



GSA Report to PCG 17, Mexico

Report overview



- ▶ Market Update
- ▶ Deliverables
- ▶ Challenges and priorities



- ▶ **Market Update**
- ▶ Deliverables
- ▶ Challenges and priorities

2 billion GSM subscriptions reached in June 2006

- 2nd billion added in only 30 months
- GSM is the world's biggest linked community

The GSM family of technologies comprises GSM/GPRS, EDGE, WCDMA-HSPA



GSM subscriptions worldwide pass 2 billion

The number of GSM subscriptions worldwide passed the 2 billion milestone in June 2006, according to data from Informa Telecoms & Media. The first billion GSM subscriptions were reached in February 2004, 12 years after the launch of the first networks. The second billion comes just two and a half years later.



- ▶ During 1H 2006 the GSM family gained 240 million subscriptions, i.e. > 1.31 million additions per day
- ▶ Approaching 1,000 new users/minute sign up to GSM
- ▶ High growth markets including Africa, China, India, and Latin America, accounted for 82% of the 2nd billion subscriptions
- ▶ GSM serves over 82% of the world's mobile phone users today

Today: 2.095 billion GSM subscriptions

INDIA: Record 4.4 million GSM connections in September 06

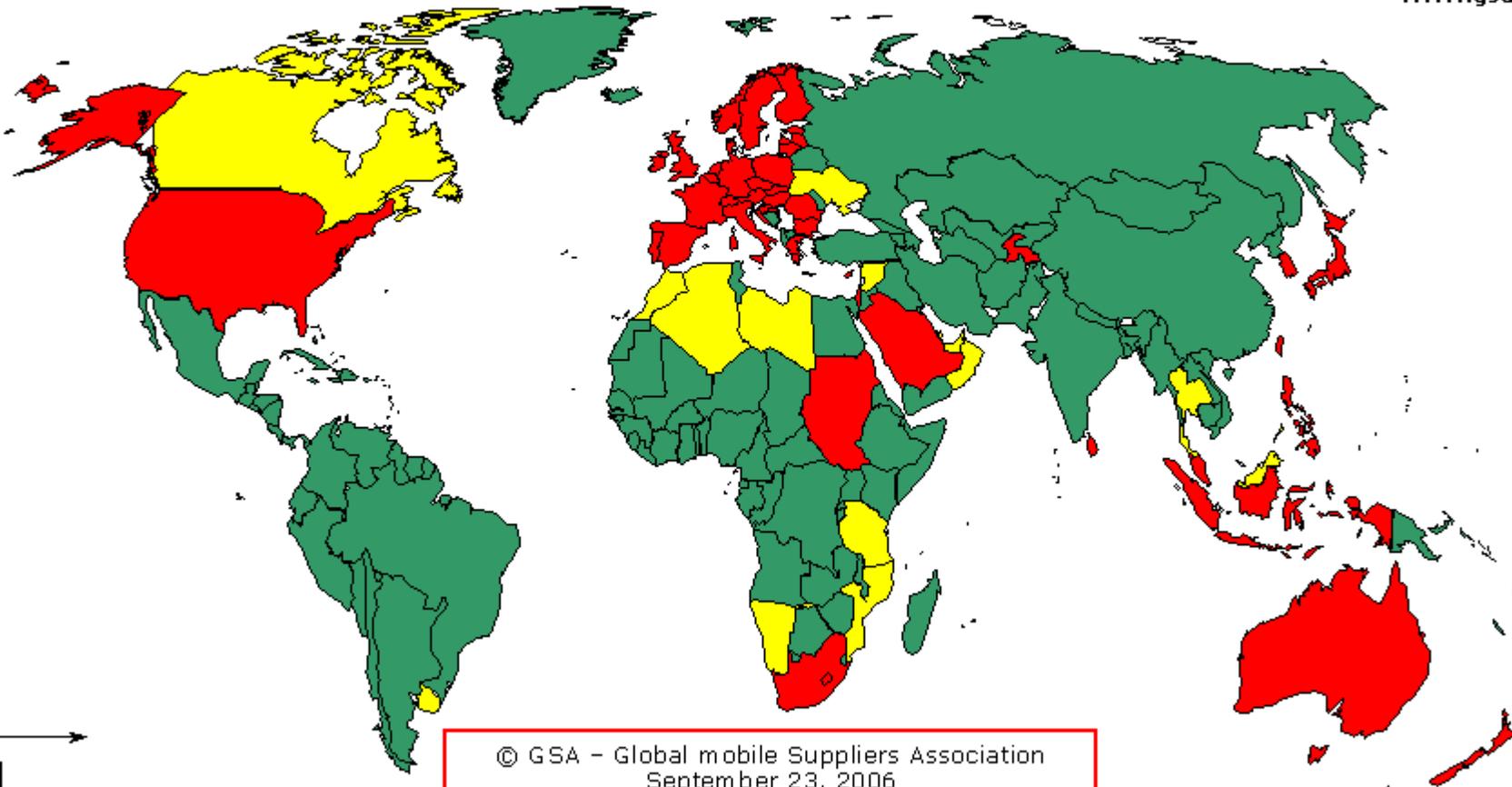
123 3G/WCDMA commercial networks in 55 countries

-  Countries with commercial 3G WCDMA networks
-  Countries with 3G WCDMA networks in deployment
-  GSM markets expected to evolve to 3G WCDMA

Source of data: GSA



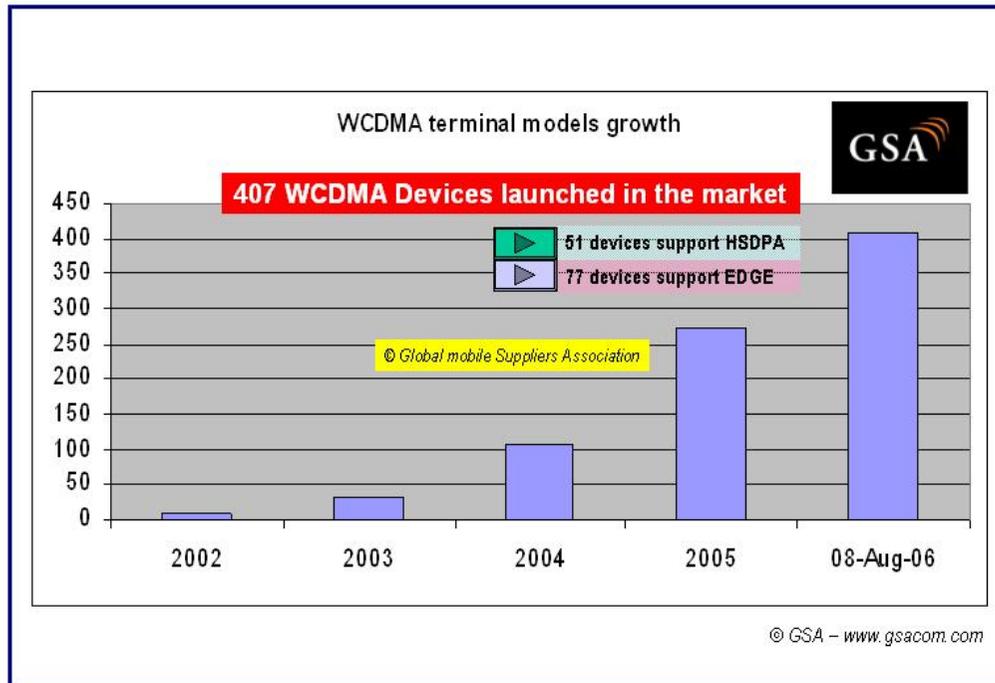
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(c) GSA - Global mobile Suppliers Association

