



Commission for  
**Communications Regulation**

## Ireland's opportunity to Innovate using Radio Spectrum

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presentation to  
IBEC's Telecommunications and Internet Federation  
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## Outline of Presentation

1. Overview - Communications Markets & Trends
  - Irelands Electronic Communications Market
  - Convergence & Trends in Mobile/Wireless Access
2. The Importance of Radio Spectrum to Ireland
  - Importance to the National Economy
  - Growth of Wireless Broadband Access and other new innovative services
3. Key Spectrum & Innovation initiatives in 2008 & planned for 2009/10
  - Spectrum Management Strategy Statement
  - Planning for rollout of DTT and the ensuing Digital Dividend
4. Government and Regulatory support for Innovation
  - "Why Ireland" – Ireland's natural advantages for use of Radio Spectrum
  - Science, Technology and Innovation investment
5. Summary and Conclusions



## Ireland – Electronic Communications Market Overview

- The total EU ECS market generated estimated revenues of €347bn in 2008
- Ireland's industry revenue accounts for approximately 1.3% of this figure (€4.44bn)
- Ireland's Q3 2008 Revenue was €1.11bn, down 1.13% on Q2 '07
- Ireland's total ECS market generated estimated revenues of €4.44bn in 2008, down 2.6% from €4.5bn in 2007.
- 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

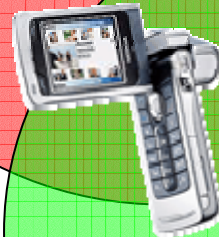
penetration 121.5%  
& still growing



### Broadband

Over 1m  
subscriptions and  
42% annualised  
growth year-on-year  
(Q307 to Q308)

Over 9 Billion Texts  
sent during 2008  
(est.)



