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Ireland – Future R&D Investment in a Small Open Economy Opportunities and Threats

Third KEI Workshop

Helsinki

March 2006

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Presentation Outline:

- ***Celtic Tiger*** Phenomenon
- R&D and globalisation
- Case for change
- Opportunities and Threats
- Policy responses
- Information needs
- Conclusions

Emergence of Celtic Tiger – policy actions

- Foundations laid as far back as in 1960's with move to "Outward Orientated" policies.
- Attracting FDI – focus on employment
- Parallel investment in Education and Skills (1970-)
- Social partnership (1980-)
- Tax Reform (1990's-)
- Sound Fiscal Policy
- Promoting a pro-business, low bureaucratic, stable environment
- English speaking and geographical position to actors

Strong Economic Growth

- Average GNP growth (1994-2004) = 7% p.a.
- Growth led first by trade (exports of goods), then consumption growth, then main engine now is construction investment and exports of services.
- GDP per head = €36,173 (125% EU average), GNP per head = €30,306 (101% of EU average)
- Unemployment rate falls from 15% to 4.4%
- Budget surpluses and falling government debt ratio
- Exports increase from €28.5mn to €109.3mn
- But rapid rise in costs and wages

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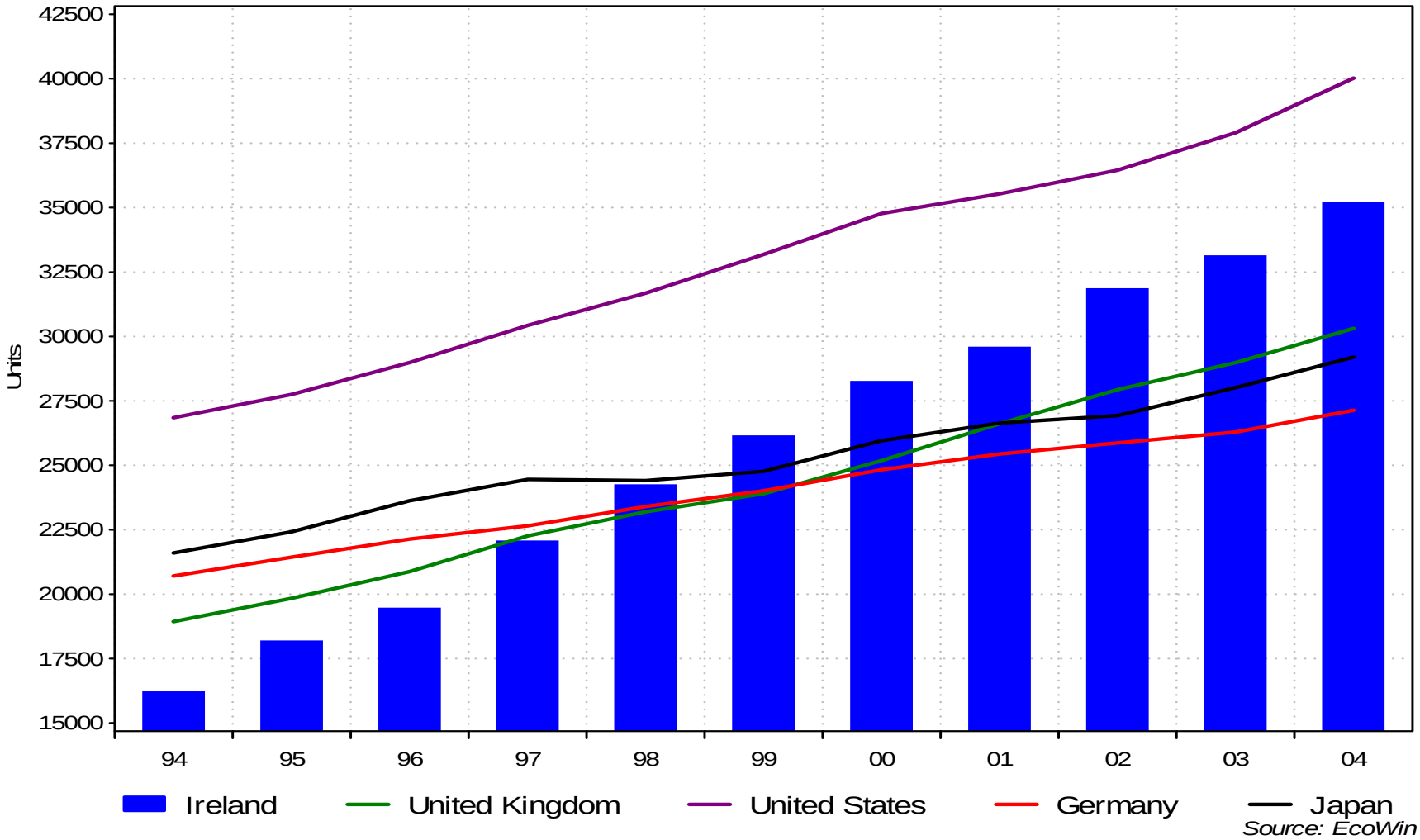
GDP per head ($ at PPP)



