

Panel 11: « Increasing Pace of Mobile & Wireless Developments in Emerging Markets: the case of BRIC and MENA » – UMTS Forum overview

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About The UMTS Forum



The UMTS Forum is an international, cross-sector industry body comprising operators, manufacturers, regulators, application developers, research organisations and IT industry players.

OBJECTIVES

To promote a common vision of the development and evolution of 3G/UMTS and to ensure its worldwide commercial success:

- by expressing a strong industry voice promoting 3G/UMTS technology and its evolutions through lobbying and promotional actions globally
- by forging dialogue between operators, manufacturers, administrations & regulators, and other market players that can ensure commercial success for all
- by providing market knowledge to aid rapid development and uptake of new services and applications

To provide practical support to industry, administrations and policy-makers:

- by offering guidance to governmental and financial communities, providing marketing input to technical standardization bodies (the Forum is a Market Representation Partner of 3GPP), and advising on spectrum requirements both for the present and future 3G systems
- through its membership of the three sectors of ITU, in the activities of which it participates regularly - such as the ITU-R WP8F – in view of preparation for the next World Radio Conference 2007 (WRC-07)

The UMTS Forum serves the interests of all its members through educational and promotional activities in its role as the voice of the 3G mobile market.



UMTS Forum Key Focus Areas

Work-plan 2006 in summary

Vision, Future Research & Market	Spectrum & Regulation	Technical Issues & Implementation
Evolution of 3G/UMTS	Global spectrum and spectrum arrangements for UMTS/IMT-2000 and its evolutions	Complementary technologies (mobile, Broadband Wireless Access...)
Services & Applications	Preparations for WRC-07	Mobile TV
Market forecasts, customer perspective and trends	Advice to industry and administrations on 3G licensing	3G standardisation and support to 3GPP
Relationships with international bodies (ITU, EC, CEPT/ECC...)		
Emerging markets action plan (including 'BRIC')		
Relationships with international media and financial community		
Visibility and participation at conferences, exhibitions, seminars and workshops		



The mass market embraces 3G/UMTS

Some **big** numbers...

More than **100 million** 3G subscribers worldwide,

including **75 million** 3G/UMTS subscribers

about **3** times as many UMTS/W-CDMA subscribers as
CDMA2000 EV-DO worldwide

more than **110** W-CDMA networks launched commercially

more than **350** W-CDMA devices launched or announced

Industry sources including Wireless Intelligence, May 2006



3G/UMTS network launches

Several operators deploying W-CDMA & EDGE

EUROPE		
country	operator	launch
Austria	Mobilkom	Apr-03
	H3G Austria	May-03
	Connect / One	Dec-03
	Tele.ring	Dec-03
	T-Mobile	Jun-04
Belgium	Proximus	May-04
Bulgaria	Mobitel	Mar-06
Croatia	VIPNet	Jan-05
	T-Mobile	Jun-05
Czech Rep.	T-Mobile	Oct-05
	Eurotel	Dec-05
Cyprus	Arreba	Dec-05
	CYTA	Apr-06
Denmark	H3G Denmark	Oct-03
	TDC	Oct-05
Estonia	EMT	Oct-05
Finland	Telia sonera	Oct-04
	Saunalahti	Jan-05
	Radiolinja/Elisa	Nov-04
	DNA	Dec-05
France	SFR	Jun-04
	Orange	Sep-04
Germany	Vodafone	May-04
	T-Mobile	May-04
	e-plus	Aug-04
	O2	Jul-04
Greece	Vodafone	Aug-04
	Cosmote	May-04
	TIM	Jan-04
Guernsey	Wave Telecom	Dec-04
Hungary	T-Mobile	Sep-05
	Pannon GSM	Oct-05
	Vodafone	Dec-05
Ireland	Vodafone	Jul-04
	H3G Ireland	Jul-05
Isle of Man	Manx	Nov-05

EUROPE		
country	operator	launch
Italy	H3G Italy	Mar-03
	TIM	May-04
	Vodafone	May-04
	Wind	Oct-04
Latvia	LMT	Mar-06
Luxembourg	Tango (Tele2)	Jun-04
	VOXmobile S.A	May-04
	LuxGSM (P&T)	May-04
Netherlands	Vodafone	Apr-04
	KPN Mobile	Jul-04
Norway	Telenor	Dec-04
	Telia Netcom	Mar-05
Portugal	Vodafone	May-04
	TMN	Apr-04
	Optimus	Jun-04
Poland	Polkomtel	Sep-04
	PTC	Apr-05
Romania	MobiFon (Connex)	Apr-05
Slovak Rep.	T-Mobile - Eurotel	Jan-06
	Orange	Mar-06
Slovenia	Mobitel	Feb-04
Spain	Vodafone	May-04
	Telefonica Moviles	May-04
	Amena	Oct-04
Sweden	H3G Sweden	Jun-03
	3GIS	Aug-03
	Vodafone	Apr-04
	Telia Sonera	Mar-04
	Tele 2	Jun-04
Switzerland	Swisscom	Oct-04
	Orange	Sep-05
	Sunrise	Dec-05
UK	H3G UK	Mar-03
	T-Mobile	Jun-04
	Orange	Jul-04
	Vodafone	Apr-04
	O2	Oct-04

As of 16th May, there were 39 cellcos operating both an EDGE and W-CDMA network in 27 countries worldwide and 28 operators in 18 countries in Europe

