

# **IMT-2000 & SYSTEMS BEYOND**

## **VISION**

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# Contents

- Trends
- IMT-2000 Enhancements
- Relationship with other radio systems
- New capabilities & new radio interface(s)
- Summary



# Trends

- Digitalisation
- Mobile device penetration
- Circuit to packet switched
- Internet Protocol
- Multi-channel services
- etc



# Trends – Digitilisation



News



Entertainment

Advertising



Messaging



Gaming



Keys



Cash

Shopping

Movies



Information



Video



Personal information



Music

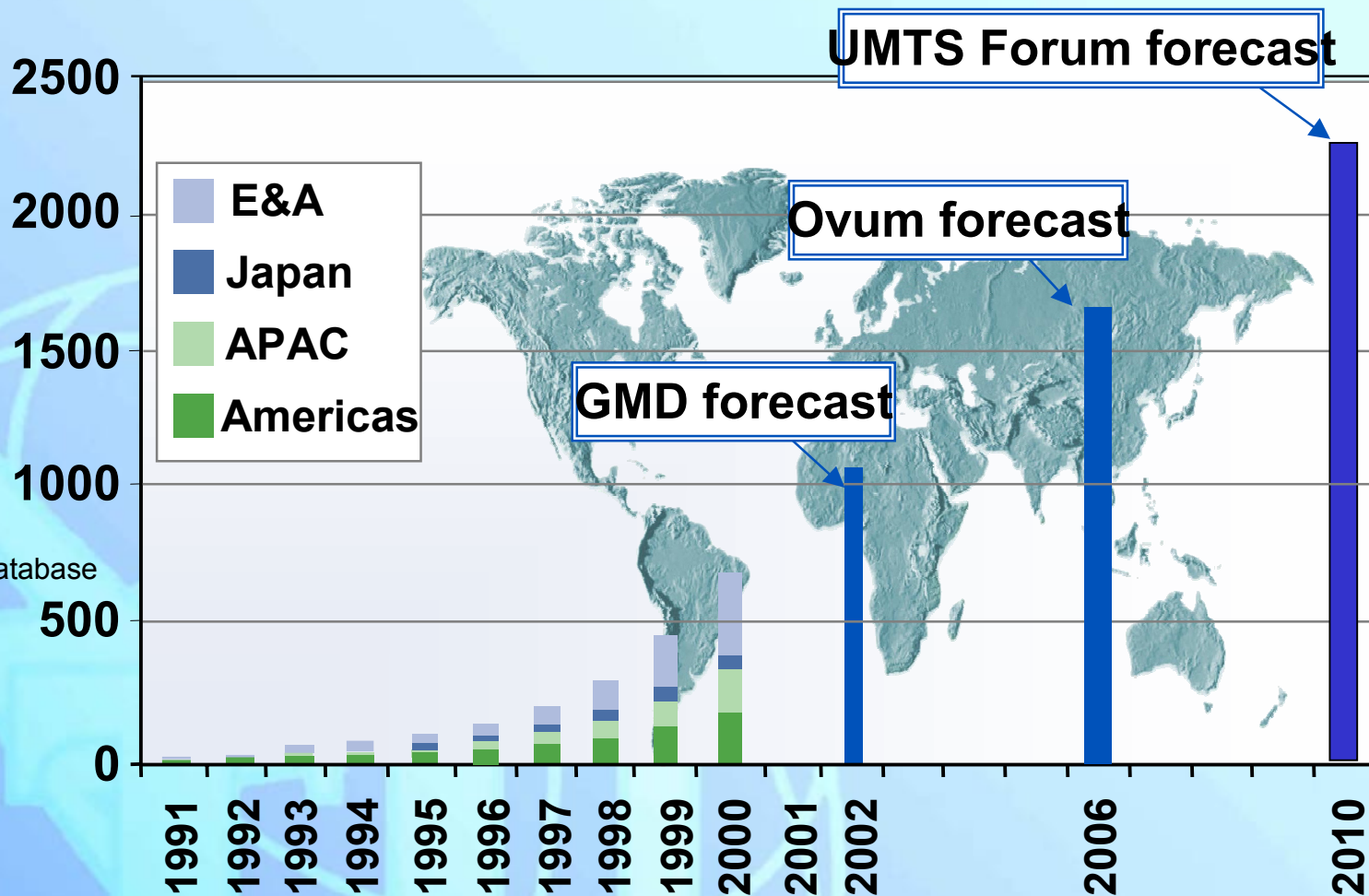


# Trends – Mobile Device Penetration



Cellular  
Subscrib  
ers  
(Millions)

Source: EMC Database



*Number of Mobile subscribers already greater than fixed*

# Trends – Radio Access

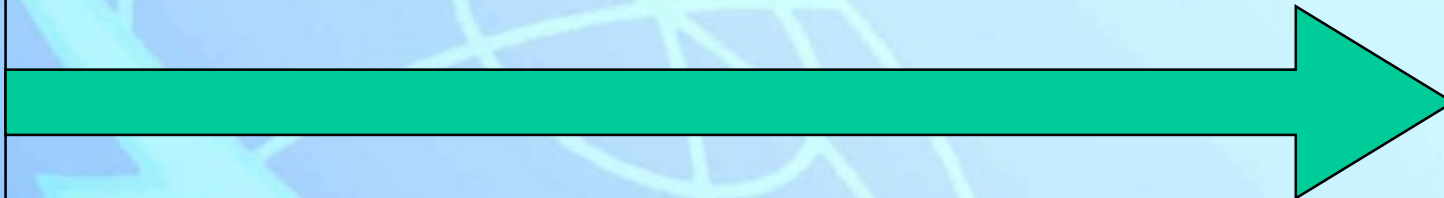
## Enhancing 3G ('IMT-2000')

(WCDMA - High Speed Packet Access; cdma2000 – Data Only – Data Voice; etc)

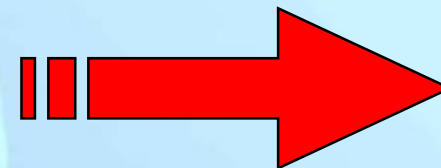


## 'Relationship' with other enhancing radio systems

(3G, Digital Broadcast, Wireless LAN, Bluetooth, etc)