Source: EcoWin

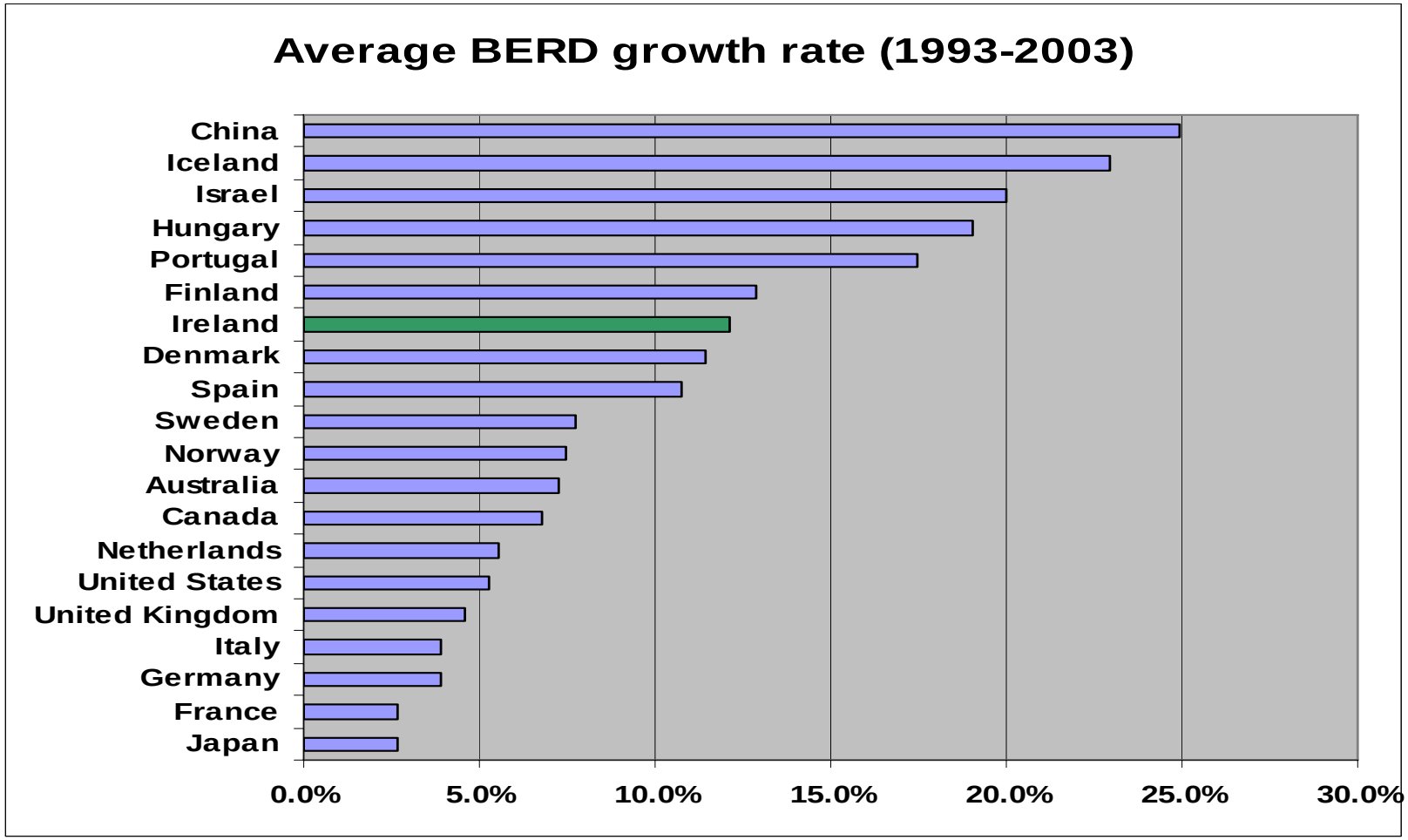
Diversification in Economy

- 1300+ Foreign Owned firms across economy
- Employ over 150,000 (73% manu, 27% services)
- Sales of €80,000k
- Export total of €75,000k. Sector driven
- Manufacturing - High tech ICT and Pharmaceutical
- Services – Financial Services, Shared services
- Relatively low position on value chain and limited by scale
- Indigenous performance now masked by MNC's