ASIA-PACIFIC		
country	operator	launch
Australia	H3G Australia	Apr-03
	Optus	Apr-05
	Telstra	Aug-05
	Vodafone	Oct-05
Hong Kong	H3G HK	Jan-04
	CSL	Dec-04
	Smartone	Dec-04
	Sunday Comm.	Jun-05
Japan	NTT DoCoMo	Oct-01
	Vodafone KK	Dec-02
Malaysia	Maxis	Apr-05
	Telekom Malaysia	May-05
New Zealand	Vodafone	Aug-05
Philippines	SMART	Feb-06
	Globe	Mar-06
Singapore	SingTel mobile	Dec-04
	Mobile One	Dec-04
	StarHub	Apr-05
South Korea	SKT	Jun-05
	KTF	Sep-05
Taiwan	Taiwan Mobile	May-05
	VIBO Telecom	Dec-05
	FarEas Tone	Jul-05
	Chunghwa Telecom	Jul-05

W-CDMA in commercial operations		
	Countries	Operators
Worldwide	48	110
Europe	30	73

REST OF THE WORLD		
country	operator	launch
Bahrain	MTC Vodafone	Dec-03
Brunei	B-Mobile Comm	Sep-05
Israel	Cellcom	Jun-04
	Partner	Aug-04
Kuwait	Watania	Feb-06
	MTC-Vodafone	Dec-05
Mauritius	Emtel	Nov-04
South Africa	Vodacom	Dec-04
	MTN	Jun-05
Tajikistan	TT-Mobile	Jun-05
	Babilon-Mobile	Jul-05
USA	Cingular Wireless	Jul-04
UAE	Etisalat	Jun-04

In orange: new networks commercially launched

Operators that have deployed both W-CDMA and EDGE networks

Source: Sofrecom (16th May 2006), GSA - W-CDMA deployments worldwide (3rd May 2006)