## New Radio Interface(s)



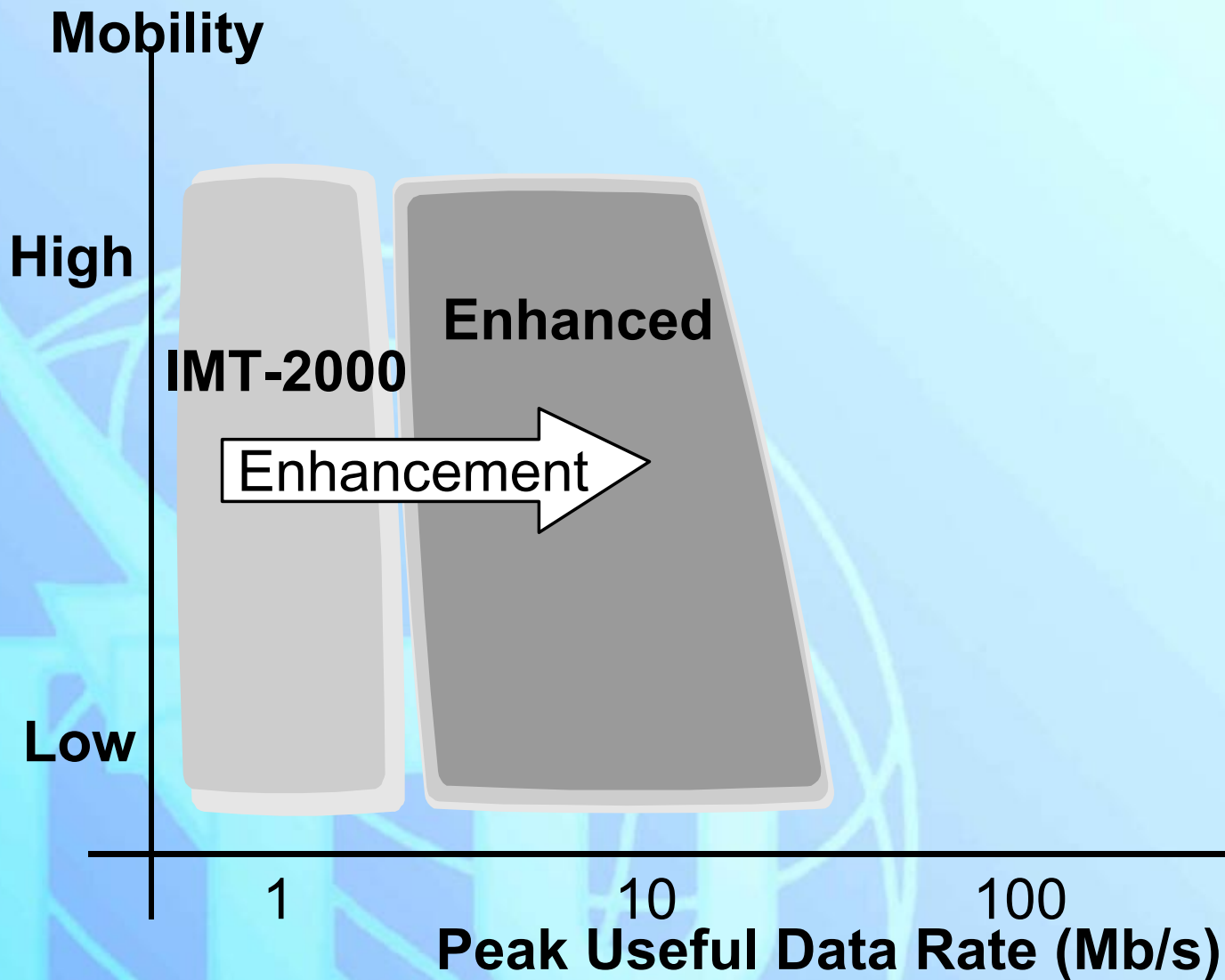
2001

2010





# IMT-2000 & Enhancements



# “Convergence”

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**“Hello, Bob? It’s your father again.  
I have another question about my new computer.  
Can I tape a movie from cable TV then fax it from  
my VCR to my CD-ROM then E-mail it to my  
brother’s cellular phone so he can make a  
copy on his neighbor’s camcorder?”**





# Convergence – Regulatory Perspective



**New Horizontal**

*Horizontals replacing Vertical segments leading to delivery of diverse content to a variety of terminals via numerous delivery mechanisms*