407 WCDMA/HSDPA devices

launched by 44 suppliers



- ▶ includes devices operating at 850 MHz
- ▶ includes devices supporting HSDPA
- ▶ Includes devices supporting EDGE & WCDMA



GSA survey published August 8, 2006

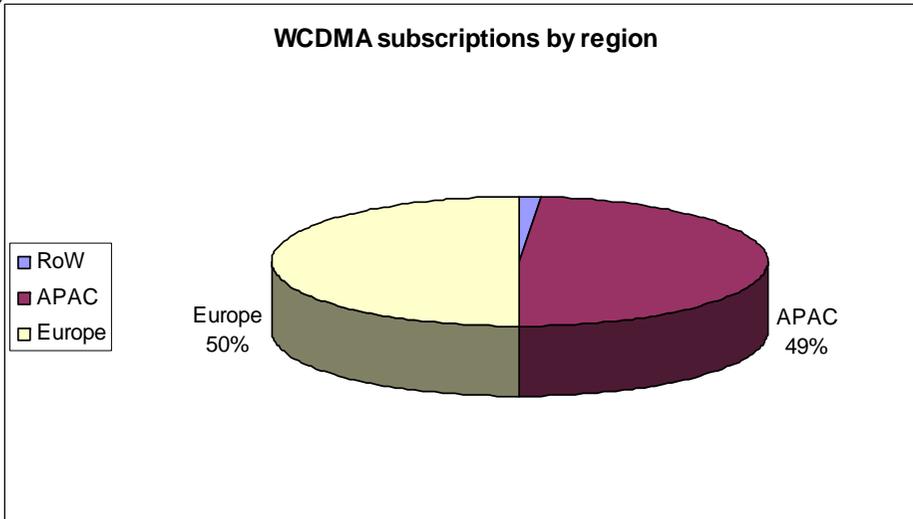
Surveys of EDGE, WCDMA and HSDPA devices and availability are available to users of the Operators Zone and GSA Members Zone

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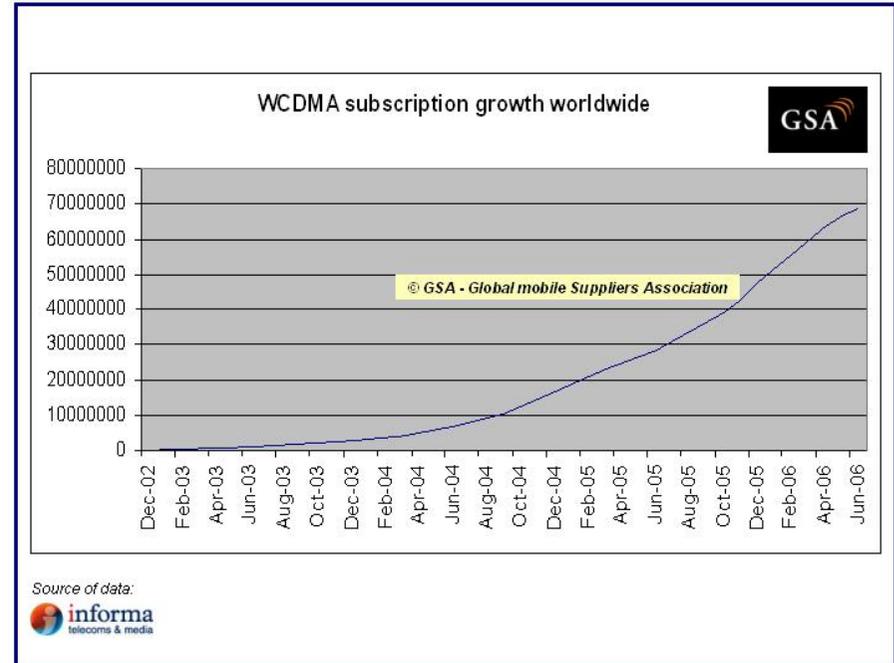
Global mobile Suppliers Association © 2006

