



ITU-T 2003 INFORMAL
FORUM SUMMIT

ITU-T 2003 INFORMAL FORUM SUMMIT

www.tdscdma-forum.org



**TD-SCDMA Technology
&
TD-SCDMA Technology Forum**

**By Neil Jin
Secretary-general of TD-SCDMA Technology Forum
7/21/2003**

Outline

1. TD-SCDMA Technology Features and Development

2. Prospect of TD-SCDMA

3. TD-SCDMA Forum Introduction and Prospect

4. Conclusions



The key features of TD-SCDMA

- *Smart antenna*
- *Joint detection*
- *Uplink synchronization*
- *Dynamic channel allocation*
- *Software radio*
- *OPEX*

Key Features of the Air-Interface TD-SCDMA

High data rates	up to 2 Mbit/s
Large cell ranges	up to 40 km
High vehicular speeds	up to 500 km/h
Asymmetrical data	up to 1:6 asymmetry
Outstanding Voice Capacity	216 Users / 10 MHz/Cell*

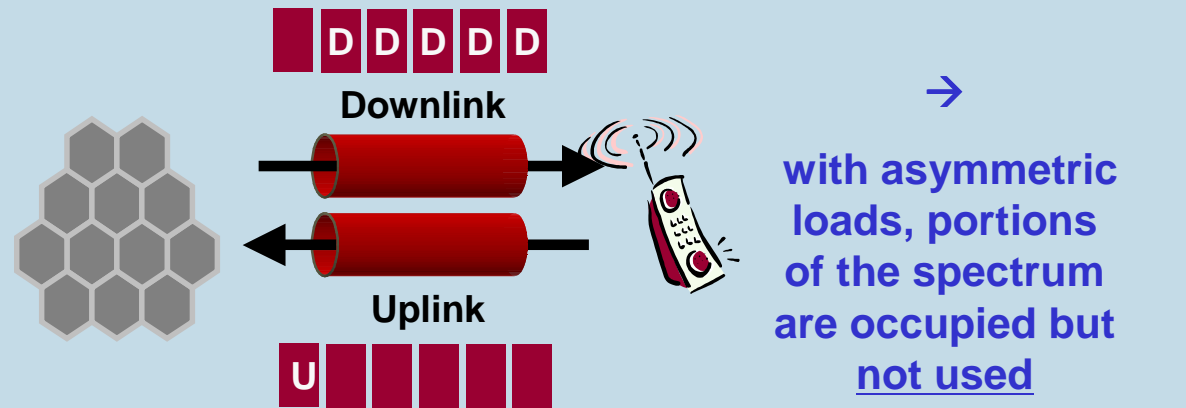
TDD for Capacity Enhancements



- Fits in the already allocated **unpaired spectrum**
- Efficiency for high share of **asymmetric traffic**
- **Simplified network planning**
(no cell breathing effect, no soft handover)
- Personalised seamless services
in combination with GSM and FDD **everywhere**

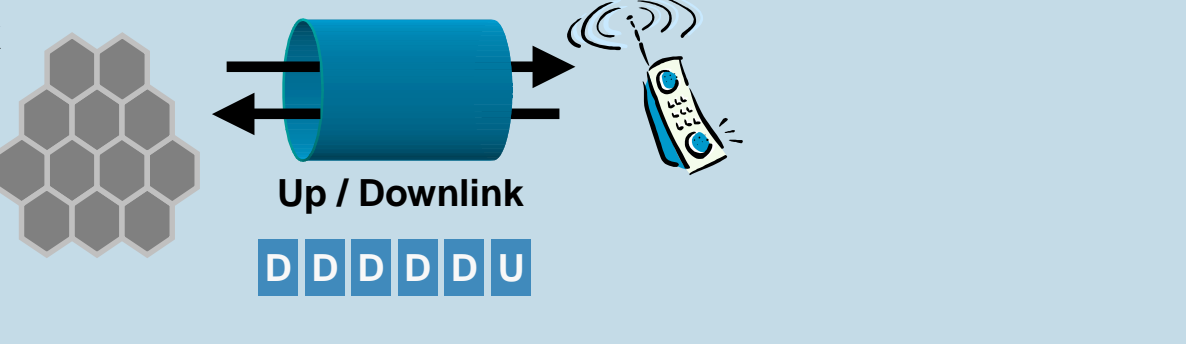
FDD and TDD Uplink / Downlink Symmetry

FDD
Frequency Division Duplex (W-CDMA):
UL band separated from DL band



→
with asymmetric loads, portions of the spectrum are occupied but not used

TDD
Time Division Duplex (TD-SCDMA):
UL band same as DL band



 = Resource Units

Drivers of TD-SCDMA

China

- Allocation by MII of 155 MHz of spectrum for TD-SCDMA
- Formation of the TD-SCDMA Industry Alliance by eight leading Chinese telecommunication firms
- Strong support by MII, MOST and SDPC