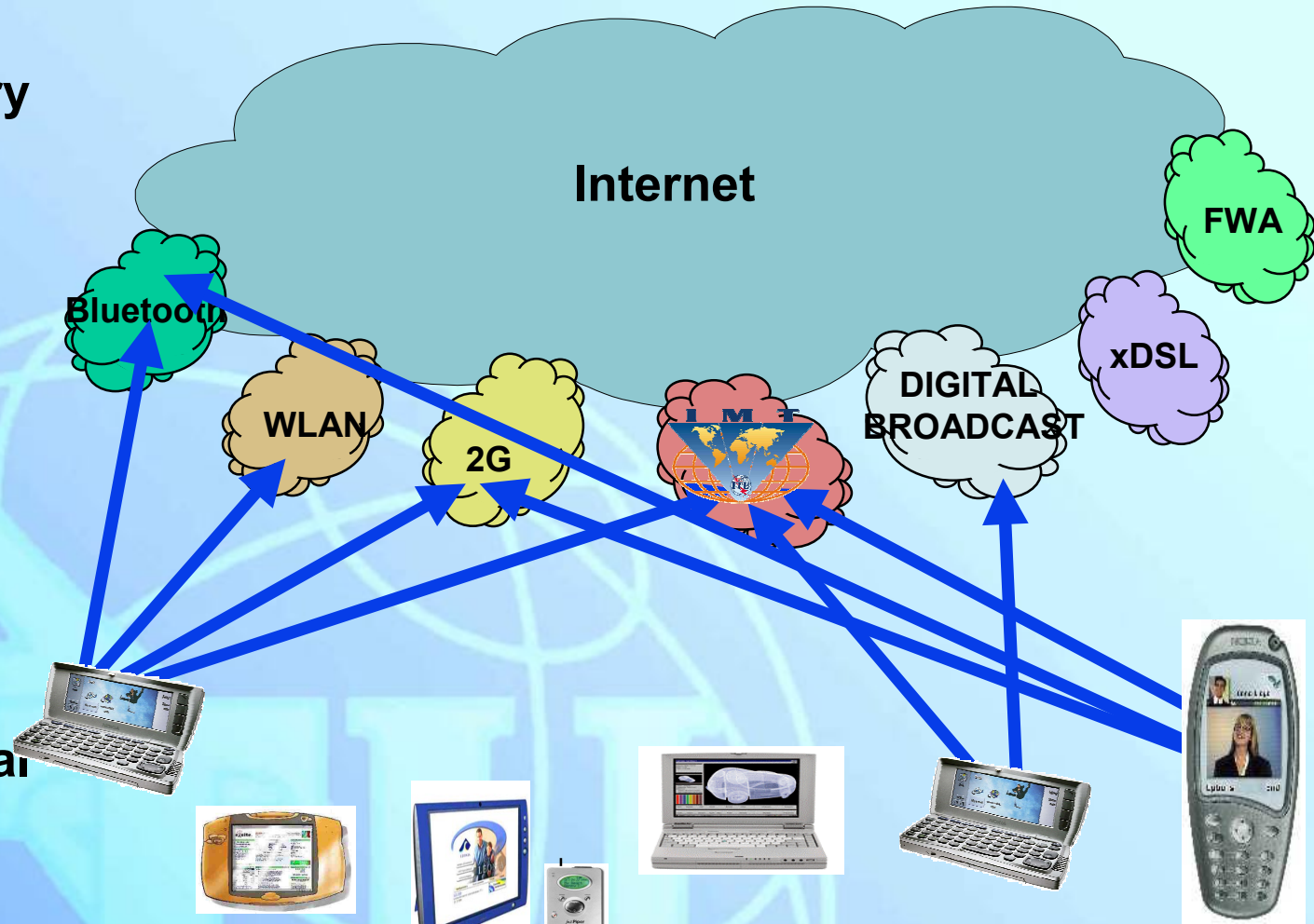


# Multi Channel Access Concept

*Diverse content delivered to a variety of terminals via numerous delivery mechanisms*

