



Commission for
Communications Regulation

Ireland's opportunity to Innovate using Radio Spectrum

Mike Byrne
Commissioner, ComReg

SFI Science Summit
18th November 2008



Overview

1. Overview - Communications Markets & Trends
 - Irelands Electronic Communications Market
 - Trend of More Mobile/Wireless Communications (Access)
2. The Importance of Radio Spectrum to Ireland
 - Broadband Communications
 - The National Economy
3. Ireland's Radio Spectrum Advantage
 - High Availability of Radio Spectrum & Supportive Regulatory Environment
 - ComReg's Test & Trial licensing scheme
4. Government Support
 - Science, Technology and Innovation
 - Innovation using Radio Spectrum
5. Ireland's Opportunity
 - Ireland as "The Test-Bed for Radio Spectrum Innovation"



1. Ireland – Electronic Communications Market Overview

- The total EU ECS market generated revenues of €293bn in 2007
- Ireland's industry revenue accounts for approximately 1.5% of this figure (€4.54bn)
- Ireland's Q2 2008 Revenue was €1.11bn, down 1.13% on Q2 '07
- Ireland's total ECS market generated annual revenues €4.54bn in 2007, up 5.9% from €4.28bn in 2006.
- In 2006 Radio Spectrum contributed around 1.7% of Irish GDP
 - *Imperative to use ALL our national resources including Radio Spectrum effectively, efficiently and innovatively to support a renewal of economic growth*





Converging Communications Environment

Mobile

penetration 120% &
still growing



7.6 Billion Texts
sent during 2007



Almost three-quarters of
Ireland's 1.46m TV households
subscribe to a pay-TV service

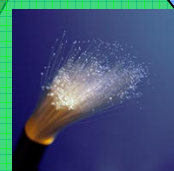


Broadband

Over 1m
subscriptions and
52% annualised
growth year-on-year
(Q207 to Q208)



Next Generation
Networks: advanced
planning and roll-out



Digital TV penetration
58% & growing



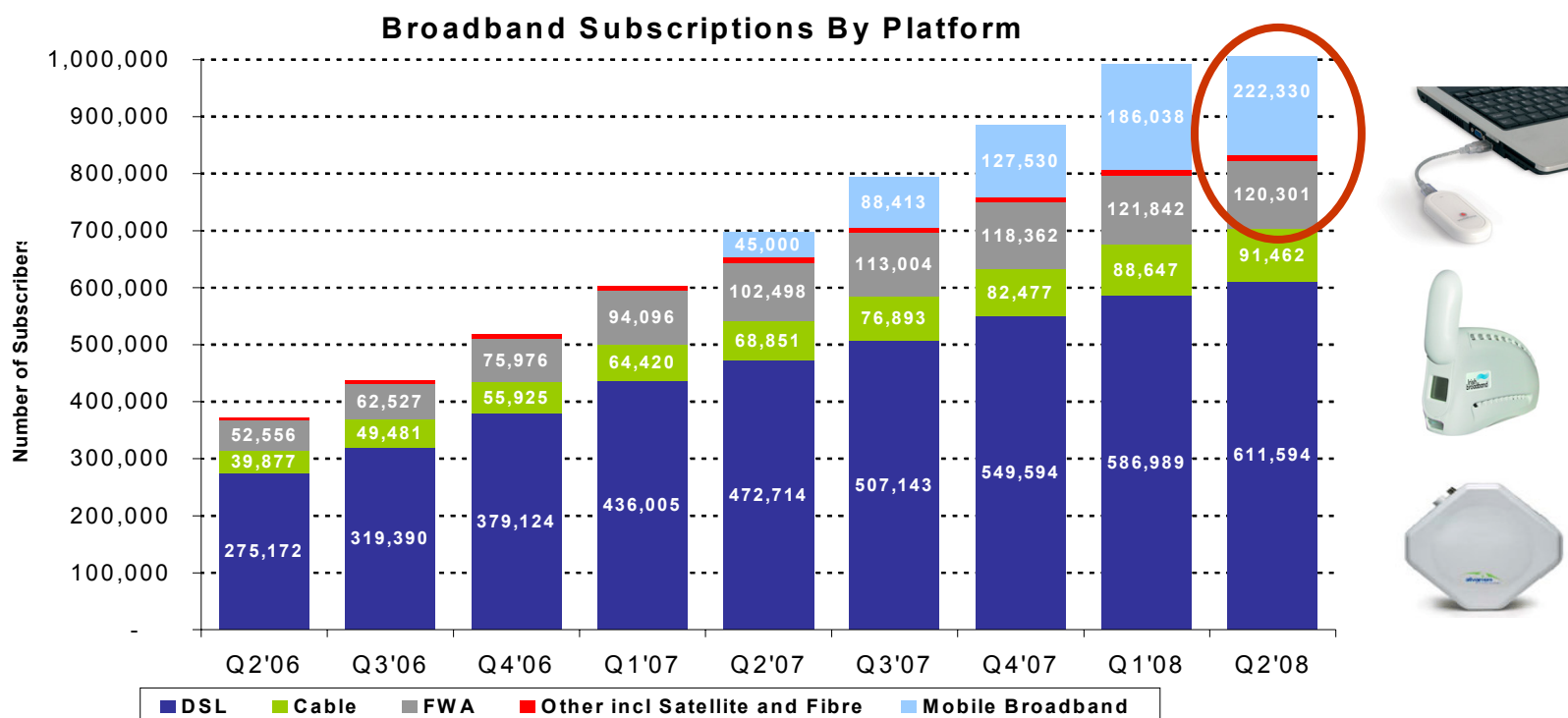
Trend of More Mobile/Wireless Communications