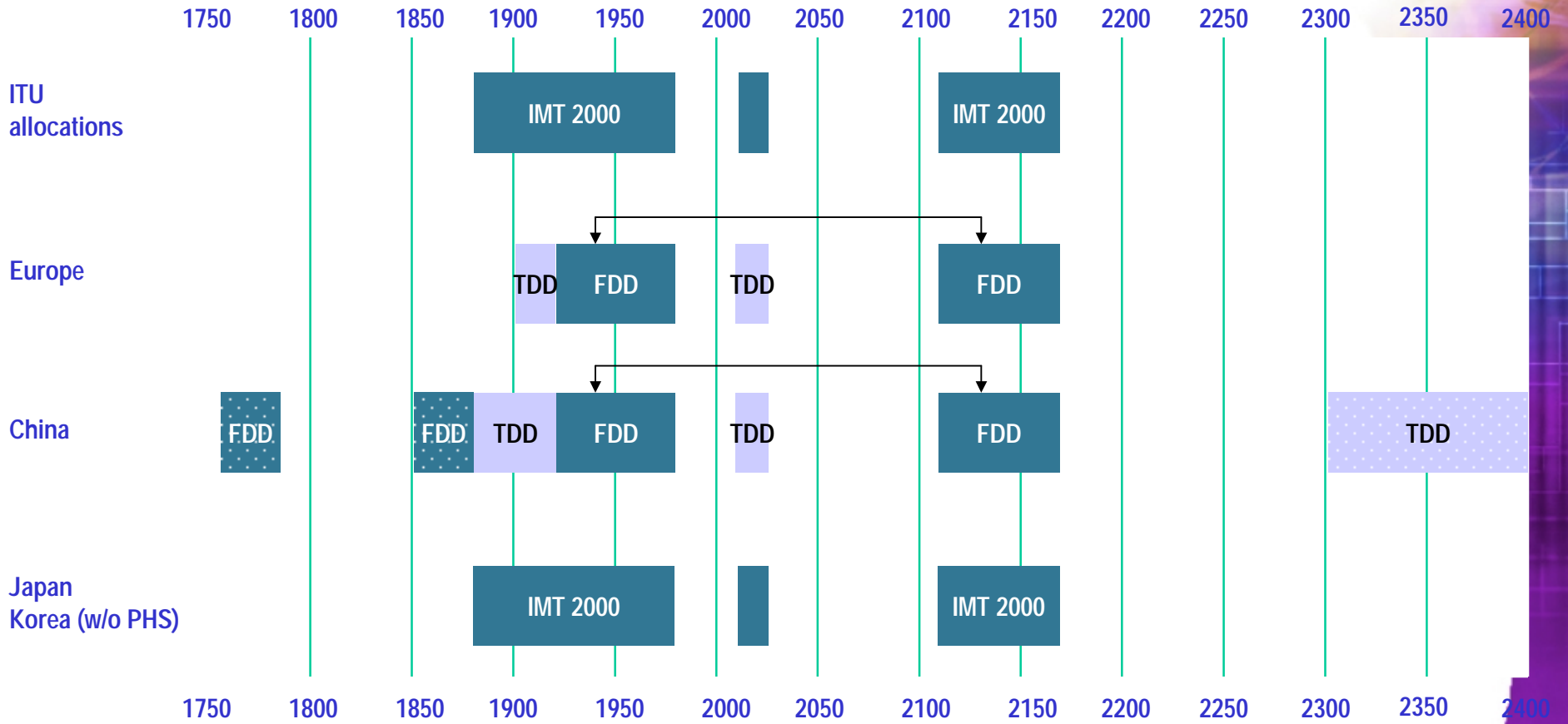
Handset

- Establishment of COMMIT joint venture (terminal R&D), drivers are Texas Instruments, LG Electronics, Nokia
- Establishment of T3G joint venture (terminal R&D) by Datang, Philips Semiconductors & Samsung
- RTX Telecom announces award of a TD-SCDMA R&D contract
- Motorola announces interest to develop products
- Agilent, R&S, Racal Instruments introduce test & measurement equipment
- Cadence & Synopsys provide R&D tools
- Interdigital & STM include TD-SCDMA in their chipset roadmaps
- Sasken & Prisma develop TD-SCDMA protocol stacks
- Siemens TD-SCDMA test terminal is available in 2Q/2003

