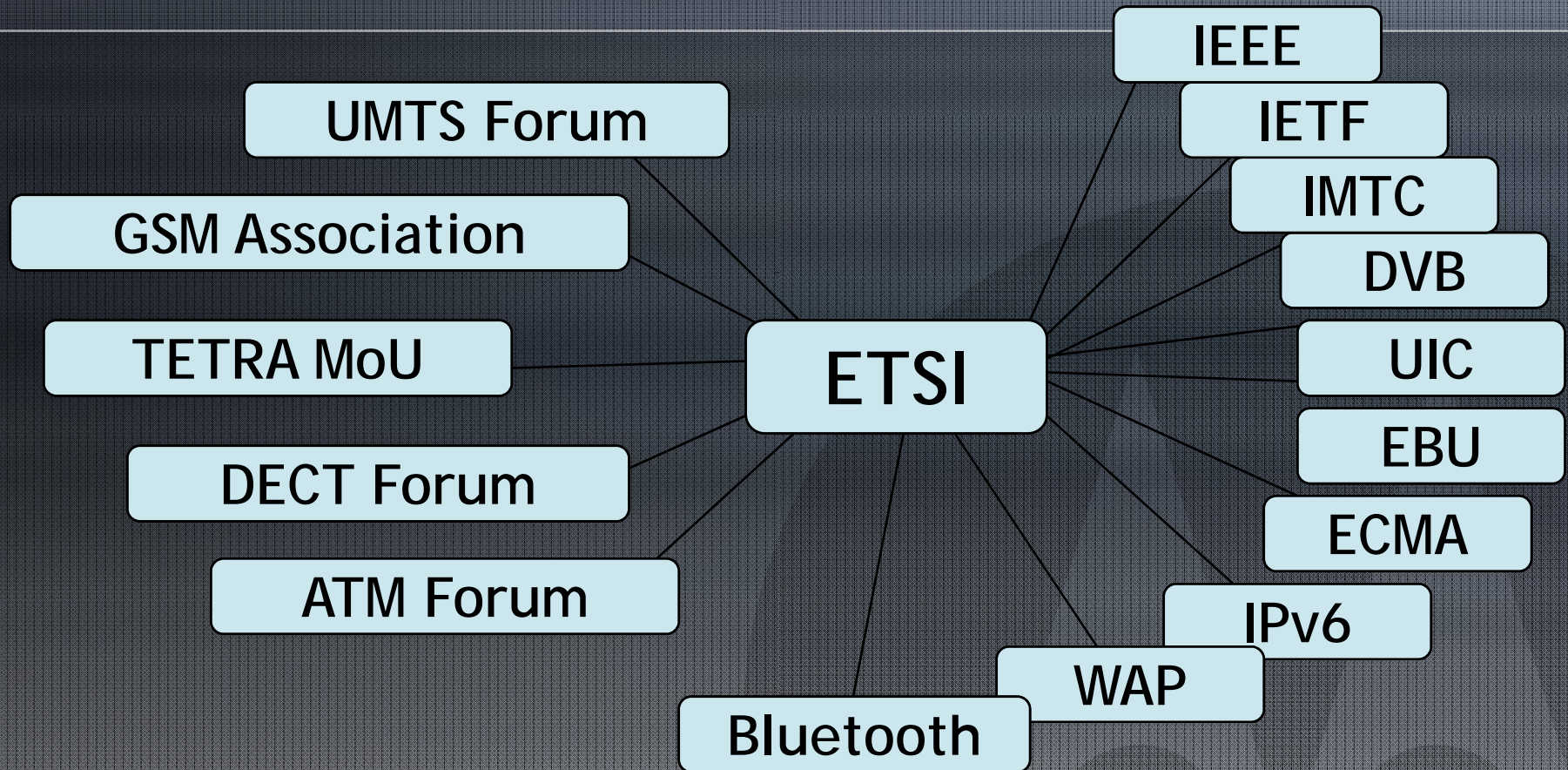


So what is missing?

- India Consumes under 1% of the global semi conductors despite being the third Largest consumer of Global Goods & Services.
- Despite local manufacturing, dependence on imports of telecom equipment continues
- 25% of India's trade deficit is because of electronics imports.
- India's share of Telecom Exports is less than 1% of global trade.
- Not one of India's Telecom hardware Co is in the top 50 companies in the world.
- i.e. India does not have
 - What Samsung and LG are to Korea, what Huawei and ZTE are to China
- India has very limited presence and say in Global technology standards
- Despite being worlds 2nd largest mobile market, not a single WP5D meeting has been held in India

Europe's Leadership of Global standards Forums

Provides strength to European Vendors



Over 50 EU Delegates at the Last ITU meeting on 4G spectrum vs India's one
Over 50% of US delegation was from European vendors



Learning's from CJK

Korea

2G Era (before 2000)

- Korea Follows CDMA Spectrum & Standards
- Korean Vendors start expanding into Global CDMA Markets (e.g. Samsung, LG, Pantech, etc.)

3G Era (After 2000)

- Korea Follows global Spectrum & Standards for 3G
- Strong Presence of Korean Vendors in the Global Wireless

China

- China Follows Global Spectrum & Standards
- Chinese Vendors emerging and expanding (e.g. Huawei, ZTE etc.) in the Global Wireless markets
- Strong Local R&D and Large Local market
- China continues to follow global GSM, CDMA and local TDSCDMA standards.

