Broadband Fixed Wireless Access in Ireland

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Outline of Presentation

- Overview of Irish Telecom Markets
- Key Spectrum Management Objectives
- Experiences with FWA in Ireland
- New initiatives
- Some comparisons with other countries
- The challenges ahead

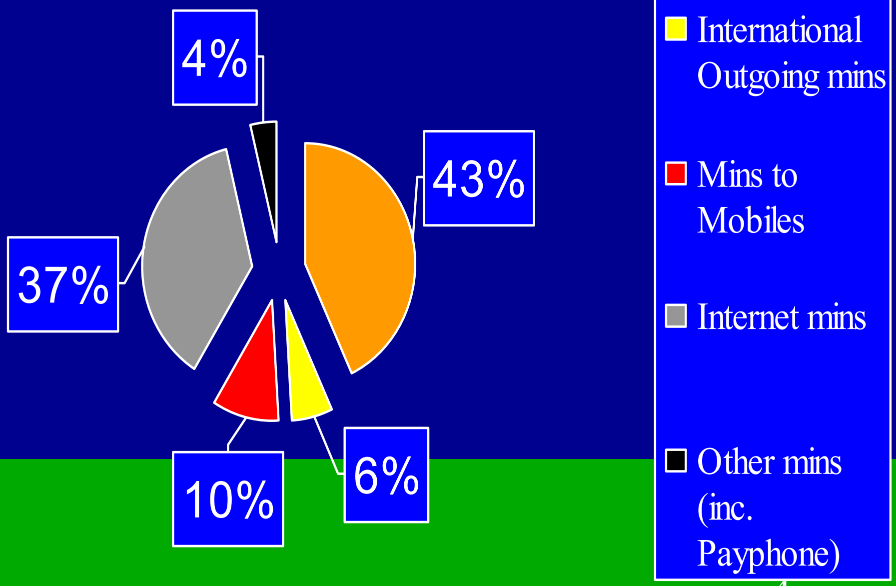
Telecommunications Sector in Ireland

- Telecoms development goes hand in hand with economic growth
- €3.37 billion revenue p.a. (increase of 8% since June 2001)
- Sector overall accounts for circa 2.9% GDP
- New entrants share of fixed line market is 21%
- Irish mobile penetration rate is now 76%
- Number of employees in the sector is 16,000

CURRENT MARKET SITUATION -Fixed Line -

- Total fixed line revenue accounts for approx 62% of total telecoms revenue
- 28% increase in ISDN channels in past 12 months
- 22,000 *retail* Leased Line Circuits
- Approx 148,000 CPS subscribers
- Limited cable modem and Fixed Wireless activity
- Internet minutes account for 37% of fixed retail traffic

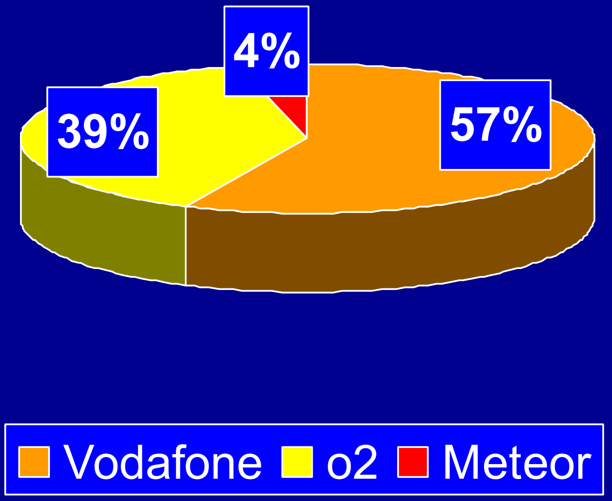
Fixed Telephony Retail Traffic - Q2 2002



CURRENT MARKET SITUATION - Mobile -

- Penetration - 76% (Operator Returns)
- Penetration - 80% (Baskerville July '02)
- 2.97 million subscribers
- 63 SMS sent per subscriber per month
- ARPU $39 (€40) per month

Irish Mobile Operators Market Share



CURRENT MARKET SITUATION - Internet –

- Penetration rate - 34%
- Active Internet Universe 15%
- 3.5 Hours online per month

- 88% of SME's connected to the Internet
- 1,200 DSL subscribers (approx 0.03% of population)