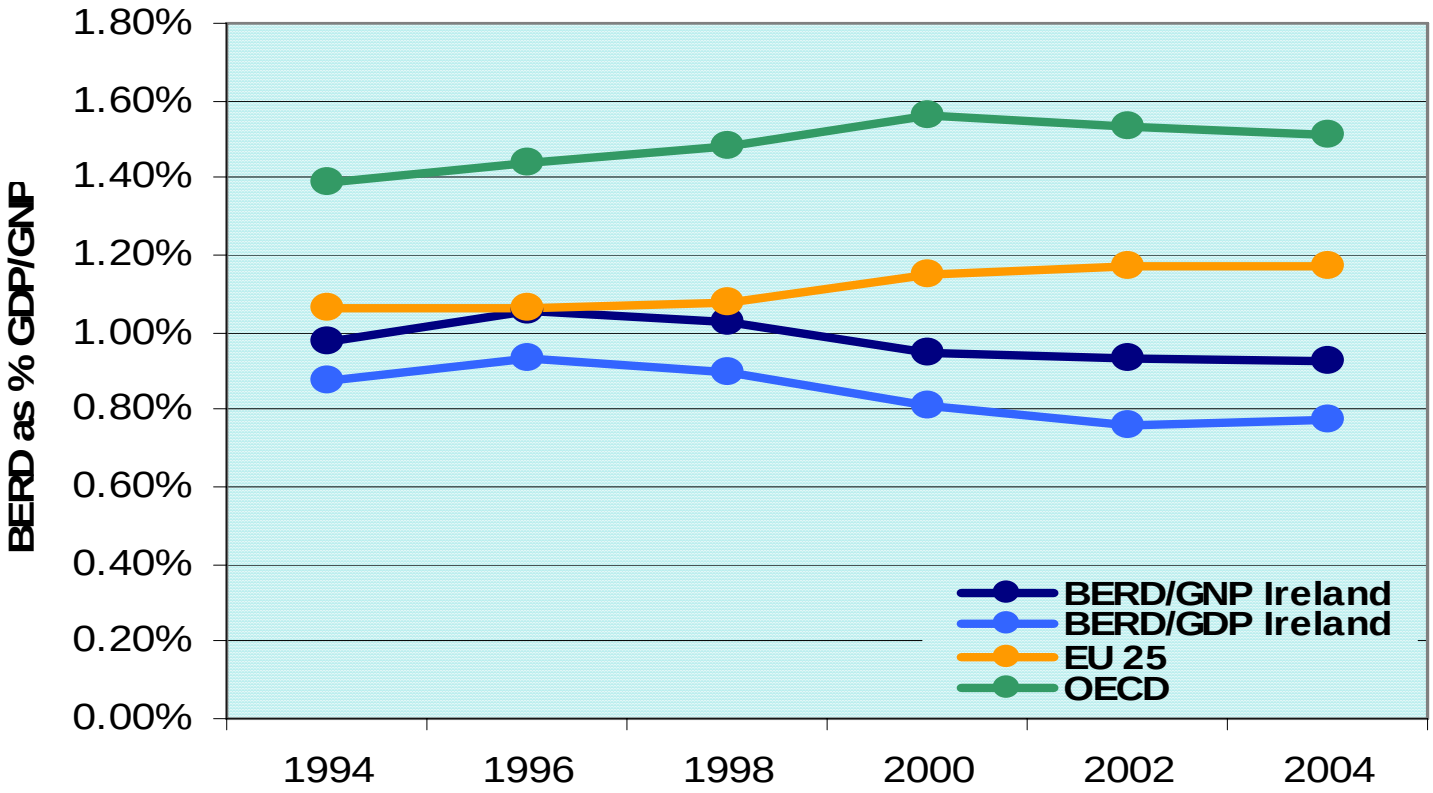
R&D Performance in a changing world

- Strong growth in Business R&D (12% p.a. 1993-2003)
- Mostly led by Foreign Owned Firms (Now 72% of BERD)
- But Intensity is static (high economic growth)
- Target of 1.7% of GNP by 2010.
- Sector focus
- New Projects and investments (Wyeth, Google, Bell Labs)
- R&D drives growth in S.O.E's or Growth drives R&D or both ??
- Government investment in R&D increases (HERD and infrastructure)
- Change in policy? New Threats and Opportunities Emerging