Network

- Datang announced the investment of 120 Million US\$ for the year 2003 for further development of TD-SCDMA technology and products
- Siemens announced the investment of €50 million for the current fiscal year for further development of TD-SCDMA technology and products
- Completion of phase 2 of MTNet tests by Siemens & Datang, required for field trial deployments
- Deployment of two TD-SCDMA field trial networks with Chinese operators in Chongqing (CRC) and Chengdu (CMCC)?
- TD-SCDMA commercial availability within 1Q of 2004.

In China, 155 MHz have been assigned to TDD



Status: November 2002

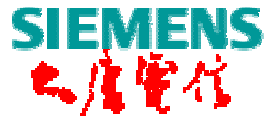
FDD Frequency Division Duplexing
TDD Time Division Duplexing





TD-SCDMA multi-vendor support

“T3G”



TD-SCDMA Industry Alliance

www.tdscdma-forum.org

TD-SCDMA Test Terminal Features

- Single-mode TD-SCDMA jacket (TSM)
- Equivalent TD1.2 feature support
 - Voice (MOC, MTC, MMC)
 - Packet data up to 148 kbps (single slot)

- Optimal mechanical integration
- Uses standard iPAQ feature connector
 - Built-in Lithium-Ion battery (1400 mAh)
 - 100 hrs stand-by
 - 4 hrs talk-time

- Ideal for extended field trials
- Sleek, 3G-like appearance
 - Meets user's 3G expectations
 - Available in large quantities (>500)




- Windows Pocket PC 2002 standard SW
- Microsoft Chinese user interface
 - Web Browser
 - Media Player
 - Email client
 - etc...

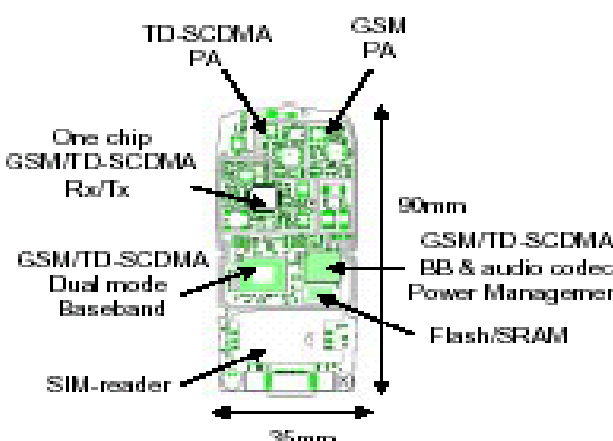
- Pocket PC telephone application
- Simple MMI development
 - Standard API for applications

- Microphone and loudspeaker integrated in the expansion jacket, optional over headset

RTX Platform Availability Maximise re-use of GSM/GPRS platforms is key to success in TD-SCDMA

RTX GPRS/TD-SCDMA Commercial Handset





- ▶ GSM/GPRS/TD-SCDMA compliant
- ▶ Direct conversion Rx and Tx
- ▶ Single board handset

DEVELOPMENT TARGETS:	
Bill of material	< 70 USD
Size	< 75 ccm
Weight	< 85 g
No. of components	app. 150
No. of RF-chips	1
No. of BB-chips	2 + Memory
Launch	2H 2003

GPRS/TD-SCDMA handsets will be cheaper than GSM/W-CDMA or cdma2000
 Cost add up to standard GSM/GPRS handset will be insignificant over time

www.rtx.dk

Latest Development of TD-SCDMA

- 3G Phone Has Realized Call With Datang TD-SCDMA Base station.
- Siemens succeeded in 384k data transmission demo on TD-SCDMA system on July 14th,2003 in Beijing .