Key Spectrum Management Objectives

- **Consult** widely on radio spectrum policies and plans
- **Facilitate** use of **wireless systems** to reduce telecoms infrastructure deficit
- **Optimise** use of the spectrum resource, being aware of technical and economic viability
- **Ensure flexibility** and **ease of access** to radio spectrum in response to technological advances and market needs to leverage Ireland’s competitive advantage

Key Spectrum Management Objectives

Facilitate a competitive, leading edge telecommunications sector that delivers best in terms of price, choice and quality to the user by:

Promoting and Supporting

- development of radiocommunications to attract business investment and ensure ongoing social and economic growth
- Innovation & R&D in new radiocommunication techniques, services and applications

FWA in Ireland – A Summary

- 6 National licences issued in 2000
  - Narrowband (2GHz, 3.5 GHz) & Broadband (26 GHz)
- 2001: One Licensee into liquidation
- ODTR conducts FWA Review (2002)
- ODTR New Initiatives (2002)

Current National FWA Licences

Broadband Licensees (26GHz)	***Narrowband Licensees***
Chorus Communications Ltd Eircom plc Esat BT	Chorus Communications Ltd (3.5 & 2 GHz) Eircom plc (3.5 GHz)

- Deployment (Nationwide)
  - 26GHz : Approx. 42 Base Stations (≈80 customers)
  - 2 & 3.5GHz : Approx. 91 Base Stations (≈4,500 customers)

ODTR Review of European FWA Market - 2002

Conclusions:

- Slow development in European markets
- High monthly tariffs for end-user compared with DSL
- Equipment prices (generally high - ***economies of scale not realised***)
  - Improved equipment options at 10.5GHz
  - 2.45 GHz band equipment widely available and cost effective
- Licence fees reduced in some countries
- 2.45 GHz power limit maintained at 100mW EIRP after study

New Initiatives

- Public access service provision permitted in licence exempt 2.45 GHz & 5 GHz bands (Telecoms licence required)
- Licensing local FWA in the 10.5GHz band
- Increase EIRP limit in 5.8 GHz band to facilitate FWA services following sharing studies with satellite services
- Review of 26GHz spectrum – rationalised to provide expansion spectrum for FWA or other P-MP, MP-MP applications
- Review of licensing fees
- Future spectrum allocations will be subject to spectrum availability/demand on a local basis

Licence Exempt Initiatives

Frequency (MHz)	***Max. Power (EIRP)***	***Typical Deployment***
2400 – 2483.5	100mW	WLAN, P-P links, P-MP Access, Public Hot-Spots
5150 – 5250	60mW	***INDOOR*** **use only** WLAN, Public Hot-Spots
5150 – 5350	120mW	***INDOOR*** **use only** WLAN, Public Hot-Spots
5725 – 5875	2W	**Registration of Stations Required** P-MP Access, Mesh networks, P-P links

Licence Exempt Initiatives

- Currently in excess of 400 Access Points in Dublin in 2.4 GHz band in addition to campus links etc.
- 4 Telecommunications licences issued for public service provision utilising licence exempt radio access
- Government funding for WLAN Pilot schemes (www.marine.gov.ie)
- User demand for 5 GHz WLANs (e.g. IEEE 802.11a)
- 5.8GHz deployments expected from Oct. 2002
- Licensing regime developing to meet evolving technologies (e.g. Mesh networks)
- Regulatory requirements in Doc ODTR 02/71 on Short Range Devices

Comparisons with some other countries

- **France**: no FWA operator has fulfilled coverage commitments according to ART. 30 regional licences returned
- **Germany**: Only **2** active operators from *original 20* licensees
- **UK**: majority of broadband licences still not let and most operators still not active
- **USA**: LMDS (equivalent to 26 GHz FWA) has not taken off, but sizeable growth in low cost, localised services using licence exempt spectrum

The Challenge

The Requirement: rapid, cost-effective roll out of broadband services where existing infrastructure not available or suitable - only wireless can meet this need

Solutions?

- Offer more flexible approach to wireless network rollout - large national networks have not succeeded but targeted local services can provide service where no alternative exists and competition where they do exist.
- Local licensing approach provides this flexibility
- Licence exempt option provides rapid, low cost solution where service quality not critical.

Going Forward

- Continuing liberalisation
- Trend: Narrowband ⇨ Broadband

  PSTN: 56, 128 kbit/s :500 kbit/s: 2 Mbit/s and beyond
- Further facilitation & development of competition - leased lines, ULL, Satellite, Wireless
- Ongoing need to upgrade networks
- Implementation of the new EU Directives

Price / Choice / Quality for users.

Thank You

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