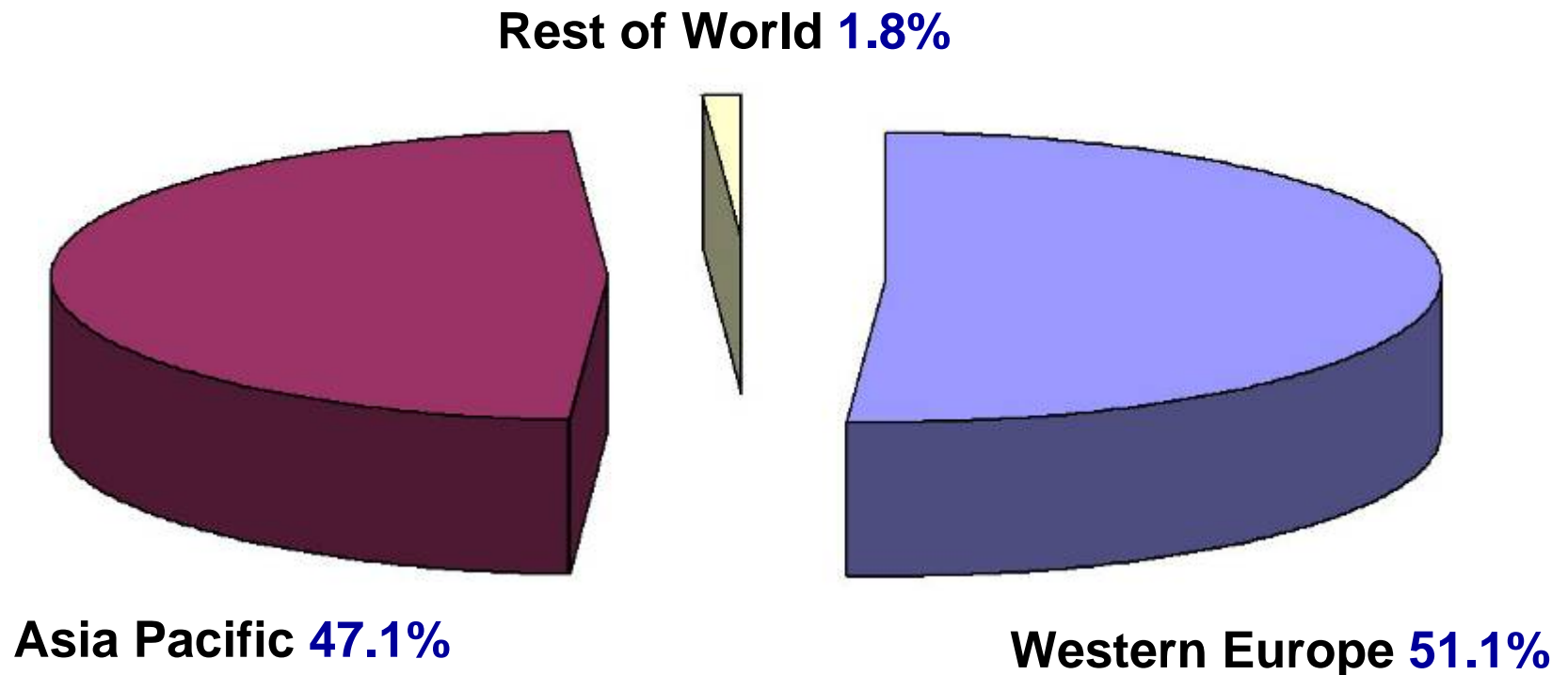


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A regional view

Western Europe now single largest WCDMA market



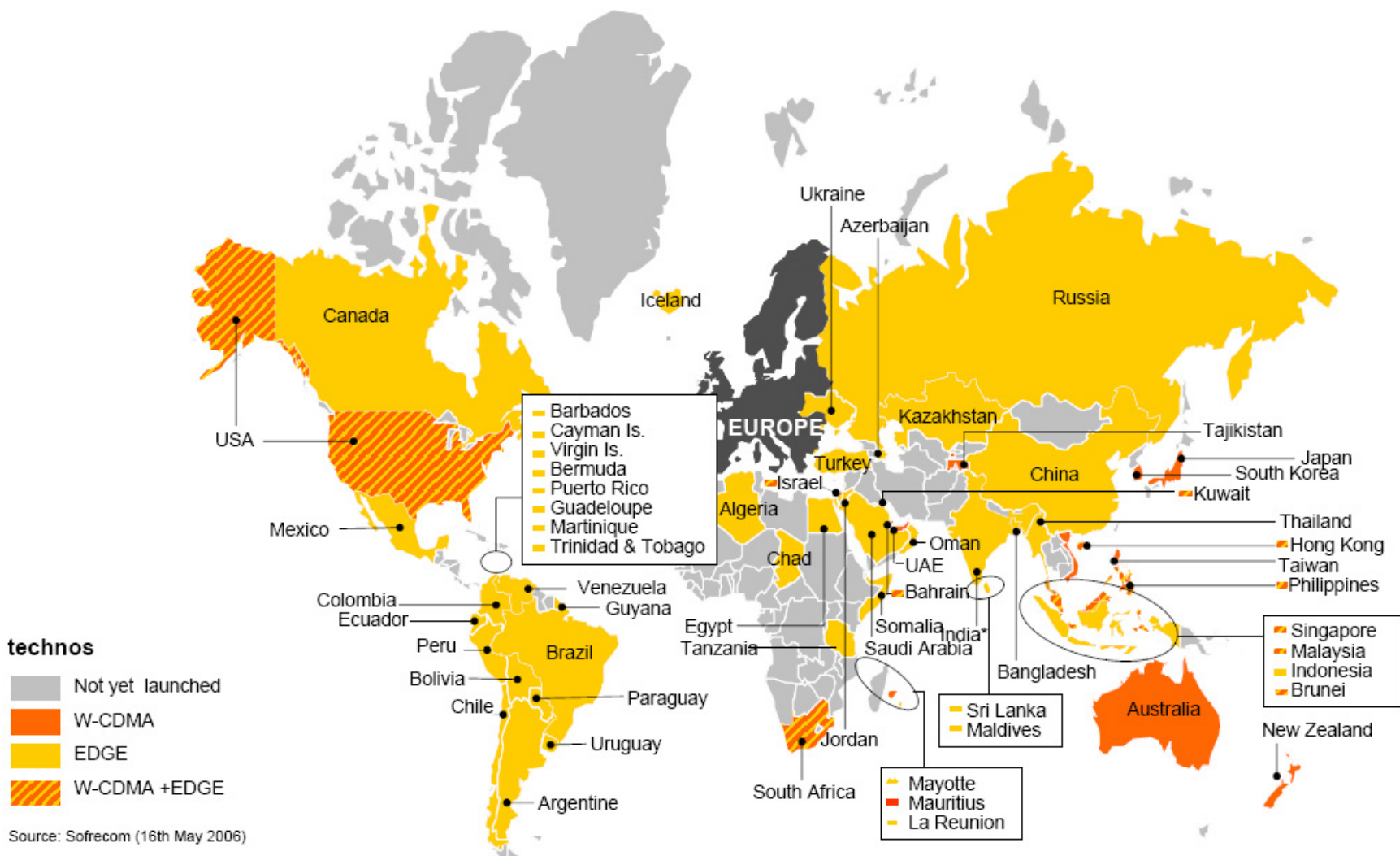
Source: Wireless Intelligence May 2006



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3G/EDGE deployments: a global picture



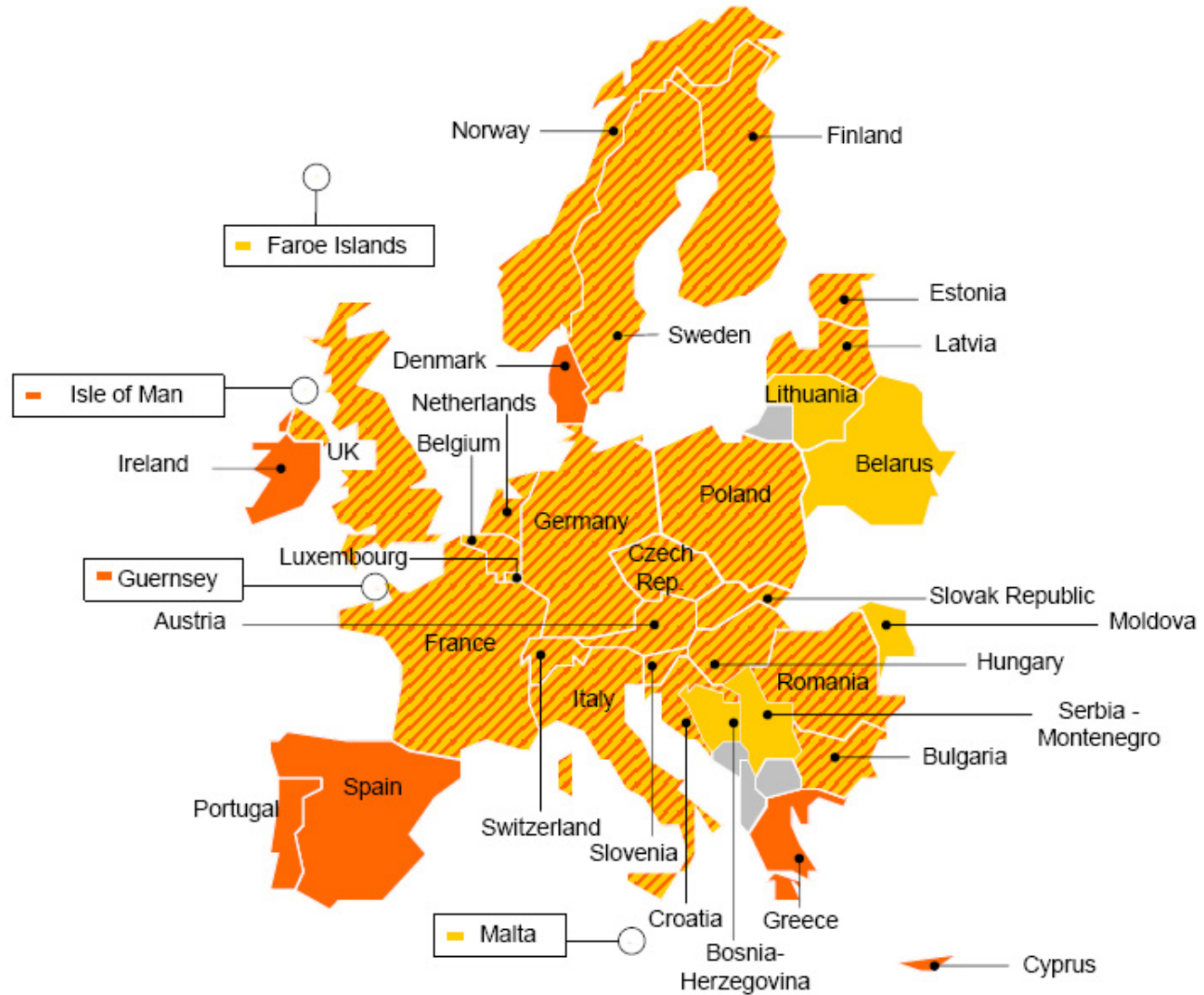
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Complementary strategies in Europe