Strong WCDMA subscriber growth



Europe has over 34 million WCDMA subscriptions, gaining over 11 million in 1H 06

USA hit 500,000 WCDMA subscriptions at 30.6.06 achieving 133% growth in Q2 06



Over 88 million (estimated) WCDMA subscriptions globally

Almost 45% growth in 1H 2006

Over 3.5 million average adds per month globally in 1H 06

Mobile broadband is reality with HSDPA

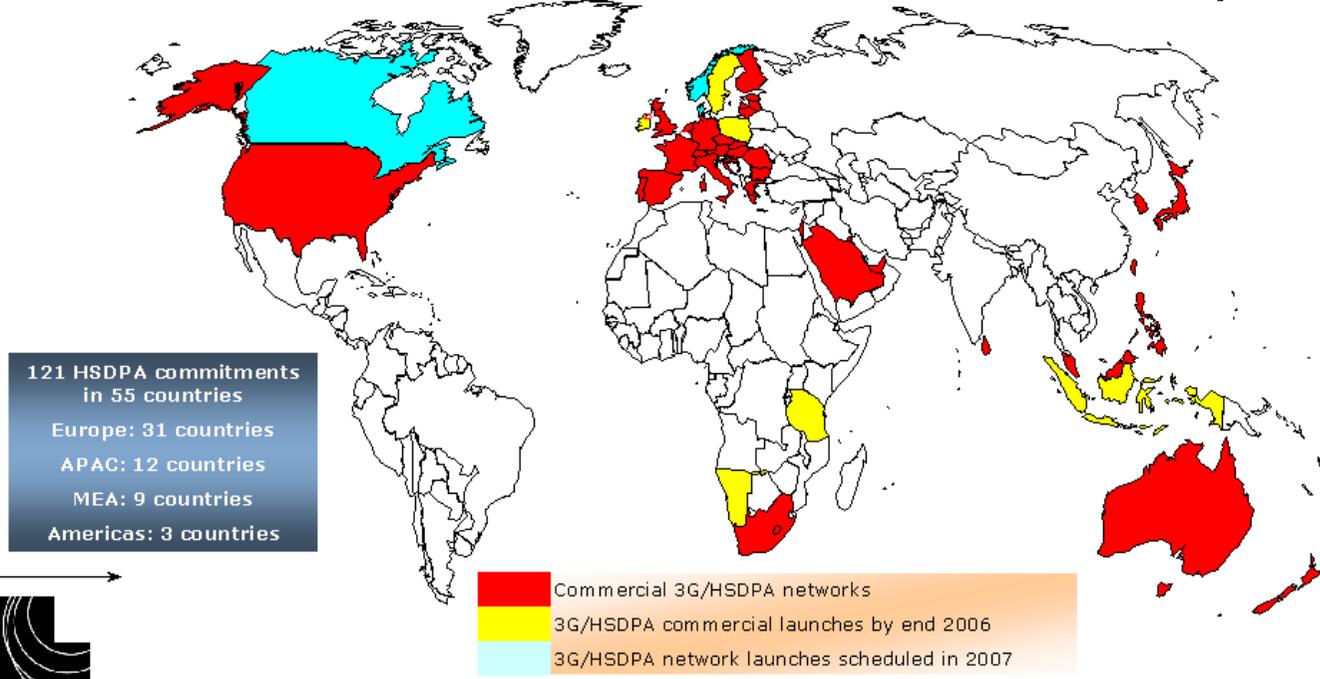


121 HSDPA network commitments in 55 countries

Updated October 6, 2006

65 commercial HSDPA networks in 39 countries/territories:

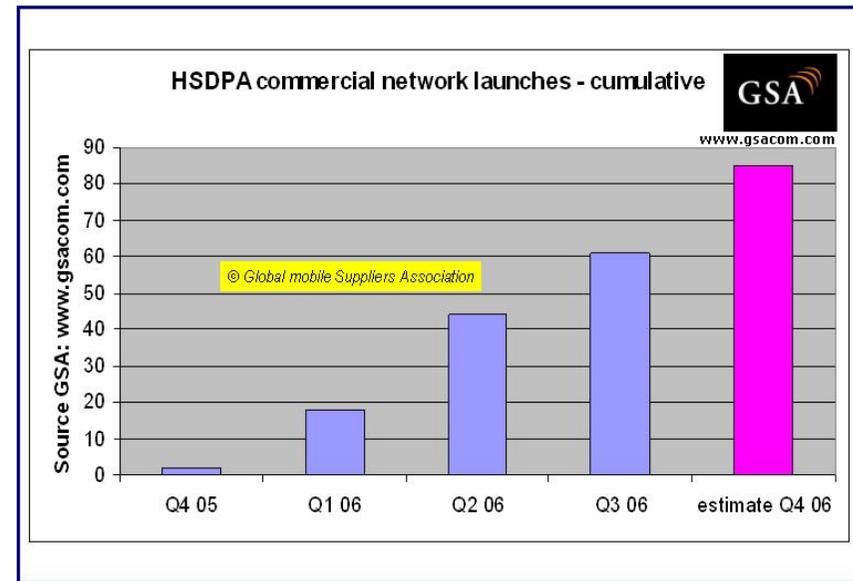
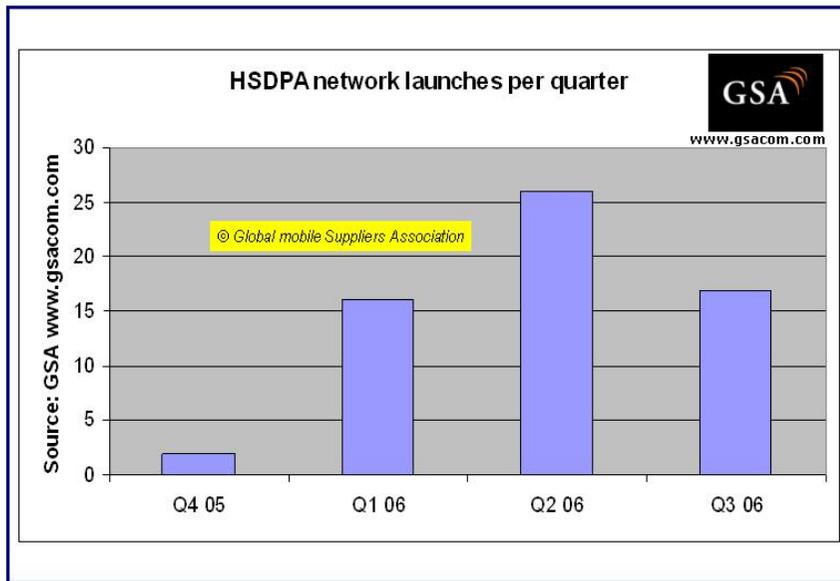
Americas (USA); **APAC** (Australia, HK, Japan, Malaysia, New Zealand, Philippines, S. Korea, Sri Lanka, Taiwan)
Europe (Austria, Belgium, Bulgaria, Croatia, Czech R., Estonia, Finland, France, Germany, Greece, Hungary, Isle of Man, Italy, Latvia, Lithuania, Madeira, Netherlands, Portugal, Romania, Slovak Republic, Spain, Switzerland, UK)
Middle East/Africa (Bahrain, Israel, Kuwait, Saudi Arabia, South Africa, UAE)



(c) GSA – Global mobile Suppliers Association: October 6, 2006

HSDPA is the major leap forward for the industry

Rapid commercialization of HSDPA



GSA predicts 85 commercial HSDPA networks worldwide launched by end 2006

October 2006 HSDPA network launches:

Softbank, Japan – October 1st

Vodafone New Zealand – October 1st

Telstra, Australia – October 6th (850 MHz)

Vodafone Australia – October 20th launch announced

HSDPA devices

GSA HSDPA Devices survey
October 6, 2006

66 devices in the market support HSDPA

- ▶ 32 handset models
- ▶ 26 PC cards/embedded modules
- ▶ 4 USB HSDPA modems
- ▶ 4 Wireless routers

Summary: HSDPA devices launched © GSA - Global Suppliers Association	
4G Systems	3
BenQ	1
Dopod	1
Fujitsu	1
HTC (including Qtek and i-Mate brands)	5
Huawei	2
LG	6
Motorola	4
NEC	1
Nokia	2
Novatel Wireless	6
NTT DoCoMo	1
Option	8
Samsung	12
Sarian	1
Sierra Wireless	8
Topex	1
Zedacom	1
ZTE	2
Total number of HSDPA-enabled devices launched (October 6, 2006)	66