TD-SCDMA Product



Smart Antenna (cover removed)



NB-430TS



Smart Antenna (cover removed)



NB-450TS

Outline

1. TD-SCDMA Technology Features and Development

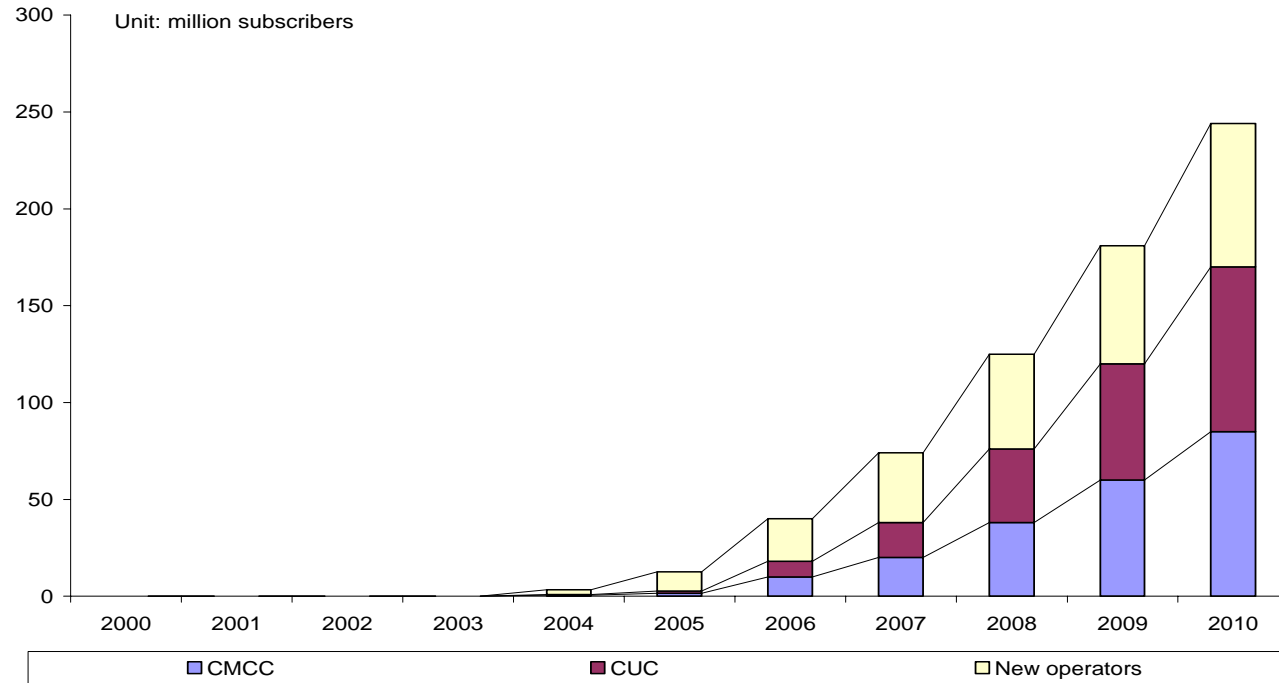
2. Prospect of TD-SCDMA

3. TD-SCDMA Forum Introduction and Prospect

4. Conclusions



China Mobile 3G - Subscribers by Operator



Unit: million subscribers

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CMCC	0	0	0	0	0.50	1.50	10.00	20.00	38.00	60.00	85.00
CUC	0	0	0	0	0.40	1.20	6.93	16.37	33.81	58.80	83.75
New operators	0	0	0	0	2.50	10.00	22.00	36.00	49.00	61.00	72.00
Total subscribers	0	0	0	0	3.4	12.7	38.93	72.37	120.81	179.8	240.75

3G mobile subscriber forecast by carrier & technology

3G Subscriber Development in 2004 -2005

Unit: million subscribers

	Carrier	2004				2005			
		TD-SCDMA	CDMA2000	W-CDMA	Total	TD-SCDMA	CDMA2000	W-CDMA	Total
Best Case	CMCC	0.00	0.00	0.50	0.50	0.00	0.00	1.50	1.50
	CUC	0.00	0.40	0.00	0.40	0.00	1.20	0.00	1.20
	New Operator I	0.00	0.00	1.50	1.50	0.00	0.00	6.00	6.00
	New Operator II	1.00	0.00	0.00	1.00	4.00	0.00	0.00	4.00
	Total	1.00	0.40	2.00	3.40	4.00	1.20	7.50	12.70

3G system capacity by carrier & technology

3G Mobile Infrastructure Investment in 2004 -2005

Unit: million Euro

Carrier	2004				2005			
	TD-SCDMA	CDMA2000	W-CDMA	Total	TD-SCDMA	CDMA2000	W-CDMA	Total
CMCC	0	0	390	390	0	0	910	910
CUC	0	390	0	390	0	650	0	650
New Operator I	0	0	1,950	1,950	0	0	1,300	1,300
New Operator II	1,560	0	0	1,560	910	0	0	910
Total	1,560	390	2,340	4,290	910	650	2,210	3,770