- **More Mobile Voice Traffic:** almost 50% of Western Europe's voice traffic originates from a mobile phone [Analysys]
 - In Ireland, 55% of voice traffic is mobile originated. [ComReg]
- **More Mobile Broadband:** In Western Europe 160% increase in 2007; 12.5 million subscriptions end 2008 [Yankee]
 - In Ireland, 395% increase to 222,300 subscribers [ComReg]
- **More Mobile Subscriptions:** Worldwide 4 billion (~60% penetration) by 2008 [ITU]
 - In Ireland, 120% mobile penetration [ComReg]
- **More Mobile Machine-to-Machine Sessions:** 30 times higher than mobile person sessions by 2020 [Forrester Research]

**Tomorrow's Communications World will
increasingly RELY on Radio Spectrum for ACCESS**

ComReg regulates access to the Radio Spectrum in Ireland

2. Radio Spectrum is important for Broadband in Ireland



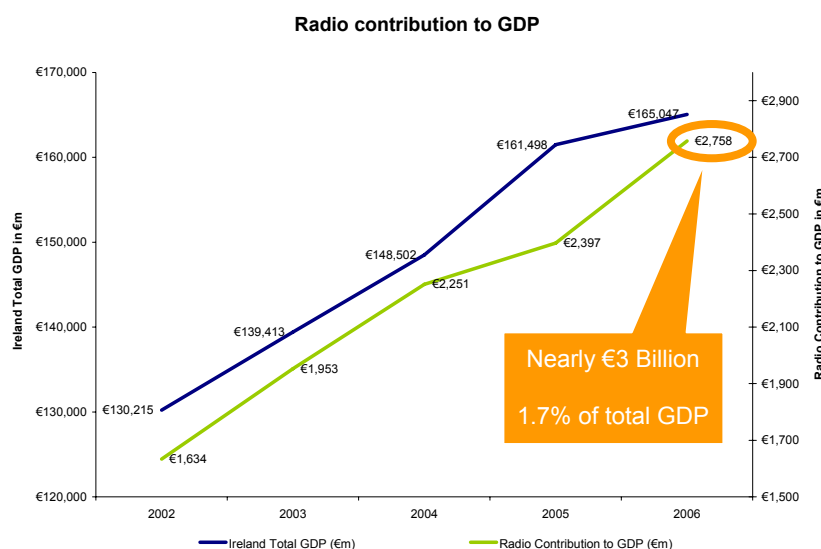
Source: Quarterly Key Data Questionnaire

- 32.5% of all Broadband Connections now provided with radio spectrum
 - 222,300 Mobile Broadband Subs & 120,300 FWA (Fixed Wireless Access)

Data: Q2 2008

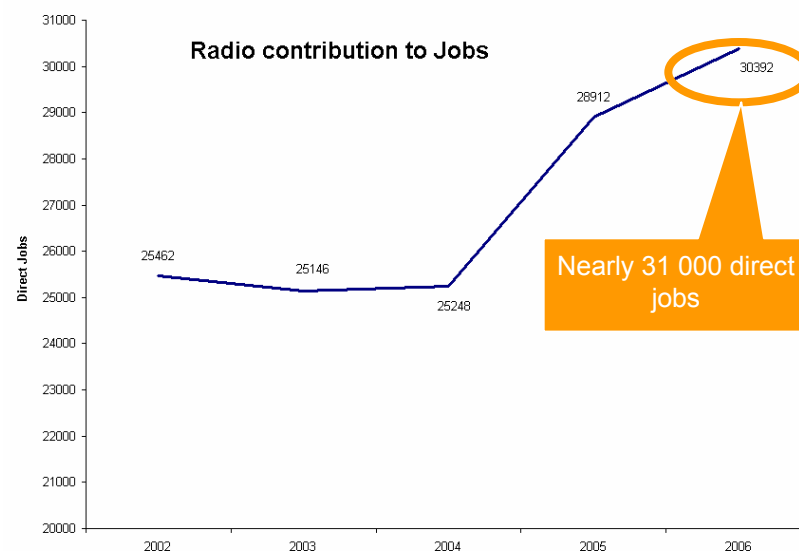
Radio Spectrum is important to Ireland's Economy