**Delivery**

**Terminal**

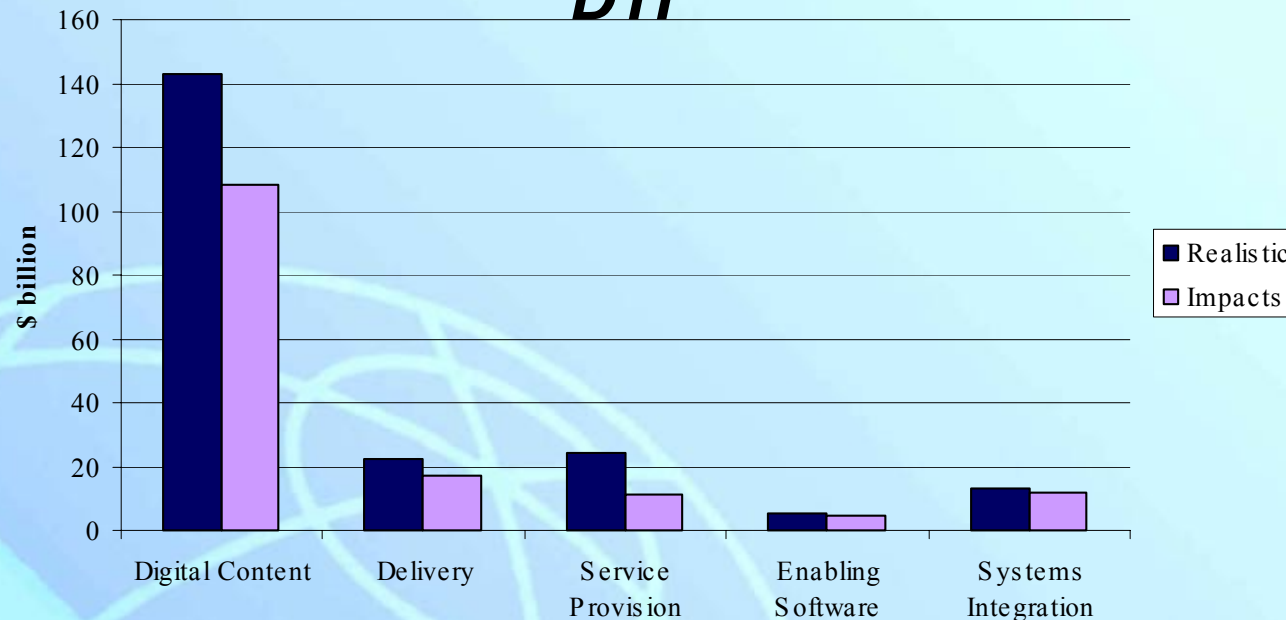


***PRIMARILY MARKET LED DEVELOPMENT  
MOBILE DEVICE (WITH AN IMT ENGINE) WILL DOMINATE***