Outline

1. TD-SCDMA Technology Features and Development

2. Prospect of TD-SCDMA

3. TD-SCDMA Forum Introduction and Prospect

4. Conclusions





On December 12th,2000, TD-SCDMA technology Forum established



Foundation
conference
Date: Dec, 12th 2000
Venue: Beijing,people's hall





Founder of TD-SCDMA technology Forum





Tenet of TD-SCDMA technology Forum

- Provide a platform for worldwide operators, manufacturers, research institutes, educational services, standardization organizations and other companies or groups to communicate and cooperate the TD-SCDMA technology.
- Promote the development of TD-SCDMA and related products.

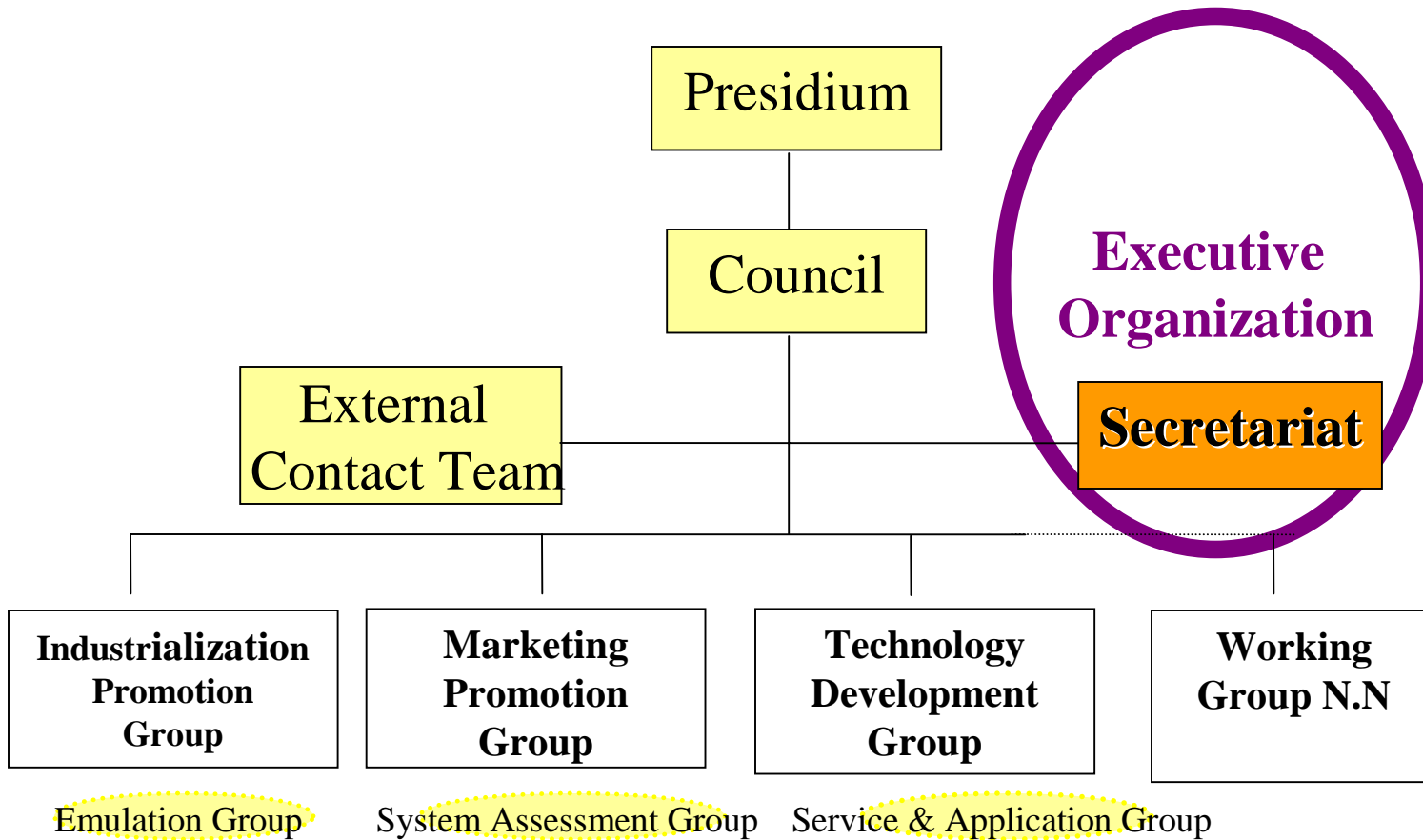
Working Scope of TD-SCDMA technology Forum