Contribution to GDP



1.7% of Ireland's GDP in 2006 (€3billion)

Contribution to Jobs



31,000 direct jobs

Radio Spectrum's contribution to Irish Economy is increasing



3. Ireland's Spectrum Advantage

▪ High Availability of Spectrum

- Geographic Location
 - Only one international land border to co-ordinate with compared to other European countries which have many land borders
 - Member State of EU and active member of CEPT
- Many spectrum bands are relatively unused
 - Low defence use of spectrum in Ireland.
 - Relatively low population density
 - Spectrum use concentrated in a number of bands, e.g. TV bands, GSM, 3G and 3.5GHz FWA services;



▪ Supportive Regulatory Environment

- *ComReg's Wireless Test & Trial licensing Scheme*
 - Designed for Research & Innovation activities
 - Any available frequency band considered



Build upon ComReg's Wireless Test & Trial Licence

- Good take-up of Licences which is increasing year on year
 - > 85 Licences issued since revamping scheme in 2005

- Examples

Research

- o TCD (CTVR): Testing of reconfigurable software-based radio and dynamic spectrum management techniques
IEEE DySPAN 2007 Conference (Dublin): Worlds first trials of cognitive radio & networks in dedicated TV and microwave frequency bands.

Development

- o NUIM WiMAX Network Trial
- o WIT Participation in EU project 'daidalos' (FP6 IST) (UMTS tests)
- o Intel: WiMAX capability testing
- o Ericsson: Development testing for GSM and WCDMA Technologies

Services

- o O2 & 3: Mobile TV Trials (DVB-H);
- o RTE: Digital Terrestrial Television (DTT) & Digital Radio Trials
- o & Many more..

- o Link for further information

http://www.comreg.ie/radio_spectrum/search.541.874.10025.0.rslicensing.html



4. Government support for Science, Technology and Innovation

- The National Development Plan 2007-2013 plans to invest €8.2 billion in Science, Technology and Innovation (SSTI)
 - €3.5 billion to underpin the contribution of the higher education sector to the SSTI
- The SSTI overall objective is that by 2013, Ireland will be
 - internationally renowned for the excellence of its research, at the forefront in generating and using new knowledge for economic and social progress, within an innovation-driven culture
- Science Foundation Ireland (SFI) is central to Ireland's goal of becoming a global knowledge-based economy.
 - SFI has responsibility to invest €1.4 billion
 - SFI Invests in research areas of greatest strategic value to Ireland's long-term competitiveness and development
- *"The Promotion of Research & Innovation into Radio Spectrum"*
 - A stated strategic goal of The Department of Communications Energy and Natural Resources (DCENR) & ComReg
 - International collaborations are being explored through joint research projects in radio spectrum



5. Ireland's Opportunity (Many Advantages)

- Low Corporate Tax Rate
- Supportive Government and State Agencies – IDA, EI, SFI
- Access to Knowledge and Workforce
- English Language
- High ICT literacy and skills
- Significant Third Level Institutions' research programmes
- Ireland as a proven early-adopter of wireless technologies
- Ongoing Innovation in ALL Services
- An vital area for targeted growth in the National Economy



Ireland's Opportunity to become

"THE Test-Bed in Europe for Radio Spectrum Innovation"

Build upon:

- ✓ Ireland's Natural Advantage: High Availability of Radio Spectrum
- ✓ Supportive Government & State Agencies / ComReg's Test & Trial Licensing Regime
- ✓ Strategic leveraged advantages: SFI Funding, Education, Language, Mature Wireless Industry, Access to EU market, etc.

In summary, ALL Stakeholders: Government, State agencies, Third Level institutions and Industry have significant roles to play in profiling and developing Ireland as Europe's

"Spectrum Innovation Nation"



Thank You!

Further Information

mike.byrne@comreg.ie

www.comreg.ie

www.askcomreg.ie

www.callcosts.ie