Next Generation  
Networks: advanced  
planning and roll-out

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

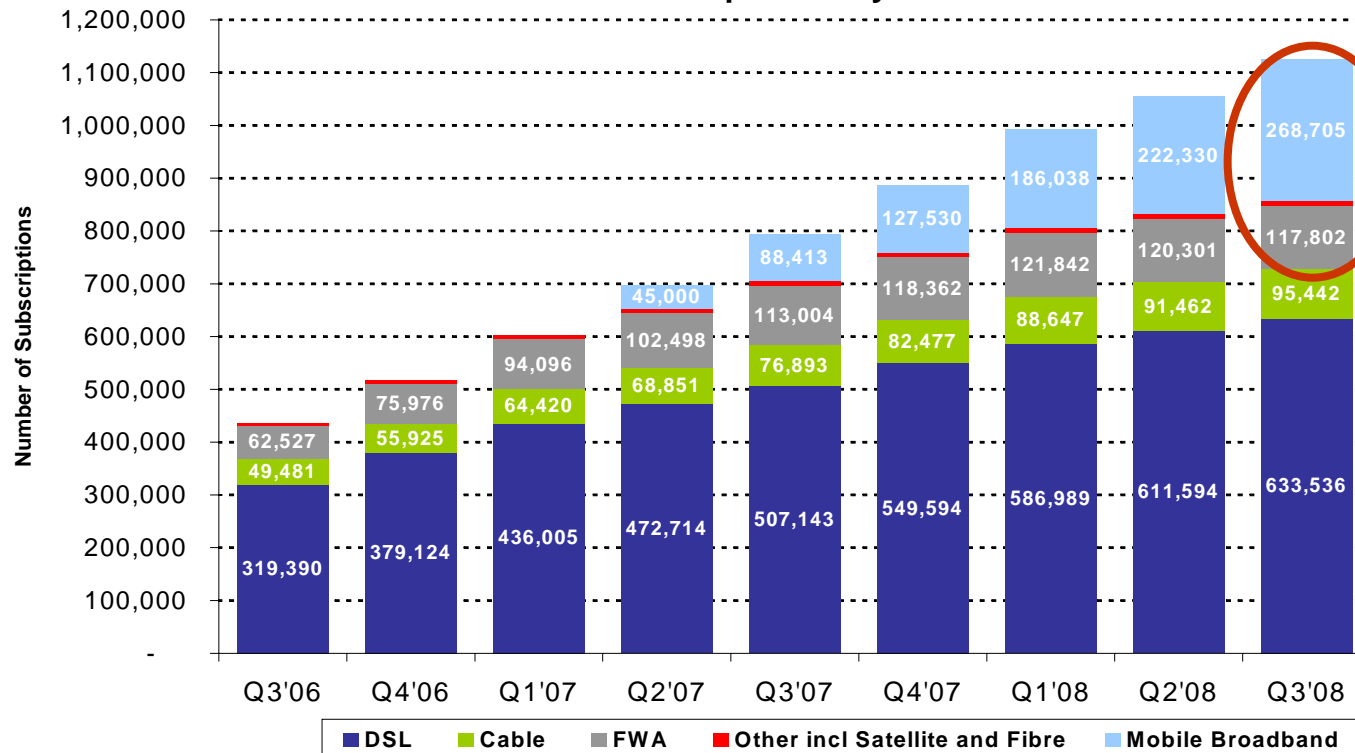


**Digital TV** penetration  
Almost 60% & growing



## Radio Spectrum is important for Broadband in Ireland

### Broadband Subscriptions By Platform



Source: Quarterly Key Data Questionnaire

- 34.3% of all Broadband Connections now provided with radio spectrum
  - 268,705 Mobile Broadband Subs & 117,802 FWA (Fixed Wireless Access)

Data: Q3 2008



## Trends 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*

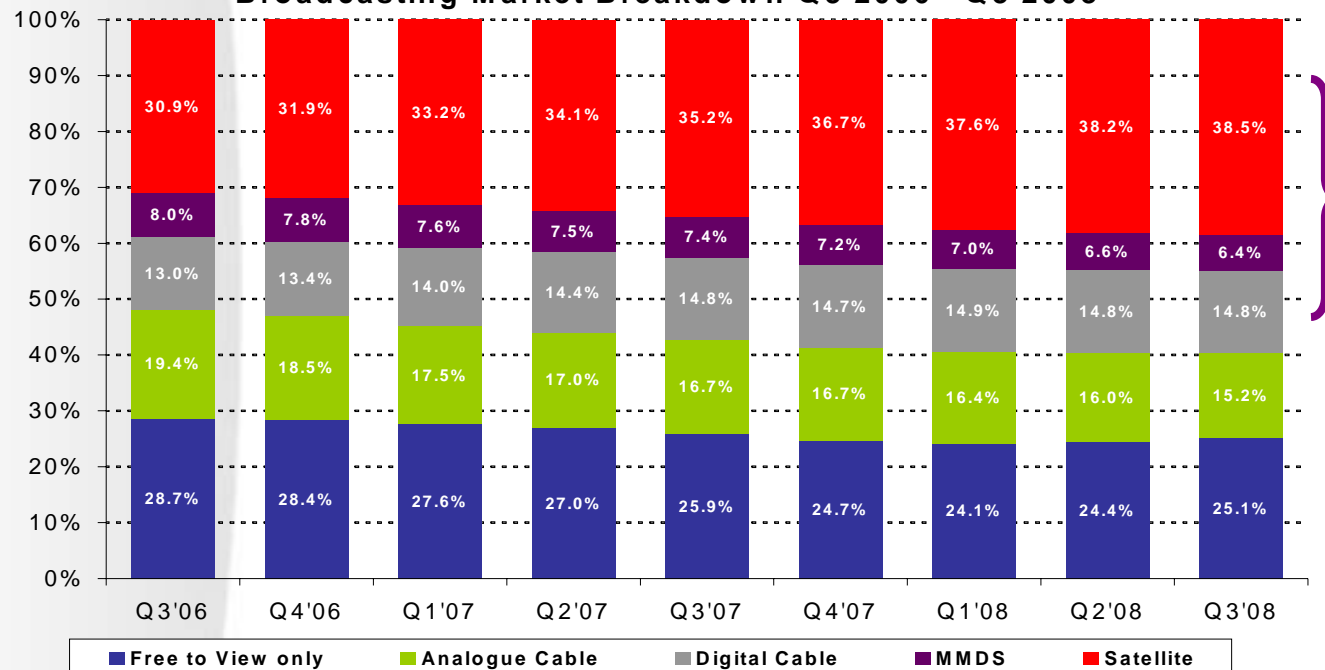
*ComReg regulates access to the Radio Spectrum in Ireland*