Several European operators are offering mobile broadband via a complementary mix of 3G/UMTS and other technologies including EDGE

technos



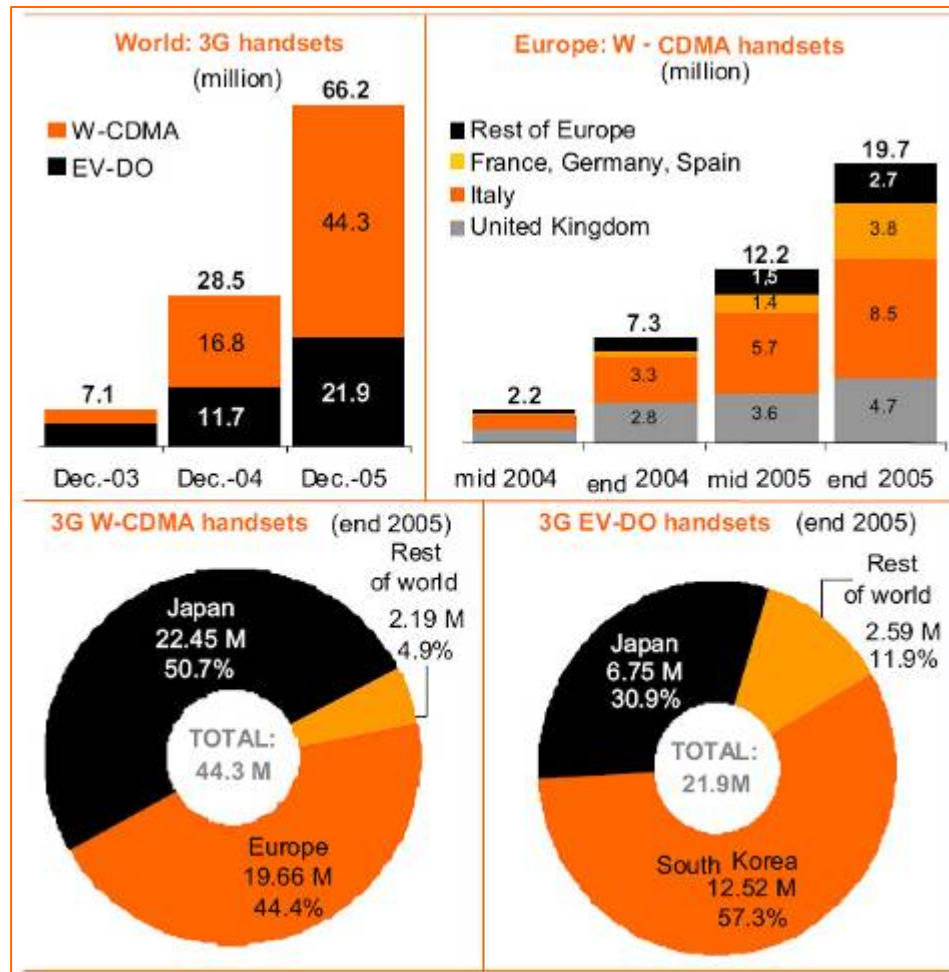
Source : Sofrecom (16th May 2006)



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Growth driven by an improved customer experience