# Multi-Channel Market

## Ovum forecast for UK Government DTI

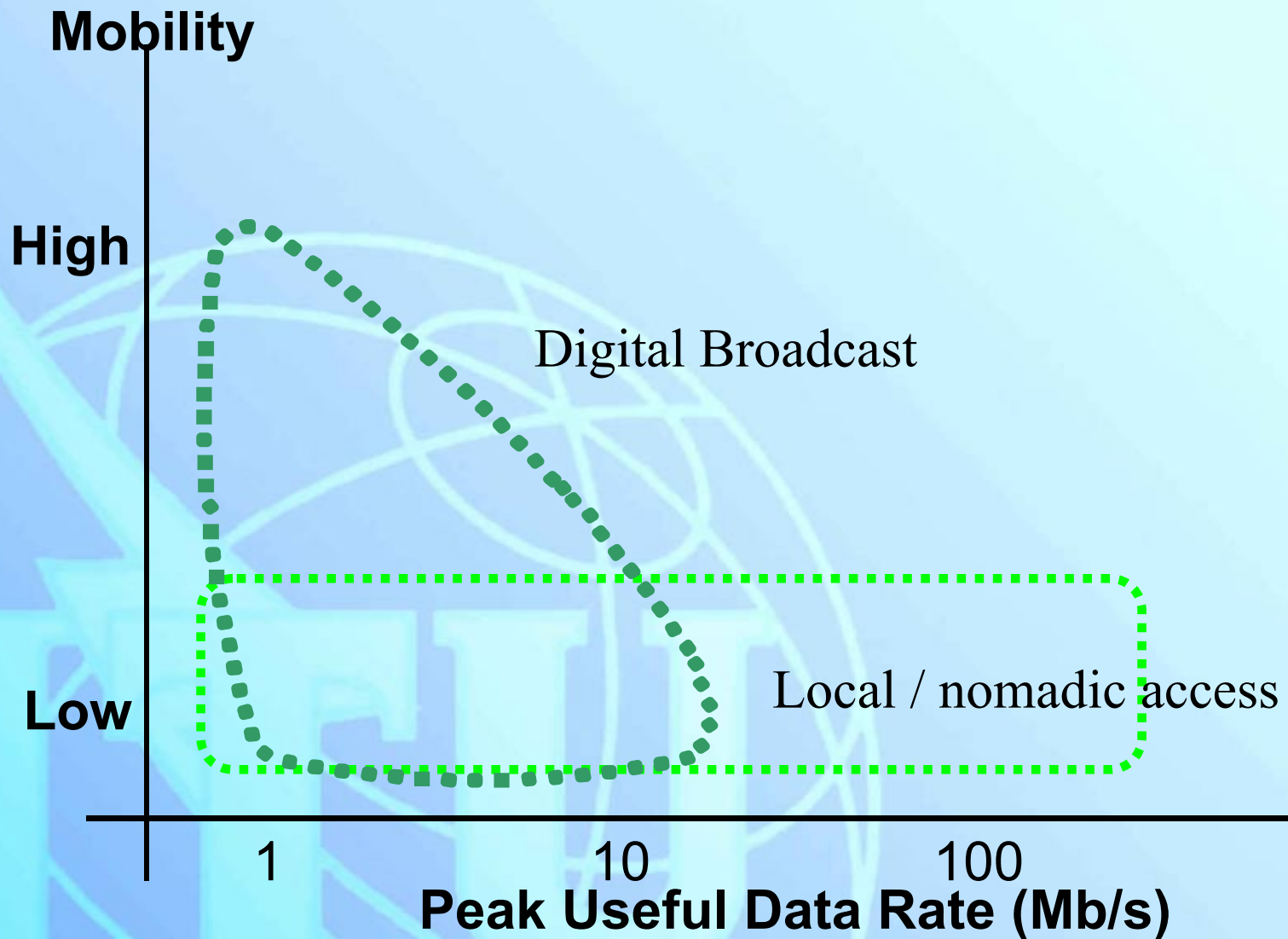
*Services available over more than one channel (i.e. Dig TV / Mobile / PC etc)*