- **Propagandize and promote the TD-SCDMA Technology;**
- **Develop domestic and international academic exchanges, promote the evolution of the TD-SCDMA technology ;**
- **Establish working groups to implement monographic research, promote the development and consummation of TD-SCDMA;**
- **Set up and manage website of the TD-SCDMA Forum;**
- **Edit and publish forum periodicals;**
- **Hold seminar and demo conference periodically;**

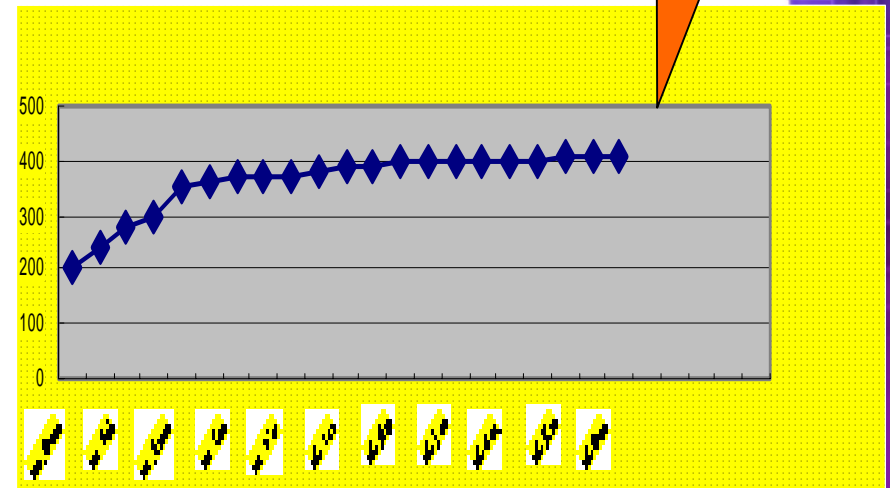
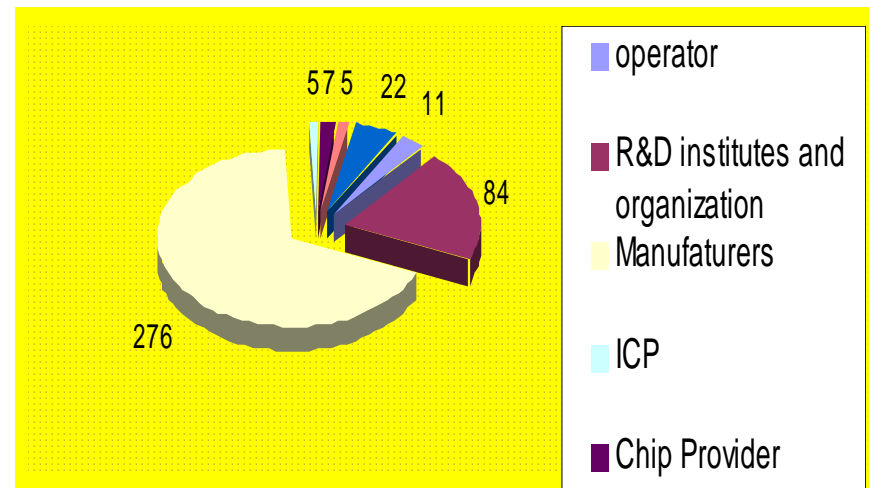
Target of TD-SCDMA technology Forum

- **Promote the industrialization of TD-SCDMA and eventually drive the worldwide application of the TD-SCDMA in the future;**
- **Set up the communication bridge for all members to cooperation on TD-SCDMA.**
- **Provide a shortcut for the communication between government and companies by the platform of TD-SCDMA Forum.**
- **Promoted cross-straits and international 3G communions, strategically promoted TD-SCDMA globally.**
- **Made active contacts with standardization organizations and research institutes to promote the progress of substantial work such as IPR.**