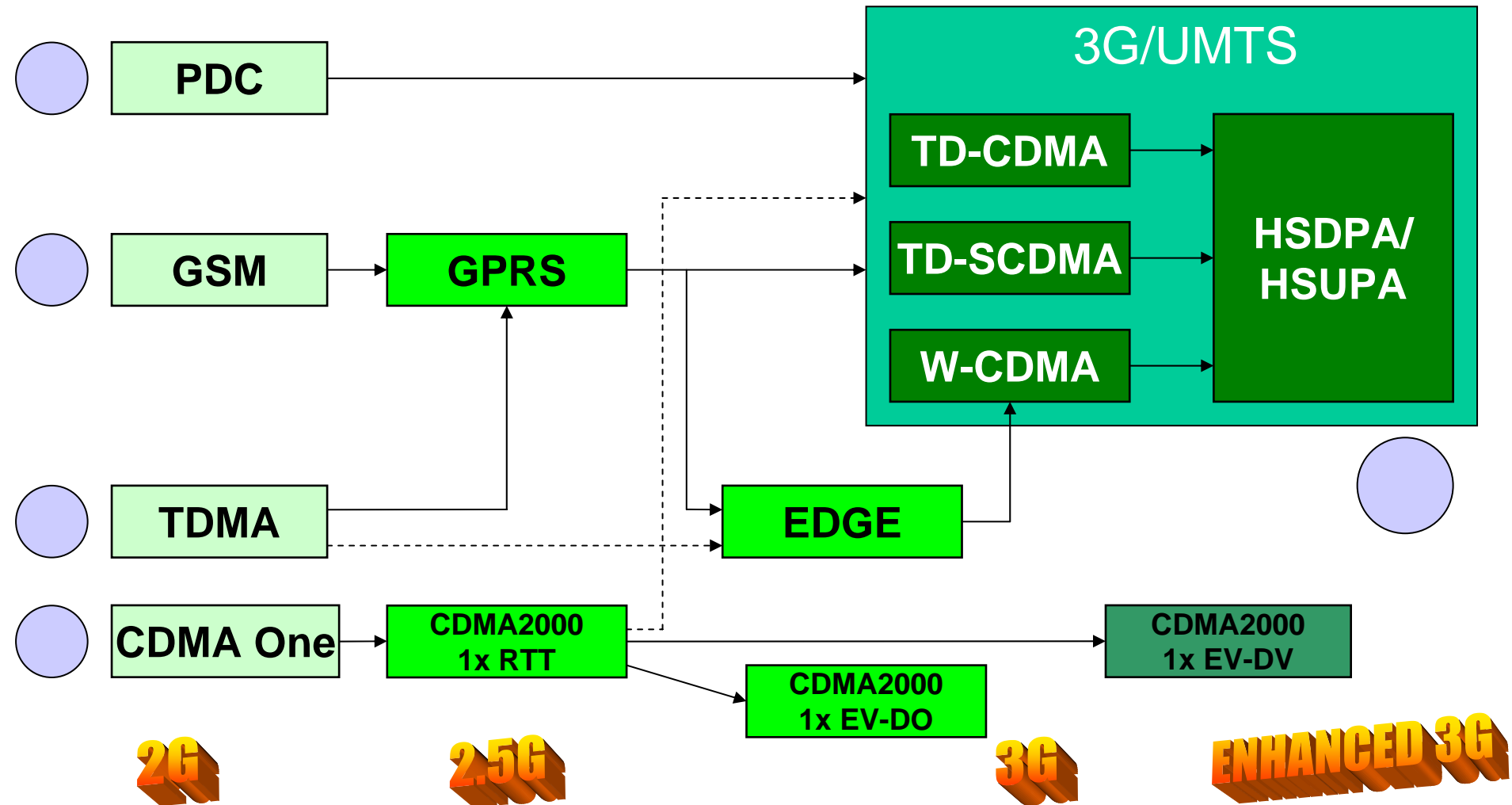


Increased 3G/UMTS market uptake driven by:

- Increased choice of terminals
- Smaller size and lower weight
- Improved battery life
- Reduction in entry cost (e.g. Christmas promotional offers by operators)
- Strong customer incentives through attractive tariff plans (e.g. pre-pay and fixed-price packages) – often aligned with 2/2.5G pricing
- Better customer experience through improved network coverage



3G Operator Evolution Options (Mid 2004)



HSDPA (High Speed Downlink Packet Access)

The next step in evolution of the 3GPP air interface

HSDPA = high speed mobile broadband, enabling a wide variety of high bandwidth multimedia services including:

- high quality streaming video,
- fast downloads of high resolution images and large files,
- interactive e-mails & gaming,
- telematics,...

Compared with WCDMA, HSDPA:

1. increases throughput (2→14.4 Mbps): total and average per user
2. reduces latency
3. increases data capacity up to 5x in dense urban environments (micro-cells)



HSDPA: Global deployment status

HSDPA in commercial operations		
	Countries	Operators
Worldwide	20	25
Europe	13	16

As of 16th May, 25 operators have commercially launched HSDPA services in 20 countries, whereas 94 operators have announced that they were deploying HSDPA in 48 countries.

EUROPE			
country	operator	deployment / launch target	launch
Austria	T-Mobile		Mar-06
	Tele.ring	yes	
	Mobilkom		Jan-06
	H3G	yes	
Belgium	One	mid 2006	
	Proximus	summer 2006	
	Mobistar	3Q06	
Bulgaria	MobiTel		Mar-06
Croatia	VIPNet		Apr-06
Czech Rep.	Eurotel Praha		Apr-06
	T-Mobile	Jun-06	
	Oskar-Vodafone	yes	
Denmark	H3G	yes	
Estonia	Elisa		Apr-06
Finland	Elisa		Apr-06
	Finnel	yes	
France	Bouygues Tel	April 2007	
	Orange	2H06	
	SFR	2H06	
Germany	T-mobile		Mar-06
	O2	3Q06	
	E-Plus	yes	
	Vodafone		Mar-06
Guernsey	Cable & Wireless	yes	
Hungary	Pannon GSM	yes	
	T-Mobile	2006	
Ireland	O2	yes	
	Vodafone	YE06	
Isle of Man	Manx		Nov-05
Italy	Vodafone	2H06	
	H3G		Feb-06
	TIM	May-06	
Jersey	Cable & Wireless	yes	
Latvia	Bite	yes	