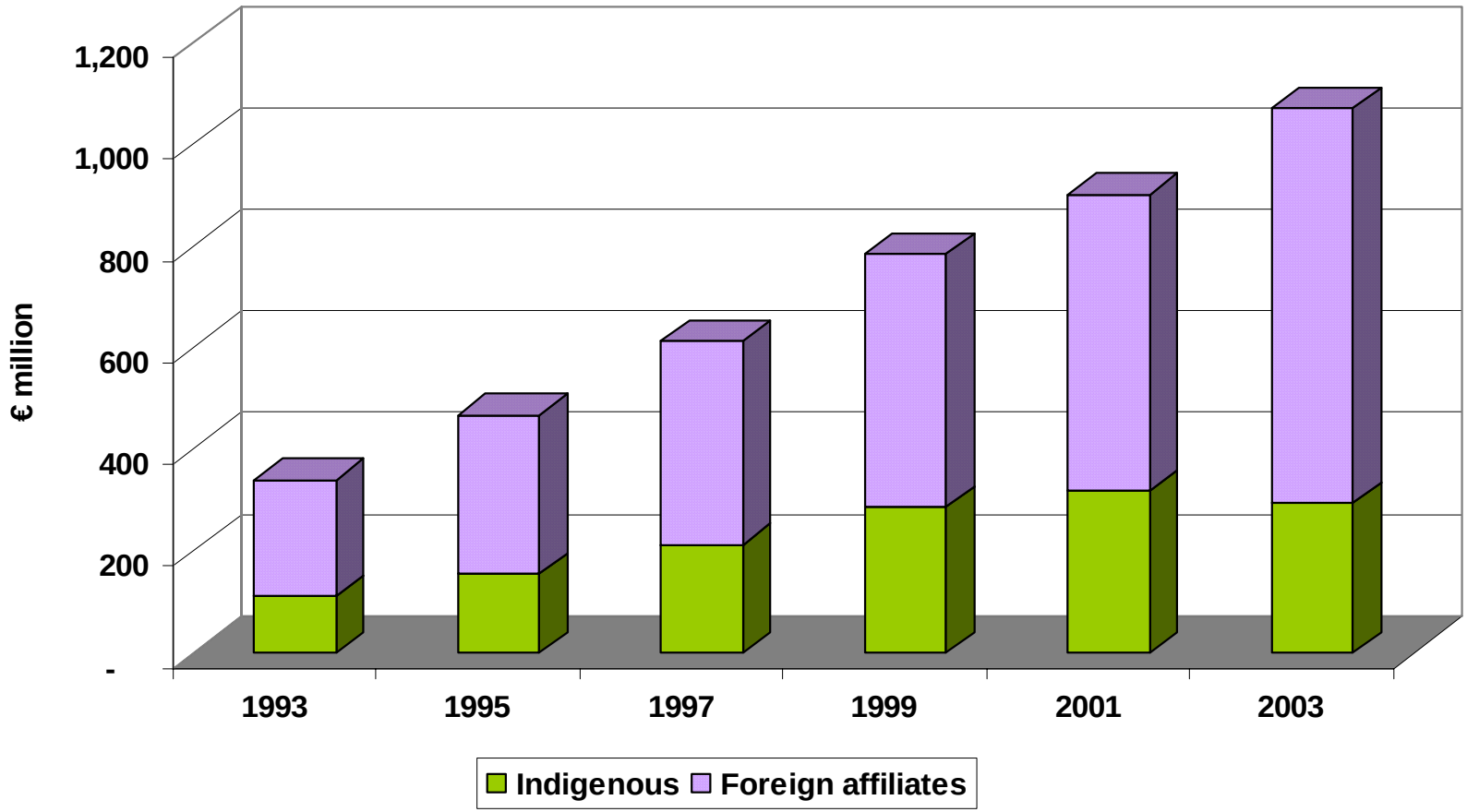
Strong average annual growth rates



But…. BERD Intensity remains flat



Indigenous and Foreign Affiliate R&D, €m, 1993-2003



Non-EU R&D Performers in Ireland

Health	Pharma & Biotech	IT Hardware	Software & Computer Services
Abbott Labs (1)	Pfizer (1)	Intel (1)	IBM (1)
Medtronic (2)	Roche (3)	Motorola (2)	Microsoft (2)
Baxter (3)	Merck (5)	Hewlett-Packard (3)	Oracle (3)
Guidant (4)	Eli Lilly(6)	Nortel (9)	Cadence Design (8)