## Broadcasting: Digital TV market growing

Platform	Number of Subscriptions	Quarterly Change Q208-Q308	Annual Change Q307-Q308
Cable/MMDS	530,461	-5%	-15%
Satellite	562,000	+1%	+9.5%
Free-to-View	366,489	+3%	-3%

**Broadcasting Market Breakdown Q3 2006 - Q3 2008**



Source: Quarterly Key Data Questionnaire, BSKyB

Almost 60% of the TV households in Ireland receive a digital TV service either via satellite or digital cable networks.





## Key ComReg Spectrum & Innovation Initiatives 2008/09 (1)

1. Publication of Radio Spectrum Management Strategy 2008-2010
  - Identifies the key tasks for the 2008-2010 timeframe
  - Quantified radio spectrum's growing importance to Ireland's economy
  - €3billion GDP contribution & over 30,000 jobs (2006 data)
2. Launched Spectrum Development Programme
  - Promotes Ireland's opportunity for Innovation / R&D in the use of radio spectrum by leveraging our natural spectrum advantage
  - Dr Chris Horn: *"ComReg has created a globally unique international profile for Ireland by permitting real innovation and experimentation on our national airways for broadcasting, narrow-casting and dynamic spectrum technologies"*<sup>1</sup>
3. Innovation in Mobile Services in the 900 MHz & 1800 MHz bands
  - Ireland has 5.2M mobile subscribers including 270K mobile broadband subscribers (Q3 2008)
  - ComReg is consulting on how the use of these bands can allow other innovative services (e.g. broadband) in addition to GSM services in line with EU directives

<sup>1</sup>Irish Times, 5<sup>th</sup> January 2009





## Key ComReg Spectrum & Innovation Initiatives 2008/09 (2)

4. Fixed Wireless Access (FWA) Broadband services
  - Ireland has 178,802 FWA broadband subscribers (Q3 2008)
  - ComReg will provide additional spectrum in the 3400-3800 MHz band for more FWA services
5. Digital Terrestrial TV (DTT)
  - Issued a trial licence to RTÉ / DCENR FOR DTT
  - Finalised the DTT licensing regime and Issued a DTT licence to RTÉ (issued December 2008)
  - Ready to issue DTT licences to BCI (3 licences initially)
  - Ongoing international co-ordination of DTT frequencies
6. Digital Dividend (DD)
  - National Conference 2008 discussed "How can Ireland best benefit from its digital dividend"
  - Ireland's DD could be used for many purposes including non-broadcasting services (e.g. broadband) to address the digital divide
  - *Digital Dividend in Ireland - A new approach to spectrum use in the UHF Band*



## Digital Dividend (1) – Definition

- The “digital dividend” is the benefit that may be derived when analogue broadcasting signals are switched off in favour of digital, and radio spectrum is thereby released
- Because of its propagation characteristics such spectrum is very valuable
- Digital broadcasting has already begun in a large number of jurisdictions; but in most it is taking place in parallel with the continuing transmission of analogue signals
- The digital dividend arises only when all, or substantially all, analogue broadcasting has ceased