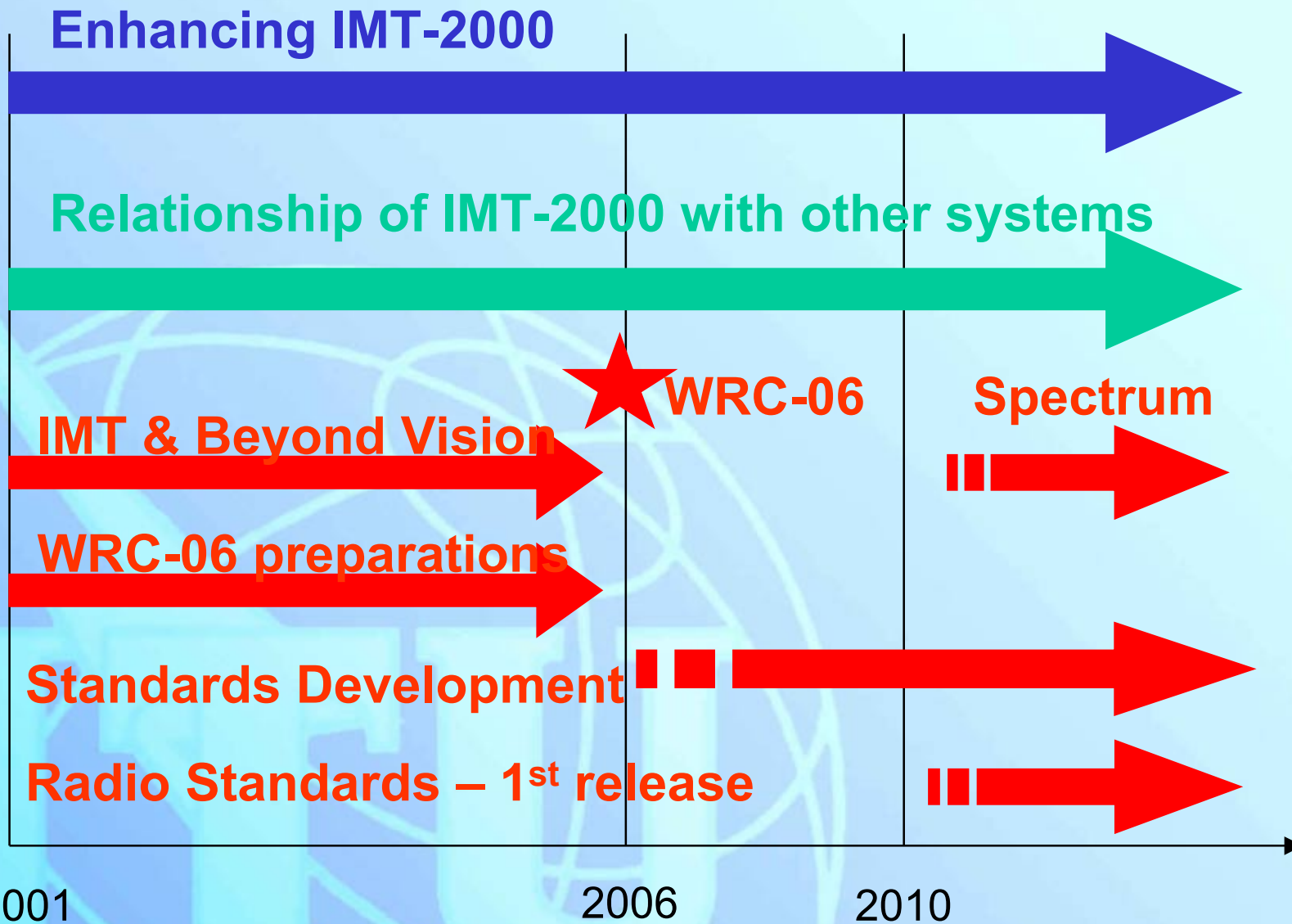
- Realistically, the total UK market could be ~ \$200bn in 2006
- But estimates are that it will be 26% less (~\$150bn) in 2006 if we:
  - don't establish and adopt standards
  - don't build awareness
  - don't encourage profitable business models through symbiotic partnerships