GSA Global mobile Suppliers Association
66 HSDPA Devices – October 6, 2006
GSM/3G MARKET/TECHNOLOGY UPDATE

	HTC TyTN GSM/EDGE 850/900/1800/1900 WCDMA-HSDPA 850/1900/2100, WLAN. Shipping; versions incl. HTC Mermes, Orange SPV M3100, T-Mobile MDA Vano II, O2 Xda Trion, Cingular 8500, i-mate JAS/JAM, Vodafone v1505		Samsung Z720 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 Available by end 2006
	Samsung SGH-ZV50 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 Shipping July 2006 on Vodafone		Samsung Z620 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 Available by end 2006
	LG-SGH100 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 Shipping date to be announced		Samsung SGH-800 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 WLAN Available Q4 2006
	LG-KH 1000 GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 Shipping date to be announced		Samsung SGH-i607 (Samsung BlackJack for Cingular) GSM/EDGE 850/900/1800/1900 WCDMA-HSDPA 850/1900 Available Q4 2006
	Motorola MOTORAZR xxx GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 HSDPA data rate 3.6 Mbps Available Q4 2006		Samsung Z540 (for Vodafone) GSM 900/1800/1900 WCDMA-HSDPA 2100 Available now
	Motorola MOTORAZR maxx GSM/EDGE 900/1800/1900 WCDMA-HSDPA 2100 HSDPA data rate 3.6 Mbps Available Q4 2006		i-Mate SP JAS (version of HTC MteoR) GSM 900/1800/1900 WCDMA-HSDPA 2100 Available now
	Samsung SPH-W2100 1xEV-DO and HSDPA for Korea With T-DMB Available soon		Nokia N95 GSM/EDGE 850/900/1800/1900 WCDMA-HSDPA 2100 WLAN, GPS Available 1Q 2007
	Dopod 838 Pro GSM/EDGE 850/900/1800/1900 WCDMA-HSDPA 850/1900/2100 W-LAN Available now		HTC SoftBank X01HT GSM/WCDMA-HSDPA/WLAN Exclusive for Softbank network, Japan Available October 1, 2006

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HSDPA-enabled laptops/notebooks (not in Devices total)



Vendor	Product	Networks
Acer	Travelmate 4260 3G	Vodafone
Acer	Aspire 5650 3G	Vodafone
Dell	Wireless 5505 (Option Wireless) in Latitude D820	Vodafone
Dialogue	Flybook V331U	Italy, Netherlands
Fujitsu-Siemens	Lifebook Q2010	T-Mobile Austria
HP Compaq	NC 5400	Vodafone
Lenovo	Think Pad Z50, R60, T60, X60, Z61	Includes Cingular, Vodafone
Panasonic	Toughbook CF-18	Europe
Panasonic	Toughbook CF-W5, CF-T5	Shipping Oct 2006
Panasonic	Toughbook CF-Y5	Shipping Dec 2006
Panasonic	Toughbook CF-29	Cingular Wireless
Panasonic	Toughbook CF-18	Cingular Wireless
Panasonic	Ruggedized	Cingular Wireless
Panasonic	Toughbook CF-18	Cingular Wireless
Panasonic	Ruggedized	Cingular Wireless
Samsung	Q1P Tablet	From Q4 2006

... mobile computing with embedded HSDPA connectivity for WWAN (not included in devices figure)

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HSDPA networks combine with GSM/EDGE



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Global mobile Suppliers Association

121 HSDPA Operator Commitments in 55 countries/territories
65 commercial launches in 39 countries – October 6, 2006

GSM/3G MARKET/TECHNOLOGY UPDATE

The path to mobile broadband beginning with GSM/EDGE & WCDMA has moved to a new baseline. High Speed Downlink Packet Access (HSDPA) is the first evolution of WCDMA, delivering user data speeds in the range of 1 to 3.6 Mbps. Most services benefit from HSDPA; others are enabled.

Some operators position HSDPA as an alternative to fixed broadband, with the added value of mobility.

GSA predicts that a worldwide total of at least 85 HSDPA networks will be commercially launched by end 2006.

This survey confirms 121 HSDPA network deployments in 55 countries/territories:

- Americas: 3 countries/territories
- APAC: 12 countries/territories
- Europe: 31 countries/territories
- Middle East and Africa: 9 countries/territories

There are 65 commercial HSDPA networks in 35 countries/territories:

Americas (USA): APAC (Australia, HK SAR, Japan, Malaysia, New Zealand, Philippines, S. Korea, Sri Lanka, Taiwan)
Europe (Austria, Belgium, Bulgaria, Croatia, Czech R., Estonia, Finland, France, Germany, Greece, Hungary, Isle of Man, Italy, Latvia, Lithuania, Madeira, Netherlands, Portugal, Romania, Slovak Republic, Spain, Switzerland, UK)
Middle East/Africa (Bahrain, Israel, Kuwait, Saudi Arabia, South Africa, UAE)

55 HSDPA operators i.e. over 45% are deploying GSM/EDGE for service continuity in areas outside HSDPA coverage, and the best user experience. 31 of the 65 commercially launched HSDPA networks, i.e. almost half, have commercially launched combined HSDPA-EDGE networks.

#	Country	Operator	HSDPA network deployment status	EDGE
1	Australia	3 Australia	In deployment for target March 2007 launch	
2	Australia	Telstra	Launched October 6, 2005, 38% population coverage, up to 3.6 Mbps	Deploying
3	Australia	Vodafone	Will launch in Sydney & Melbourne metropolitan areas October 20, 2005	
4	Australia	Optus	Testing from August 05; target full network deployment by end 2005	
5	Austria	T-Mobile	Launched March 2006 – now nationwide	Launched
6	Austria	Mobilkom	Launched January 05, 3.6 Mbps launched 25.06.05, now all 3G network	Launched
7	Austria	3 Austria	Launched July 24, 2006. Target 95% pop coverage by end 2007	
8	Austria	One	Launched June 2006 (central Vienna). Target all WCDMA area end 07	
9	Bahrain	MTC-Vodafone	Launched May 21, 2006 – nationwide coverage from August 2006	Launched
10	Belgium	Proximus	Launched June 15, 2005, target HSDPA all 3G network by end 2006	Launched
11	Belgium	Mobistar	Launched August 05 – available throughout all WCDMA network	Launched
12	Bulgaria	MobilTel	Launched March 6, 2006 – Sofia	Launched
13	Bulgaria	GLOBE	Launched WCDMA-HSDPA September 25, 2006, Sofia = 3 major cities	
14	Canada	Rogers Wireless	Launch target Q1 2007	Launched
15	China	China Mobile	Testing phase – estimated in service 2007	Launched
16	Croatia	VIPNet	Launched April 26, 2006 - Zagreb, Rijeka and Opuzja	Launched
17	Czech Republic	Eurotel Praha	Launched April 10, 2005	Launched
18	Czech Republic	T-Mobile	Launched selected areas	Launched
19	Czech Republic	Vodafone Czech R.	Now only 3G network	Launched
20	Denmark	3 Denmark	In deployment	
21	Estonia	Bravocom	Launched July 5, 2006 - Tallinn and Pärnu	Launched
22	Estonia	Ella	Launched June 14, 2006	Launched
23	Estonia	OMT	Launched April 25, 2006	Launched
24	Finland	Ella	Launched April 6, 2006	Launched
25	Finland	Finnnet	In deployment	Launched
26	France	Bouygues Telecom	Launch target early 2007	Launched
27	France	Orange	Service launch planned by end summer 2005	Launched
28	France	SFR	Launched May 11, 2006	Launched
29	Germany	E-Plus	Planned	
30	Germany	T-Mobile	Launched March 2006 – now nationwide	Launched
31	Germany	O2	Demonstrated at IFA, 1-5 Sept 05, Berlin. Launch target early 07	
32	Germany	Vodafone	Launched March 2006	
33	Greece	cosmote	Launched June 2006	
34	Greece	TIM Hellas	In deployment; target completion end 2005 for service launch in 2007	Deploying
35	Guernsey	Cable and Wireless	In deployment – infrastructure contract announced April 2006	
36	Hong Kong	SmarTone-Vodafone	Launched June 6, 2005, 3.6 Mbps	