Boston Scientific (5)	Bristol-Myers Squib (7)	Sun Micro (10)	Siebel Systems (9)
Stryker (9)	Wyeth (8)	Lucent Tech (13)	Synopsys (11)
Bausch & Lomb (10)	Schering-Plough (10)	Apple (21)	Novell (22)
	Takeda (11)	Analog Devices (24)	
	Allergan (13)	Dell (32)	
	Yamanouchi (14)	Xilinx(45)	

Source: The 2004 EU Industrial R&D Investment Scoreboard, Directorate General Research and Forfás BERD Database

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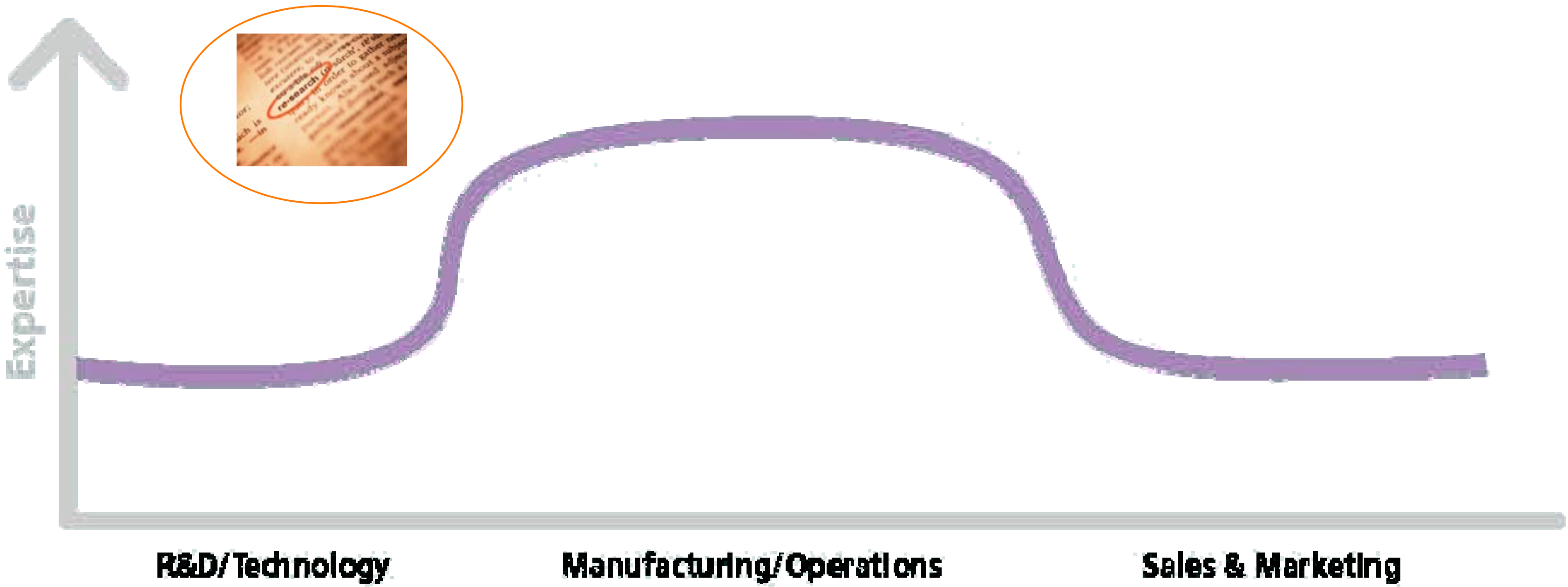
Where We Are Now – The case for change