Organization Chart of the Forum



Members Category of TD-SCDMA technology Forum





Activities of TD-SCDMA technology Forum

TD-SCDMA Live Demo

Time: 2002-2-3

Venue: DaTang



3G Symposium
2002-11-14



TD-SCDMA Summit
Beijing
2001-9



IPR Regulation
Seminar
2002-12-12

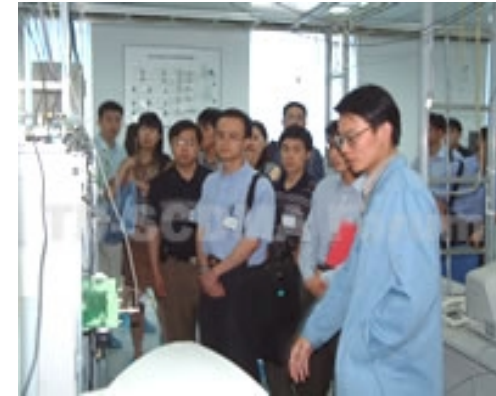


Constant self-improvement Promoting the industrialization of TD-SCDMA



Industrialization Promotion Workgroup Meeting

Time: 2002-06-14
Venue: CATT



TD-SCDMA Tech & Industrialization Development Seminar

Time: 2001-07-12





**Promoted cross-straits and international 3G communions,
strategically promoted TD-SCDMA in the global scope,
promoted the internationalization of TD-SCDMA.**

Korea

APTIT-3 Forum

USA

Asia Telecom Investor Tour by
LEHMAN BROTHERS



UMTS

Worldwide Mobile
Communications System Forum

B3G

Wireless Communications
International Forum

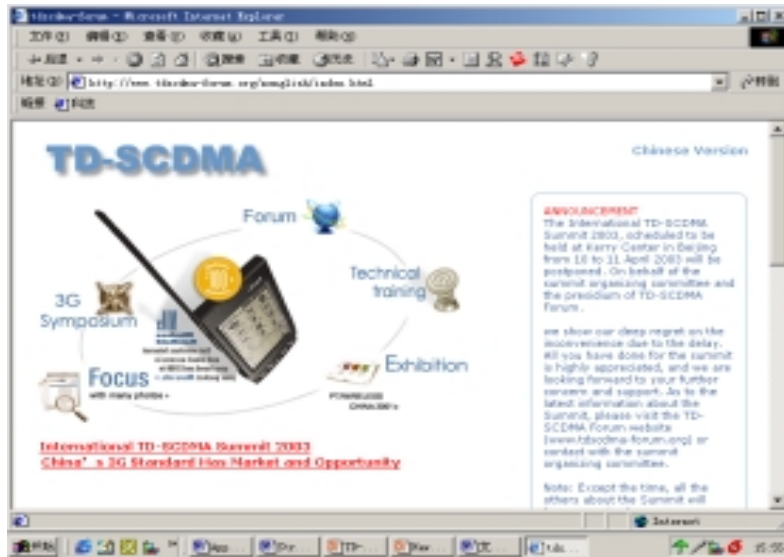


A GLOBAL INITIATIVE

On June 23, 2003, the Organizational Partners of the Third Generation Partnership Project (3GPP™) have approved an application by the TD-SCDMA Forum to become a Market Representation Partner (MRP) within the project.

Our website

[Http://www.tdscdma-forum.org](http://www.tdscdma-forum.org)



5610 clicks per day,
including 50% Chinese
browsers and 50% overseas
browsers. .



- **Great achievements in strengthen the communication with the relevant governmental departments**

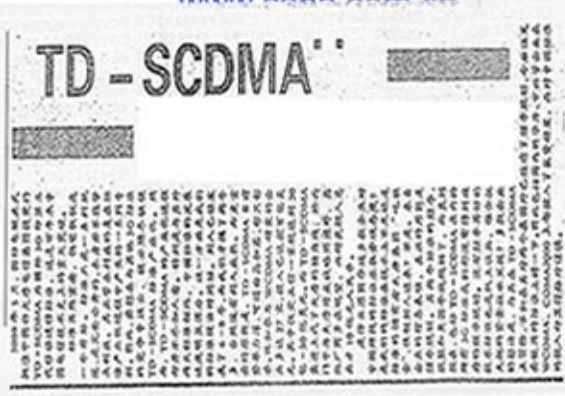
- **Mobilized industrial resource and senior internal staff officers to suggest means and ways to push the issue of 3G Frequency Planning.**