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GSA survey "HSDPA Operator Commitments – October 6, 2006" also confirms:

▶ 121 HSDPA operator deployments worldwide

▶ 55 networks (i.e. over 45%) also support GSM/EDGE for service continuity and the best user experience

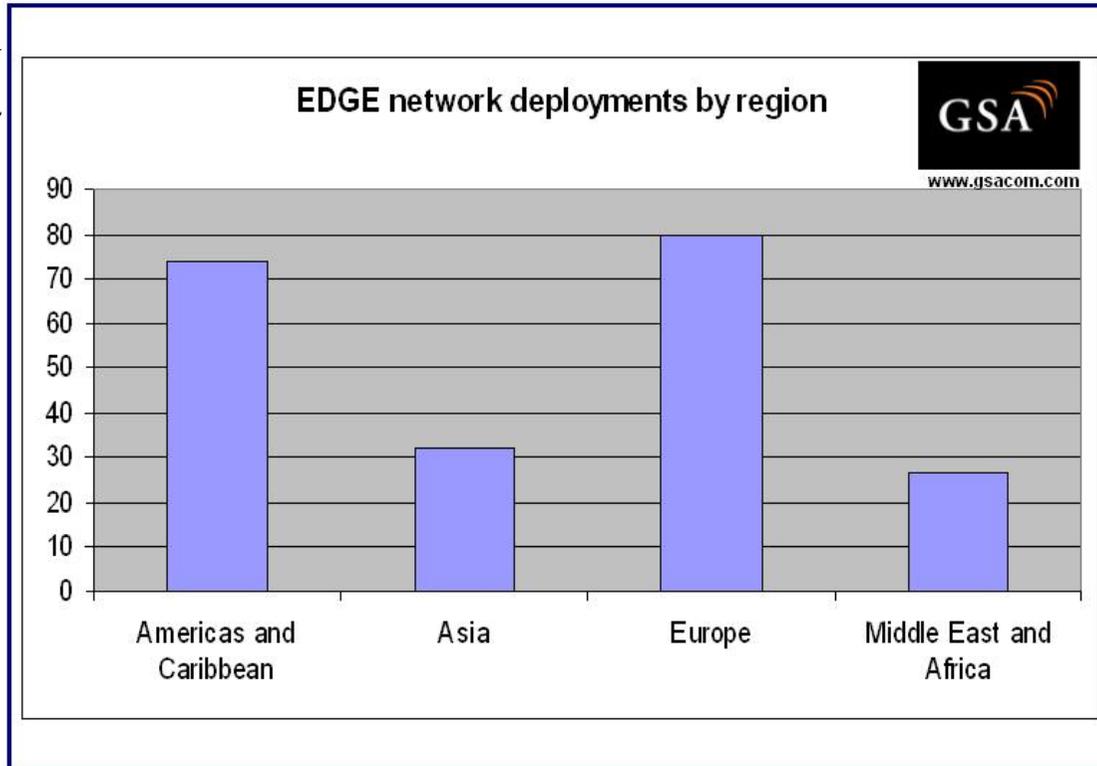
▶ 31 out of 63 HSDPA commercial networks have also enabled commercial GSM/EDGE service

HSDPA Operator Commitments
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213 EDGE operator commitments in 118 countries



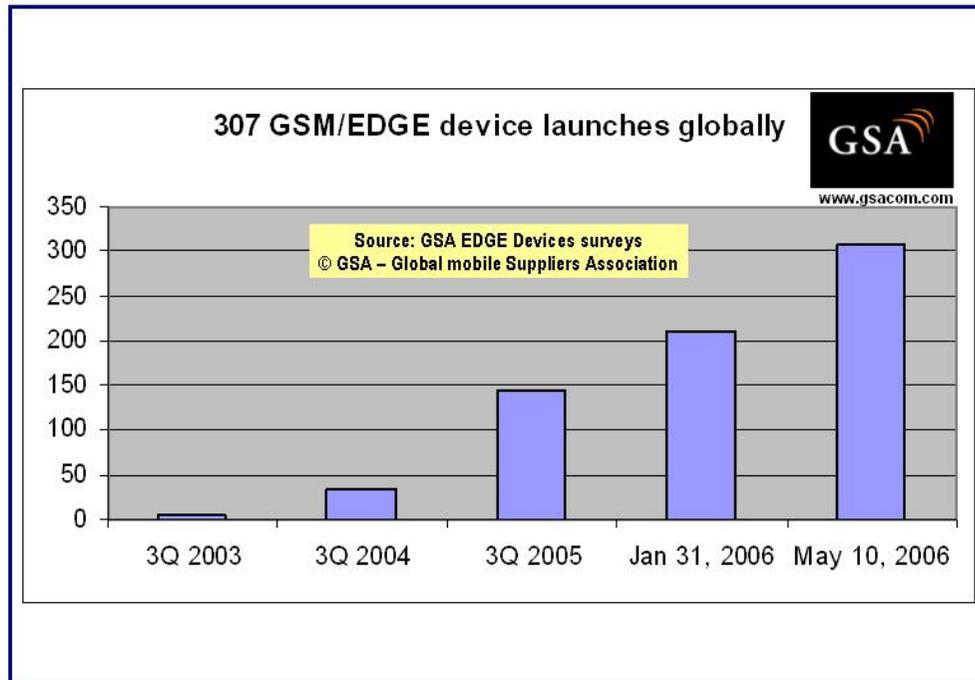
156 EDGE Commercial deployments in 92 countries