EUROPE			
country	operator	deployment / launch target	launch
Lithuania	Bite	yes	
	Omnitel	yes	
Madeira	Optimus		Feb-06
Netherlands	T-Mobile		Apr-06
	Telfort	YE06	
	KPN	YE06	
Poland	Polkomtel	2006	
	PTC	yes	
Portugal	Optimus	yes	
	TMN		Apr-06
	Vodafone		Mar-06
Romania	Connex-Vodafone	YE06	
Slovak Rep.	Orange	2006	
Slovenia	Mobitel	yes	
Spain	Movistar	yes	
	Vodafone	yes	
	Amena	yes	
Sweden	H3G	yes	
	3GIS	yes	
Switzerland	Swisscom		Mar-06
	Orange	yes	
	Sunrise	2Q06	
UK	O2	3Q06	
	Vodafone	mid-2006	
	T-Mobile	1Q06	
	Orange	2H06	
	H3G	2H06	

AMERICAS			
country	operator	deployment / launch target	launch
Canada	Rogers Wireless	fall 2006	
USA	Cingular Wireless		Oct-05
	EDGE Wireless	yes	

ASIA-PACIFIC			
country	operator	deployment / launch target	launch
Australia	Vodafone	yes	
	H3G	yes	
	Telstra	yes	
China	China Mobile	yes	
Hong Kong	Sunday	yes	
	SmarTone-Vodaone	YE06/2007	
	H3G	3Q06	
Japan	Hong Kong CSL	3Q06	
	NTT DoCoMo	3Q06	
	Vodafone	yes	
	eMobile	yes	
Malaysia	BB mobile	yes	
	Maxis	yes	
New Zealand	Vodafone	yes	
Philippines	Smart Com.		Ar-06
	Globe		Mar-06
Singapore	M1	2006	
South Korea	SK Telecom		May-06
	KFT	2Q06	
Taiwan	VIBO	yes	
	Taiwan Mobile	yes	

REST OF THE WORLD			
country	operator	deployment / launch target	launch
Bahrain	MTC-Vodafone	2006	
Israel	Cellcom	yes	
	Partner		Mar-06
Kuwait	Watanyia		Feb-06
Qatar	Q-Tel	yes	
South Africa	MTN		Mar-06
	Vodacom		Apr-06
Tanzania	Vodacom	2006	
UAE	Etisalat		Apr-06

In Orange: Networks commercially launched as of 16th Mai 2006

Source: Sofrecom (16th Mai 2006), GSA - GSM/3G market/ technology update (6th Mai 2006)

...with HSUPA launches expected from 2007



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HSDPA: Now a market reality

- 25+ HSDPA networks already in service
- 90+ HSDPA networks planned, in trial or in deployment...

EUROPE

- Orange France **in pilot launch**
- T-Mobile (Germany & Austria) **launched March 06**
- Mobilkom Austria **launched Jan 06**
- H3G Italy **launched Feb. 06**
- O2 / Manx Telecom **launched Nov 05**
- Vodafone Germany & Portugal **launched Mar. 06**
- SFR (France) **launched bus. June 06**
- Optimus Madeira **launched Feb. 06**
- Elisa Finland & Estonia **launched April 06**
- Swisscom Switzerland **launched Mar. 06**
- TIM (Italy) **in trial**
- Mobitel Bulgaria **launched March 06**
- Eurotel Czech Rep. **launched Apr. 06**

ASIA PACIFIC

- NTT DoCoMo **in trial**
- Sunday Hong Kong **in trial**
- KTF Korea **in trial**
- SKT Korea **launched May 06**
- M1 Singapore **in trial**
- Smart Com & Globe (Philippines) **April 06**

MIDDLE EAST / AFRICA

- Wataniya Kuwait **launched Feb. 06**
- Etisalat UAE **launched April 06**
- MTN & Vodacom RSA **launched April 06**