Powerful Media Propaganda, aroused advantageous social opinions

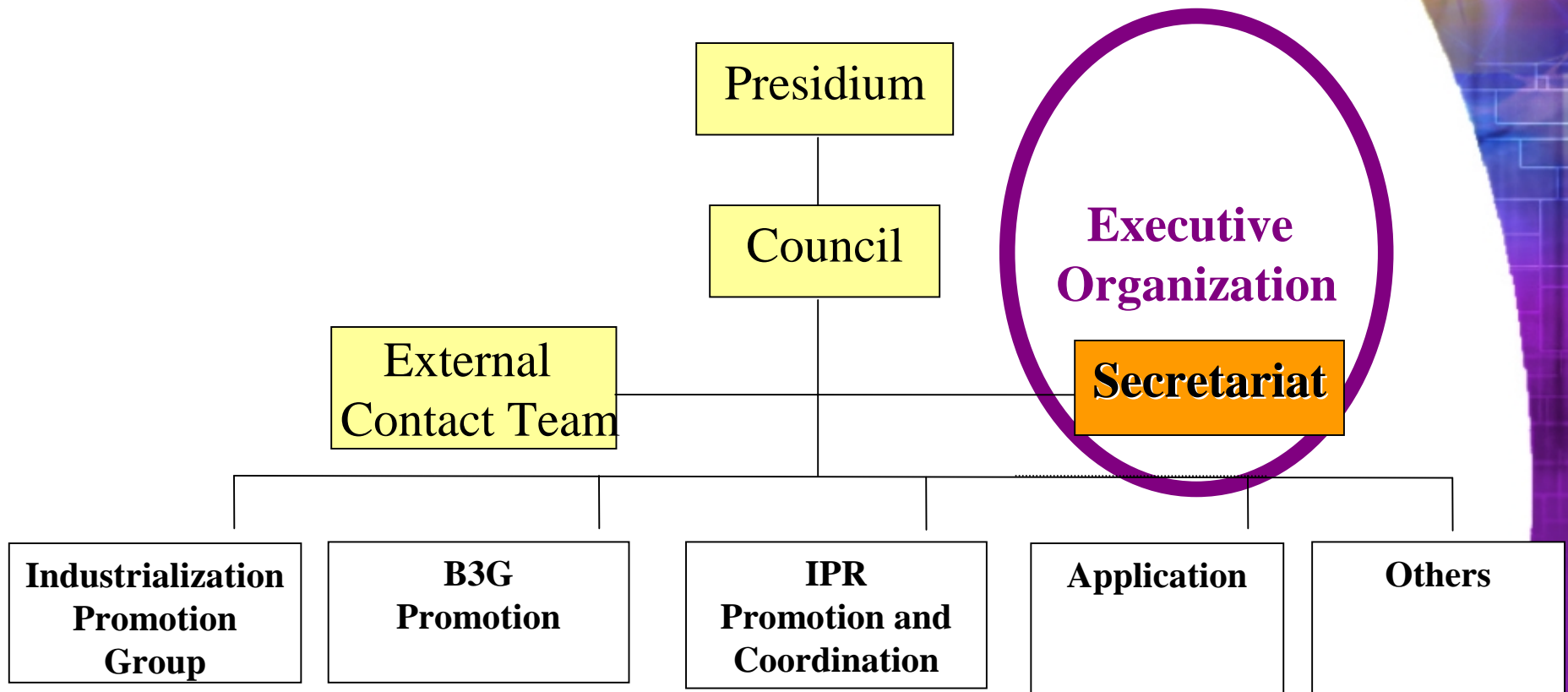
人民日报

中国电子报社

通信世界



Future Organization and development direction of Forum



Outline

1. TD-SCDMA Technology Features and Development

2. Prospect of TD-SCDMA

3. TD-SCDMA Forum Introduction and Prospect

4. Conclusions



4. Conclusions

- ① **TD-SCDMA technology has unique advantages ,it can be migrated from GSM to 3G smoothly and has flexible networks buildup mode .**
- ② **TD-SCDMA got strong support from Chinese government and vendors.**
- ③ **TD-SCDMA Technology Forum will coordinate the forum members, ascertain the direction of TD-SCDMA and get more support from Chinese government and carriers.**
- ④ **By cooperating with overseas standardization organizations, TD-SCDMA Technology Forum will promote the internationalization of TD-SCDMA.**
- ⑤ **TD-SCDMA Technology Forum will explore the industrialization, commercialization, internationalization and strategic expansion of TD-SCDMA.**