# Capabilities of Other Systems



# Current ITU-R WP8F Process



# New Capabilities

Mobility

High

Low

New  
Mobile  
Access

New Nomadic / Local Access

New Capabilities of Systems  
Beyond IMT-2000

1

10

100

1000

Peak Useful Data Rate (Mb/s)





# Vision

- Recommendation IMT.Vision to be completed this year
- High level vision - not requirements (for example data rates are 'goals' for further research)
- Many open issues for further study
  - Single adaptive interface for mobile & nomadic capabilities .. or single interface for mobile .. or multiple interface for mobile and nomadic etc ...
  - Is  $\sim 100$  Mb/s and 1Gb/s feasible – what are the constraints / trade offs etc
  - Capacity / mobility / coverage ...
  - etc

# Spectrum

- World Radio Conference 2006 to decide about IMT-2000 and Systems Beyond spectrum
- WRC-2003 "to consider future development of IMT-2000 and systems beyond IMT-2000" and should then agree on a proper Agenda Item for WRC-2006
- ITU-R WP8F is working on the issue and generally agrees that there may be a need for more spectrum
- Open issues; market predictions / potential services, when, where, how much, what for, utilisation, trade off's (data rates, range, capacity, segmented / pooled etc) etc .....

# Summary

- IMT-2000 commercially launched – mass market 2003/4+
- IMT-2000 enhancements already being standardised and will evolve considerably over next 10-15 years
- Relationship with other radio systems to take place on a market led basis – regulatory considerations
- New radio interface(s) will be required sometime between 2010-2015 – subject to market and spectrum considerations
- ....
- ITU-R WP8F playing an active part in developing the high level vision
- Vision is a good start – flexibility and pragmatism will be required also in the future