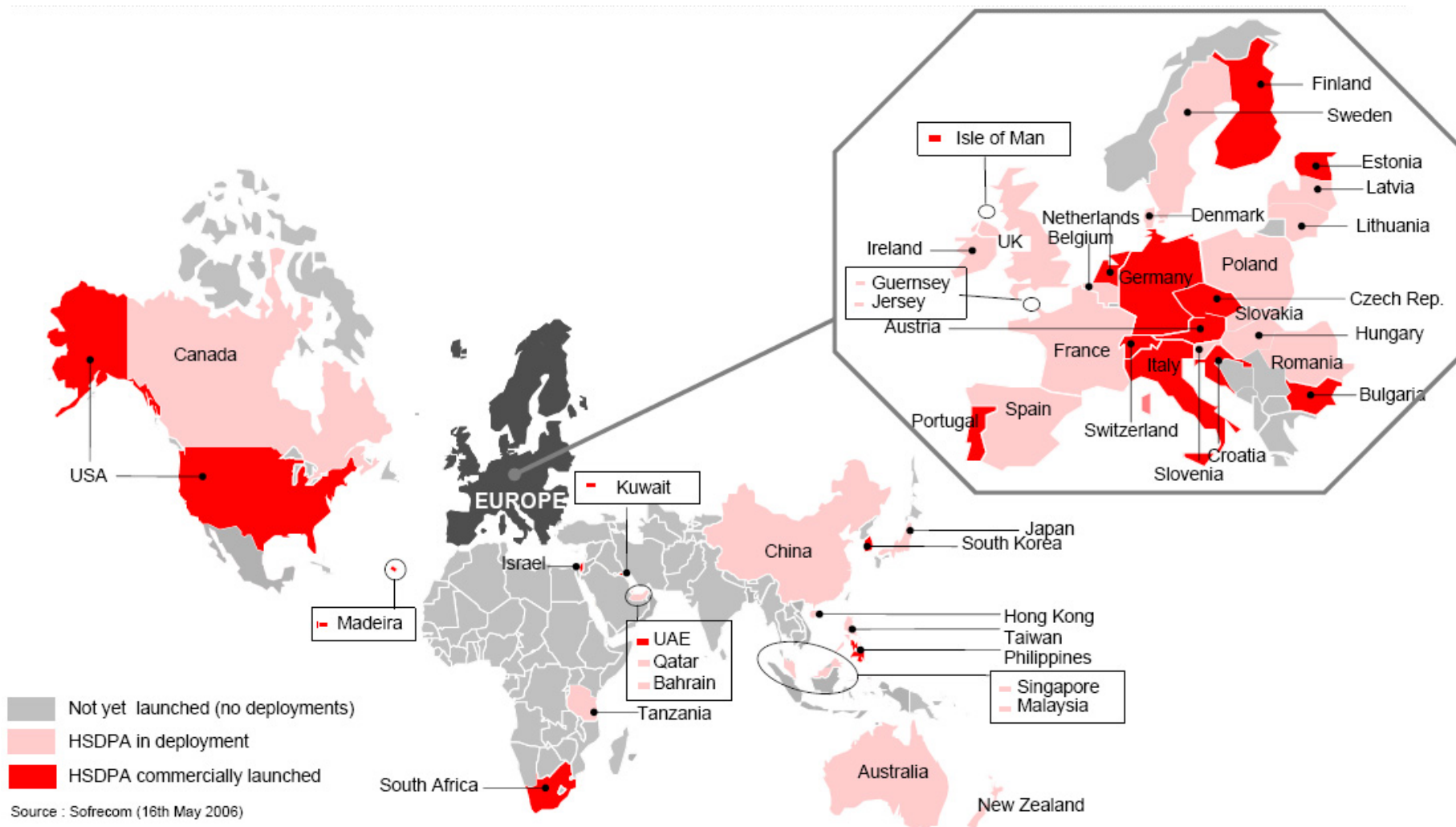
NORTH AMERICA

- Cingular AT&T US **launched Dec 05**
- Rogers Wireless Canada **in trial**

...plus HSUPA launches from 2007



HSDPA: Global deployment status



The Emerging Markets and Mobile broadband



- **The MENA Region** has already commercially entered the mobile broadband world with EDGE (Algeria, Bahrain, Brunei, Egypt, Jordan, Kuwait, Oman, Saudi Arabia, UAE) and 3G/WCDMA (Bahrain, Brunei, Kuwait, UAE) – 3G licensing under process in Morocco, Qatar, Tunisia... HSDPA already launched in Kuwait and UAE !
- **BRICs (Brazil, Russia, India & China)** are widely deploying EDGE, but are still in preparation process or in discussion before 3G/UMTS licensing.
- With the timely licensing and introduction of 3G/UMTS, the emerging markets will have the opportunity to maintain alignment with the GSM/UMTS world and enjoy the benefits of:
 - greater economies of scale / simplified international roaming
 - IPR export opportunities for services and applications
 - wider choice of cost-effective terminals
 - Deployment of 3G/UMTS Evolution



Wireless Networks Will Co-Exist

Source: WiMAX Forum

WAN

MAN

LAN

PAN

3G
HSDPA
WCDMA
EDGE
GPRS

WiMAX
802.16,
HiperMAN
Broadband

Wi-Fi*
802.11

UWB
and
Bluetooth

RFID/
TAG

The Result: Always Best Connected



WLAN / WiMAX: complementary to 3G/UMTS

- WLAN gives “hot spot” coverage
 - WiMAX extends coverage to metropolitan area networks
 - 3G/UMTS gives full mobility
-
- WLAN is useful for high-speed Internet/Intranet access for low mobility & stationary users (especially corporates)
 - WLAN coverage of a major city may require typically approx 100:1 as many access points compared with number of UMTS base stations for equivalent coverage; WLAN also requires substantial investment in backhaul capacity
 - Concerns regarding WLAN performance when hot spot capacity is shared by a large number of simultaneous users
 - WiMAX – broadband wireless access (BWA) system for metropolitan area networks
 - 3G/UMTS offers benefits of wide area coverage, full mobility, integral security, roaming, full integration with charging/billing systems

WLAN & WiMAX coupled/combined with 3G/UMTS/HSPA will offer mobile broadband for **EVERYBODY and **EVERYWHERE**, whatever the technology and access mode**



Mobile broadcast technologies

Adding value to the 3G/UMTS user experience

- 3G/UMTS launches are stimulating greater demand for live TV and video downloads
- ‘One to many’ broadcast transmission of multimedia content promises to deliver an enhanced 3G/UMTS user experience, with more efficient use of finite spectrum resources
- ‘MBMS’ enabling Broadcast and Multicast modes is specified in 3GPP
- In parallel with this, trials based on the DVB-H standard (proposed by ETSI and based on existing terrestrial broadcasting standards) are already underway
- First DVB-H handsets on the market