- 67 networks in Europe
- 47 in Americas and Caribbean
- 21 in Asia
- 21 in Africa and Middle East

Source: GSA survey published September 5, 2006

GSM/EDGE devices

- ▶ *EDGE is standard in most new data-enabled phones*
- ▶ *307 GSM/EDGE devices launched (May 10, 2006)*



46
suppliers
in the
market

172% increase in number of GSM/EDGE devices launched in 12 months to May 2006

Source: GSA survey May 10, 2006

Number of EDGE devices launched per supplier

Nokia	71
Samsung	44
Motorola	28
Sony Ericsson	23
LG	17
BenQ-Siemens	11
Option	10
HP	7
HTC/Qtek	7
RIM Blackberry	6
Sierra Wireless	6
Novatel Wireless	5
Dopod	5
i-Mate	5
Alcatel	4
Amoi	4
Cingular Wireless	4
NEC	4
Orange	4
Sony PC	4
Atelab	3
Onda	3
o2	3
Acer PC	2
Dell PC	2
Mobiado	2
Sagem	2
Vodafone	2
T-Mobile	2
Axia, Chi Mei, Dallab, Grundig, Huawei, ImCoSys, KPT, Modeo, PalmOne™, Road, Samba, Symbol Technologies, TechFaithWireless, Telular, VK Mobile, Zadacom, ZTE - 1 each	17
Total # EDGE devices in the market	307

Source: GSA - May 10, 2006

EDGE is part of 3G services delivery

46 operators launched services on combined WCDMA-EDGE networks



71 WCDMA/EDGE Network Operators

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46 commercial WCDMA/EDGE networks
shown in RED: September 26, 2006



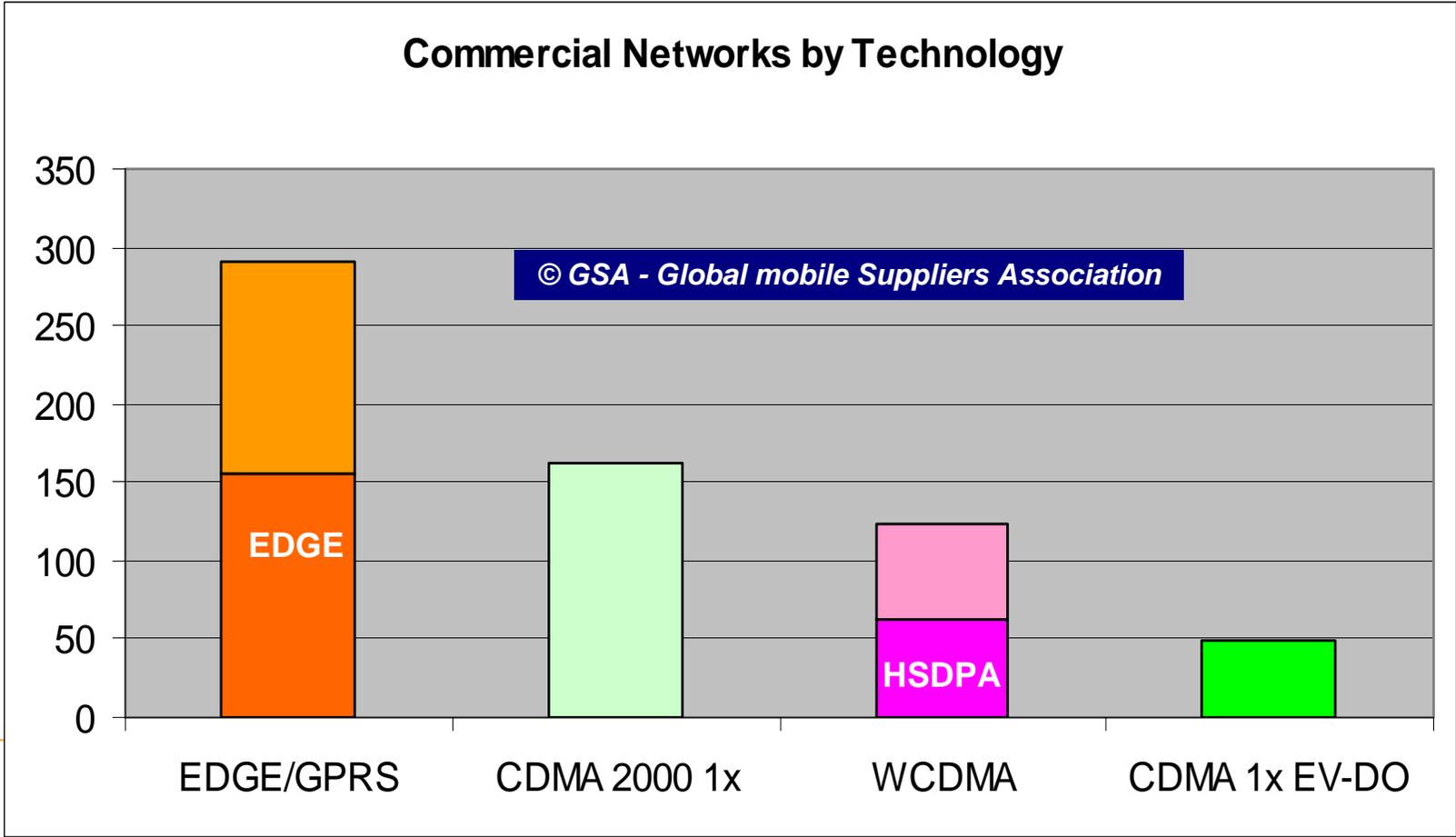
063 Mobtel Srbija, Serbia
AIS, Thailand
Ålands Mobiltelefon, Finland
Almadar, Libya
Antel/Ancel, Uruguay
Areeba, Cyprus
Base, Belgium
Batelco, Bahrain
Bite, Latvia
Bouygues Telecom, France
Bravocom, Estonia
Cell C, South Africa
Cellcom, Israel
Cingular Wireless, USA
CSL New World Mobility, Hong Kong
du, UAE
Dialog GSM, Sri Lanka
Elisa, Finland
Elisa, Estonia
EMT, Estonia
Globe, Philippines
Go Mobile, Malta
LMT, Latvia
Maxis, Malaysia

MDC (Velcom), Belarus
Mobilkom, Austria
Mobiltel, Bulgaria
Mobily, Saudi Arabia
Mobistar (Orange), Belgium
MTC, Namibia
MTC-Vodafone, Bahrain
MTN, South Africa
Navras, Oman
O2 (formerly Eurotel), Czech Republic
Orange, France
Orange, Poland
Orange, Romania
Orange, UK
Orange Slovensko, Slovak Republic
Orange, Switzerland
Pannon GSM, Hungary
Polkomtel, Poland
Proximus-Vodafone, Belgium
PTC/Era, Poland
Rogers Wireless - Fido, Canada
SFR, France
Smart, Philippines
Sonofon, Denmark