## Digital Dividend (2) - the dividend may vary in Size and Use

- It can be used to expand and/or enhance established and familiar services such as television broadcasting and mobile telephony...
- ... but other services may also have claims upon released spectrum: e.g., mobile television, mobile broadband, or “fixed wireless services” such as the provision of broadband to remote communities
- The electronic communications sector is nothing if not innovative: new applications and services will arise that are as yet unknown – Regulators should not pick “winners”
- National governments and regulators therefore have objectives to set and choices to make in the application of the digital dividend
- International cooperation



## Digital Dividend in Ireland (3) - A new approach to spectrum use in the UHF Band

ComReg will consult publicly on the following high-level issues:

- The concept of a mixed approach to spectrum allocation, which ComReg considers is central to Ireland's ability to best benefit from its digital dividend;
- Frequency harmonisation; which ComReg considers Ireland should maximise where possible;
  - including a harmonised sub-band proposal from 790 to 862 MHz;
  - the possibility of further harmonised digital dividend sub-bands;
- Views regarding the use of spectrum for non-broadcasting services;
  - types of services;
  - spectrum requirements of the applications and services identified;
  - value of those services to Irish consumers and citizens; and
  - impact of those services in terms of competition to existing products and services;
- Reservation of spectrum for experimentation and innovation purposes in Ireland



## 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

For more information:

<http://www.comreg.ie/fileupload/publications/IP191006.pdf>



## Wireless Innovation

Unique opportunities for testing and trialling

To help encourage and maximise the use of radio spectrum for the benefit of industry and research in Ireland ComReg has launched a new wireless initiative. Under this scheme ComReg will make spectrum available for testing and trialling innovative new systems and services. Facilitating access to radio spectrum, particularly for innovative technologies and services, is a key objective of ComReg's spectrum management strategy, and this initiative aims to give users access to the right spectrum at the right time.

Ireland possesses some unique advantages compared to its European neighbours. We have a well-developed high-tech sector with many leading global ICT companies. Ireland's position on the western edge of Europe and its low population density mean that the radio frequency spectrum is relatively un-congested. For the most part frequencies can be made available as and where required. These natural advantages mean that Ireland is ideally positioned as a test-bed for companies seeking to test and develop new products and services over existing and emerging service bands (for example, using European, North American and Asian technologies).



### Wireless Research

The spirit of wireless research and innovation in Ireland goes back to Marconi's transatlantic transmissions 100 years ago. Basic research in the fields of radio science and engineering continues to play an important role in Ireland today. Examples of wireless research range from the study of propagation effects to device and applications testing.

### Product Development and Testing

A fast moving wireless industry is continuously creating opportunities for manufacturers of wireless systems and components. Test and development are crucial processes in the creation of innovative wireless solutions. ComReg's new test and trial licensing initiative provides considerable opportunities for manufacturers to test and develop systems intended for use in European and other markets.

### Trials of Innovative Services

Companies seeking to carry out commercial trials of new services that involve actual test customers are facilitated under the trial licence scheme. This gives service providers the opportunity to develop innovative new services in a realistic environment.

The ComReg Licensing Team Lo Call: 1890 252 050 E-mail: [wirelessopportunities@comreg.ie](mailto:wirelessopportunities@comreg.ie) Web: [www.comreg.ie](http://www.comreg.ie)



## 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



## Summary & Conclusions

1. *Radio spectrum is a unique resource of significant economic, societal and cultural value and is the basis for many important services*
2. *ComReg is responsible for ensuring that radio spectrum is used efficiently and in line with national policy*
3. *The digital dividend is a “once in a lifetime” opportunity to maximise benefits for end-users in through radio spectrum*
4. *ALL Stakeholders: Government, State agencies, Third Level institutions and Industry have significant roles to play in profiling and developing Ireland as an innovator in Radio Spectrum*
5. *We need to build upon our strengths*
  - ✓ *Ireland’s Natural Advantage: relatively High Availability of Radio Spectrum*
  - ✓ *Supportive Government & State Agencies*
  - ✓ *A strong and mature Industry/Market base capable of supporting new technologies, services and applications that best meet the converging communications needs of Irish consumers.*





## Thank You!

Further Information

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