3G/UMTS Long Term Evolution (LTE): basic principles

- HSDPA is the first progressive step toward delivering ‘triple play’ (telephony, broadband and TV) in a mobile broadband environment
- Likely acceptance of mobile broadband and mobile triple play will raise the need for evolved UMTS; therefore it is vital that operators ensure the long term competitiveness of 3G infrastructure
- The 3GPP RAN Long Term Evolution (LTE) task force was created at end 2004, notably considering the ‘Super 3G’ proposal of NTT DoCoMo
- The proposed RAN architecture, placing increasing functionality within the NodeB, will be based on IP routing with existing 3G spectrum, providing downlink data rate up to 100 Mbps and uplink up to 50Mbps, by using channel – transmission bandwidth between 1.25MHz and 20MHz
- 3GPP Evolved UMTS specifications should target availability of commercial products around 2008-2010



3G/UMTS Evolution (1)

A look to the future

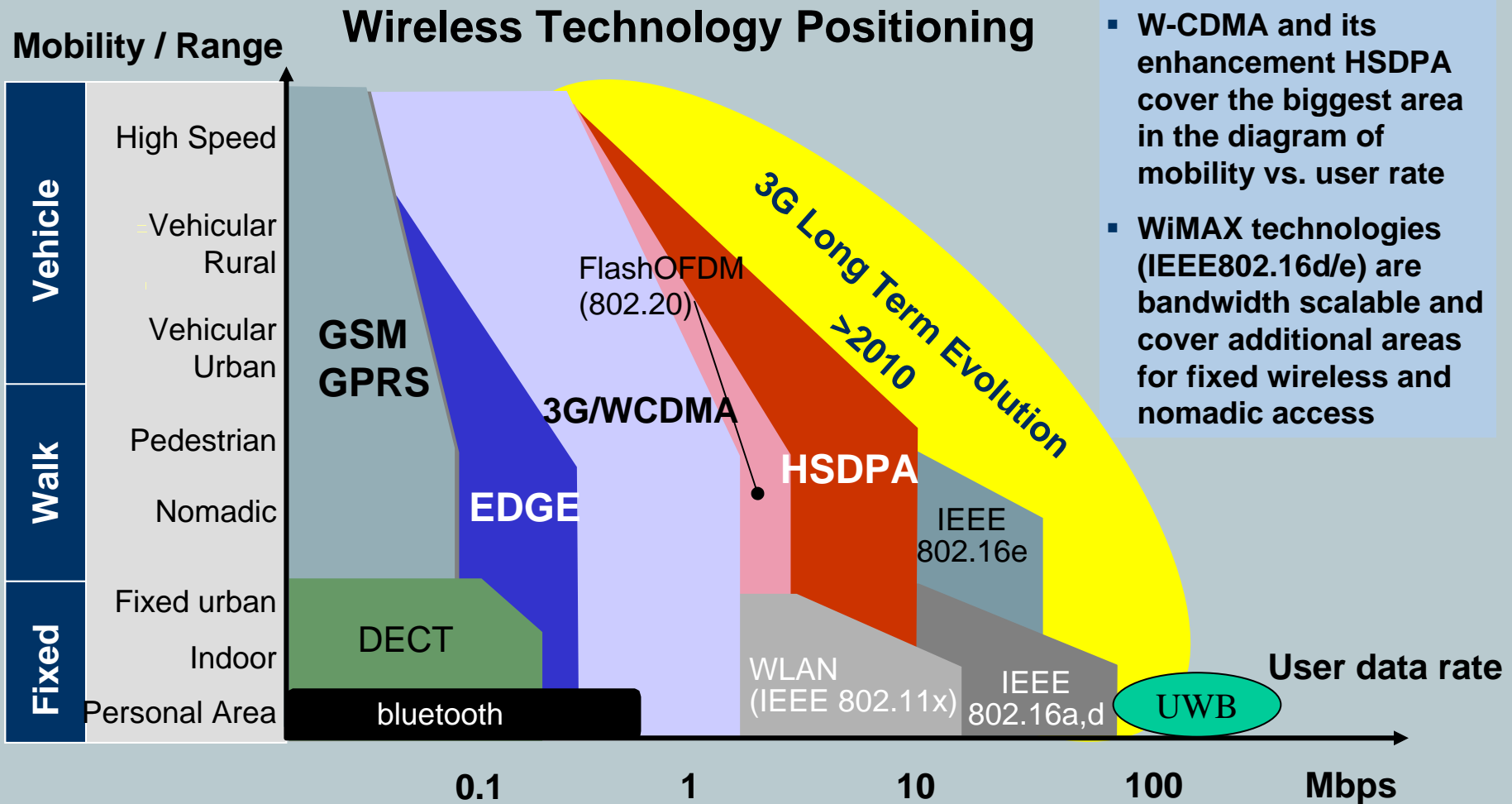
	3G and Enhanced 3G			4G
	R'99/R'4	Midterm evolution	Super 3G	New mobile access
Spectrum	3G spectrum (2GHz band and the additional bands)			New spectrum
Radio aspect	WCDMA	HSDPA, EDCH, etc.	Ultimate enhancement	New radio interface
	Radio access	Direct-sequence CDMA		New access technology
	Min. TTI (latency)	10ms	2ms	<0.5ms
	Carrier bandwidth	5MHz		100MHz
	Data rate	384Kbps-2Mbps	14Mbps	30-100Mbps
Network aspect	CS and PS		PS only	
	GTP (tunneling) [IP routing in core network]		IP routing in core network and RAN	

Source: NTT DoCoMo



3G/UMTS Evolution (2)

UMTS / HSDPA in context of other wireless technologies



For more information
www.ums-forum.org



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