Japan

Japan Telecom Market is based on Strong Local R&D, Strong Domestic Spectrum plans and domestic Standards

In the Wireline Era (before 1990)

- Japan Follows Global Spectrum & Standards
- Strong Presence of Japanese Vendors in the Global Market (e.g. NEC, Fujitsu, Etc.)

In the Wireless Era (After 1990s)

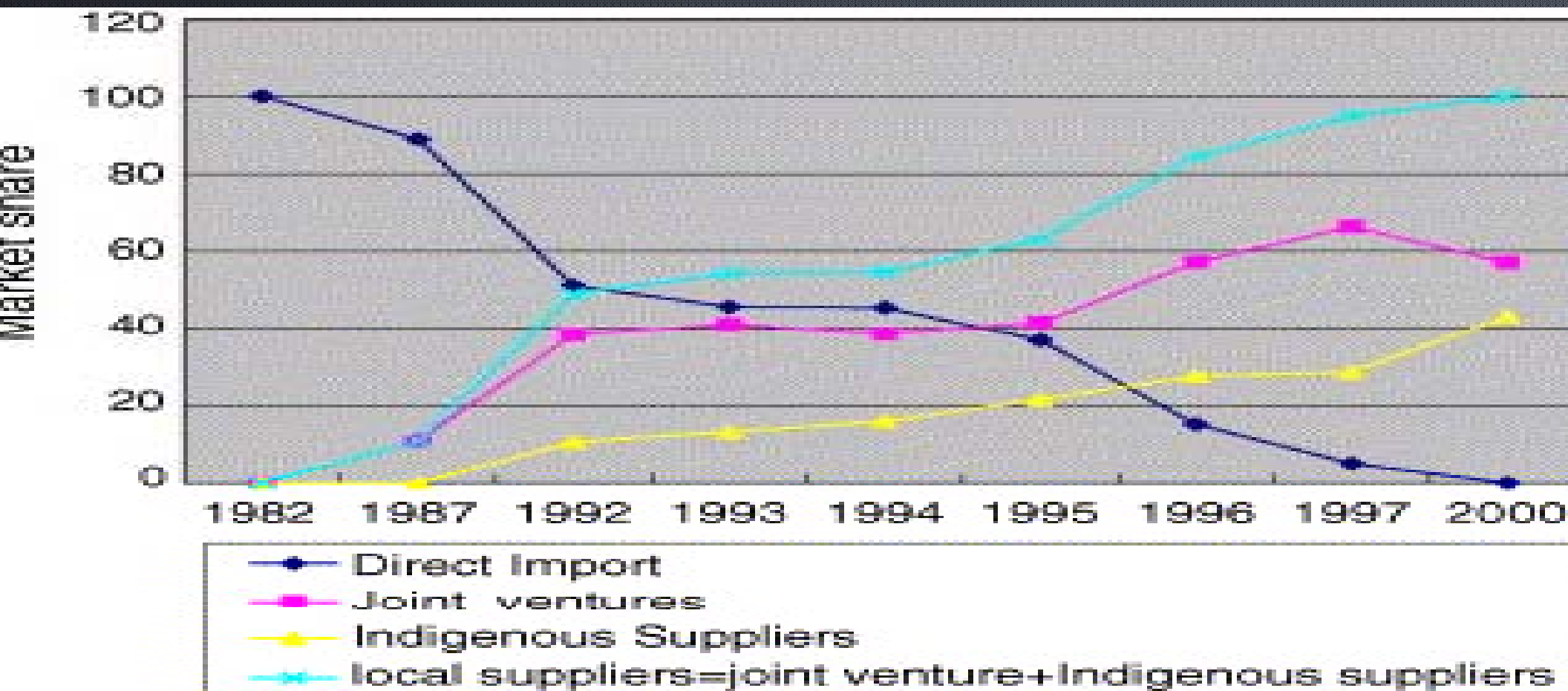
- Japan Follows Domestic Spectrum & Standards
- Limited Presence of Japanese Vendors in the Global Wireless Market

74 CJK Delegates attended the Last ITU WP5D meeting

Learning's for India

- Importance of **Global spectrum and standards**
- Importance of **R&D and having national standardization**
- Importance of **participation in Global standards' Fora**

importance of local producers in the market for telecom switches in China



What GISFI can do in putting India on the Global map ...



ICT markets are shaped by standards

- ✓ de facto, industry, fora, SDOs

R&D in ICT must lead to standards activity and IPR creation:

- ✓ Developing new products, new services, new markets

GISFI should lead in creation of new standards:

- ✓ promote collaborative R&D between the industry and academia and other R&D institutions

- ✓ Reduce barriers to input from R&D projects

- ✓ provide Guidance and help in navigating the standards development and Improve visibility of R&D projects

impact on standards

- ✓ Provide Incubator or start-up groups for new topics

- ✓ Maintain dialogue between Global SDOs and R&D community in India

- ✓ Provide advise to regulators on standards



Dr. Manmohan Singh Hon'ble Prime Minister of India



- “I assure you that the Government will develop a forward looking policy regime that will encourage investment in manufacturing in telecom sector”
- “While we can be satisfied with the growth in tele-density, I am concerned about our capabilities in telecom R&D & manufacturing. Can we have a sector where we are world class in telecom network but do not have an adequate manufacturing presence?”

@India Telecom

Mobile Wireless Broadband will Give India a New World



MOBILE ME



CONNECT ME



INFORM ME



Thank You

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ENTERTAIN ME



SECURE ME



EMPOWER ME