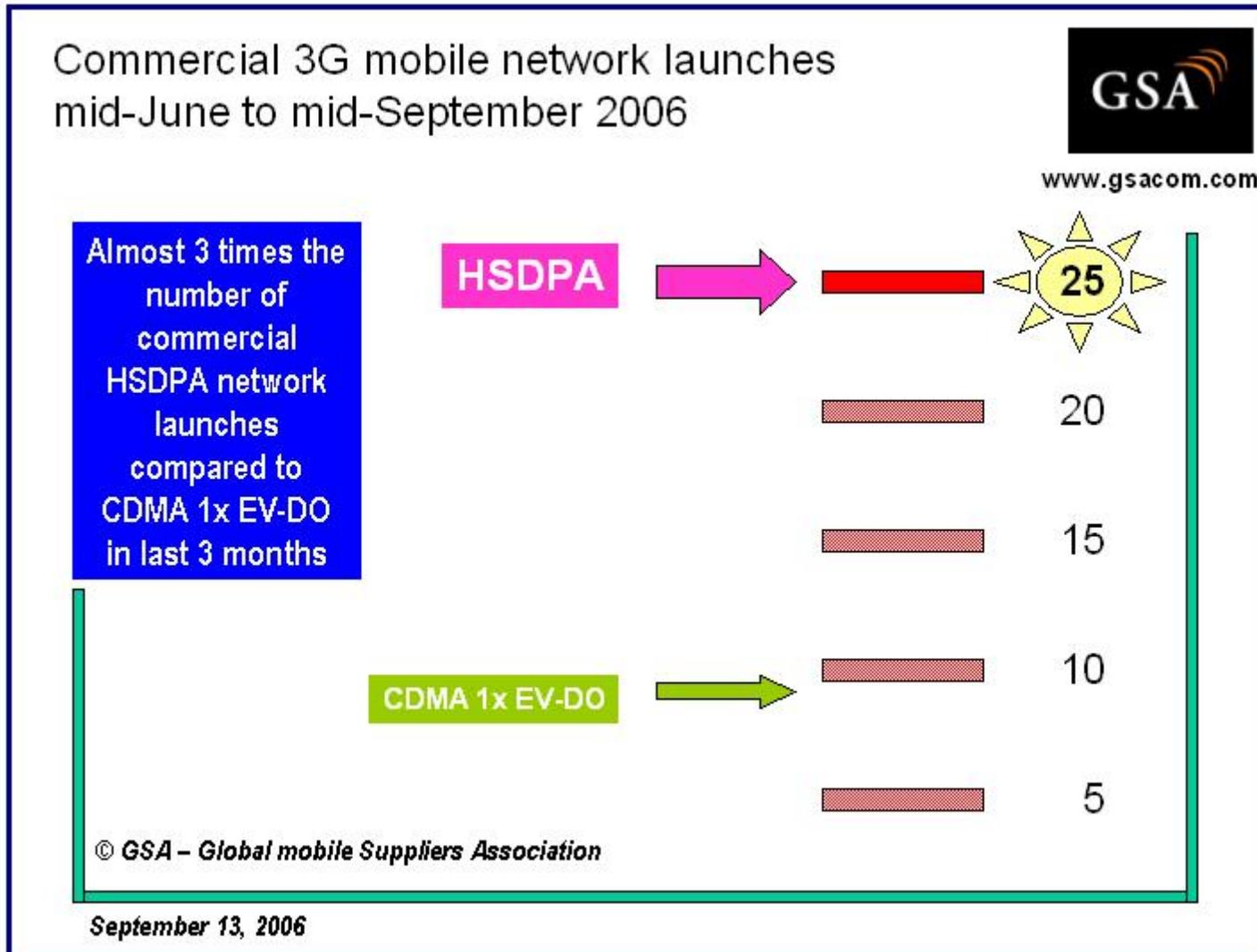
StarHub, Singapore
Sunrise, Switzerland
Swisscom, Switzerland
T-Mobile, Croatia
T-Mobile, Czech Republic
T-Mobile, Germany
T-Mobile, Hungary
T-Mobile Slovensko, Slovak Republic
T-Mobile, USA
Telenor, Norway
Telfort, Netherlands
TeliaSonera, Denmark
TeliaSonera, Finland
TeliaSonera (Netcom), Norway
TeliaSonera, Sweden
Telstra, Australia
TIM Hellas, Greece
TIM, Italy
VIP Net, Croatia
Vodafone, Czech Republic
VOXmobile, Luxembourg
Wataniya Telecom, Kuwait
Wataniya Telecom, Maldives

Most WCDMA operators are also deploying EDGE for the best user experience

Adoption of mobile standards



Commercial 3G mobile network launches mid-June to mid-September 2006



WCDMA is leading the 3G world



- ▶ 123 WCDMA commercial networks including 65 HSDPA launches (source GSA)
 - ▶ 51 CDMA 2000 1x EV-DO commercial networks (source CDG)
- ▶ WCDMA has around two-thirds market share of 3G subscriptions worldwide
 - ▶ > 88 million WCDMA subscriptions; should reach 100 million by end 2006
- ▶ WCDMA has more devices (400+) launched compared to CDMA 1x EV-DO (350)

Data growth



Most HSDPA networks today are 1.8 Mbps peak (some offer 3.6 Mbps)

Operators generally report increased data usage by users with HSDPA devices, compared to WCDMA, as the service experience improves

Example: Operator in Middle East

*EDGE data users 9 x higher than GPRS; HSDPA users 3 times x than EDGE
HSDPA devices sales 3 times higher*

Example: Operator in Europe

100,000 HSDPA-enabled datacards sold in 6 months

HSDPA - Market feedback



Operators report positive feedback – customers are satisfied with the “mobile broadband” proposition (the media are also positive)

Pricing – needs to be simple, transparent

- ▶ Generally no “premium” is charged for HSDPA; same price for all data technologies
- ▶ Flat rate for data becoming more common, some with allowance limits
- ▶ BUT ... data roaming rates more costly, confusing



- ▶ Market Update
- ▶ **Deliverables**
- ▶ Challenges and priorities

Market intelligence for the industry

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Regular surveys

- HSDPA Operator Commitments survey
- HSDPA Devices
- 3G/WCDMA-HSDPA Fact Sheet
- EDGE Fact Sheet

- Press releases www.gsacom.com/news/index.php4
- Response to Bahrain mobile licensing consultation www.gsacom.com/gsm_3g/consultation_responses.php4
- GSM/3G Market Intelligence – growth, industry trends, charts www.gsacom.com/news/statistics.php4

Additional resources for [Members Zone](#) and [Operators Zone](#) users:

GSA survey

CDMA to GSM/WCDMA Migration



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CDMA to GSM/WCDMA Migration – October 7, 2006
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GSM/3G MARKET/TECHNOLOGY UPDATE

28 operators using GSM either as an overlay to a CDMA network, or as its replacement

A number of CDMA operators are facing falling market share and responding by switching to the GSM family (GSM/EDGE, WCDMA-HSPA) for growth. Some operators choose a dual system strategy, but most prefer to migrate their whole customer base to GSM, the global standard for mobile communications. The vast majority of TDMA operators also chose a migration path to GSM. No instances are found of a network operator abandoning GSM in favour of CDMA.

The case for GSM is compelling, taking into account GSM's unrivalled economies of scale (2.05 billion GSM subscriptions, and over 52% share of the global market), feature-rich services, the high number of GSM/WCDMA terminals, low subscriber acquisition cost for operators, ubiquitous international roaming, and future proof evolution to 3G and beyond, enabled by 3GPP open-standards EDGE, WCDMA-HSPA, and LTE (Long Term Evolution).

Mobile subscriber growth

GSM/WCDMA subscriber growth of 280 million in first half of 2006

UPDATE: Telstra launched its 3G/WCDMA-HSDPA network on October 6, 2006, enabling mobile broadband services over a wide geographic area covering 98% of the population. Customers benefit from automatic global roaming capabilities with other GSM operators throughout the world. The company plans to migrate all its CDMA customers to the new network by January 2009.

UPDATE: Telecom New Zealand may have to spend \$400 million to switch mobile phone technology because of dwindling global support for its CDMA system, according to reports. GSM technology, used by rival Vodafone, has 82 per cent of the market. Telstra will close its CDMA network by 2008, which means Telecom customers won't have a network to roam on when they visit Australia.

UPDATE: Airtel, India, has launched seamless roaming services across the world. This will benefit its customers with compatible GSM/WCDMA handsets while roaming, including those visiting Japan and South Korea. Before the introduction of WCDMA, automatic roaming to these countries was impossible, as customers had to change handsets on arrival to use local CDMA networks.

Network	Country	Comments
CTY Movil	Argentina	GSM launched November 2003
Movistar	Argentina	GSM launched June 2006
MiddleEast	Australia	WCDMA launched April 2003. CDMA network (known as Kirameg) closed August 9, 2005
Telstra	Australia	WCDMA-HSDPA network launched nationwide on Oct. 6, 2006 & will replace CDMA network
Vivo	Brazil	Deploying new GSM overlay to the CDMA system in the same spectrum band
Movistar	Chile	GSM launched April 2003
Claro (op-Smartcom)	Chile	GSM network launched August 10, 2005
Unicom	China	Both systems deployed - GSM launched in 2000; CDMA launched in 2001
Movistar	Colombia	GSM launched May 2005
Movistar	Ecuador	GSM launched November 2005
Alegra PCS	Ecuador	August 2005: reported to be evaluating costs of implementing GSM; launch target early 2007
Movistar	El Salvador	GSM launched 2004
Movistar	Guatemala	GSM launched May 2004
PCS Digital/Servcom	Guatemala	GSM launched December 2003
Celltel	Honduras	GSM launched August 2004
Reliance	India	June 2005: applied for 1800 MHz spectrum to start GSM services in New Delhi and Mumbai
BSNL	India	August 2005: BSNL invited manufacturers' proposals equipments for WLL services using GSM
Movistar	Mexico	GSM launched Q4 2005
Movistar	Nicaragua	GSM launch target July 2006
Movistar	Peru	GSM launched January 05
MTI	Singapore	CDMA network closed September 2001
SKT	South Korea	WCDMA-HSDPA launched June 2005
SK Telecom	South Korea	WCDMA-HSDPA launched May 2005
Movistar	Uruguay	GSM/EDGE infrastructure contract announced October 2005 to replace CDMA network
Chinook Wireless	USA	GSM/EDGE infrastructure contract announced May 2005 to replace CDMA network
First Cellular Illinois	USA	GSM/GPRS quality infrastructure contract announced December 2005
Viasat Wireless	USA	GSM/EDGE infrastructure contract announced August 2003 to replace CDMA network
Telefonica Moviles	Venezuela	July 2006: Company considering migration to GSM, citing expedited lower base station costs

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This latest survey identifies 28 operators using GSM either as an overlay to a CDMA network or as its replacement

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Media

Some recent interviews/articles



Download www.gsacom.com/media/featured_articles.php4

- ❑ Leading the Third Generation

- ❑ Published in Communications Africa, August-September 2006, p70

- ❑ "The 3rd Generation"

- ❑ GSA interview on Forbes In-flight Radio for American Airlines for the Sky Radio Wireless Roundtable - Hosted by Sky Radio's Marc Holland for Forbes In-flight Radio

- ❑ All Roads Lead To 3G

- ❑ Published in Voice & Data Guest Column - June 2006

- ❑ Press Releases (14 since PCG #16); and a media briefing in Johannesburg

- ❑ GSA Media coverage – summarized at www.gsacom.com/news/media_coverage.php4

- ❑ Coverage has **quadrupled** in 2 years

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GSA Evolution Forum – Johannesburg

July 19, 2006



GSA-organised event and the first for operators in Africa
Theme: Growing the mobile market in Africa

Presentations by Cell C, MTN,
Vodacom, Ericsson, Nokia, Siemens,
GSA and the GSM Association



PLUS contributions at several “commercial” conferences - since PCG #16 in Belgium, Brazil, China, Greece, India, Monaco, Netherlands



- ▶ Market Update
- ▶ Deliverables
- ▶ **Challenges and priorities**

Challenges and priorities



There are many, including:

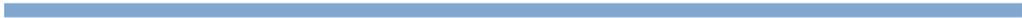
- ▶ Building market acceptance for mobile broadband services
- ▶ Ensuring good quality coverage – especially indoors
- ▶ Optimising 3G/3.5G and 2G networks for maximum efficiencies and the best end-to-end user experience for voice and data
- ▶ 2G < -- > 3G migration; 2G < -- > 3G handover
- ▶ Improving the uplink with HSUPA
- ▶ Standardising and implementing GERAN Evolution
- ▶ Continue planned radio access & core network evolution standardisation to LTE
- ▶ Spectrum/regulation, including re-farming for UMTS 900 deployments
- ▶ Communicate the benefits/opportunities enabled by 3GPP standards, systems, solutions
 - ▶ including support of 3GPP Communications Strategy Group



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