Most of the products we manufacture are designed elsewhere

Bulk of our exports are marketed /sold by organisations outside Ireland



Enterprise R&D activity low

BERD at 0.93% of GNP vs Target of 1.8%

Target for R&D to reach 2.5% GNP by 2010

Business investment in R&D should increase from 0.9% GNP in 2001 to 1.7% GNP in 2010.

- **Double foreign affiliates with minimum scale R&D (>€100,000)**
- **Triple the number of foreign affiliates performing significant R&D (>€2m)**

R&D performance in the higher education and public sectors should increase from 0.4% GNP in 2002 to 0.8% GNP in 2010 .

The number of researchers to increase from 5 per 1,000 of total employment in 2001 to 9.5 per 1,000 in 2010.

Diversification in R&D Performance – A changing world

R&D base and future pipeline is under threat from the changing world and globalisation:

- **Increased competition from abroad**
- **Rising Cost base in Ireland (firms and individuals)**
- **Changing Role of Knowledge and its diffusion**
- **Shift to Services**
- **Limited markets – scale issues (venture capital, labour, R&D)**
- **Falling labour supply**
- **Changing regional base – Asia (China, India) - Nano**
- **Disaggregated activity chains (location, expertise and cost)**

Opportunities for R&D

- Growing world demand for high value added goods and services.
- Proximity to main actors
- Responsive economy
- Increasing Skilled workforce
- Regional base for stability with low risks
- Adaptable business model and ability to bring technology to marketplace with high productivity gains
- Capturing parts of projects
- R&D also embeds some manufacturing jobs
- Attracting HQ of enterprise might capture some R&D activities
- Investment abroad by Irish companies has also positive

R&D and Globalisation – policy response (firms)

- Developing in-depth market knowledge (at all stages)
- Companies need to identify R&D strengths
- Demand driven R&D model – driving commercial success
- Establishing relationships with international customers and markets
- Investment in high value added skills and people
- Collaboration and partnerships to increase scale (sub-suppliers)
- Improving innovation rates
- Being mobile and quick to adapt “accepting change”, “time to market”
- Re-invent yourself if necessary
- Benefit from spill-over effects and become sub-suppliers

R&D and Globalisation – policy response (Government)

- Remain pro-business, responsive and outward-orientated
- Offer stability (economic, political and social) and low risk
- Shift financial and other support from employment to R&D
- Focus on Niche Sectors (Services and High-Value manufacturing)
- Investment in Human Capital
- Positive response to migration
- Marketing Ireland as a Research Gateway to Europe
- Investing in strategic public research and infrastructural networks
- Coherent and co-ordinated strategic public R&D policy
- Promoting collaboration between HE sector and business
- Promote technology foresight

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Finance for Innovation and Research

Building Critical Mass in the Science Base

Success in Markets

Building Applied Research and Technology Competencies in Strategic Areas

Driving Commercialisation of Research

Developing Firms Research and Technology Capability

Internationalising the Research System

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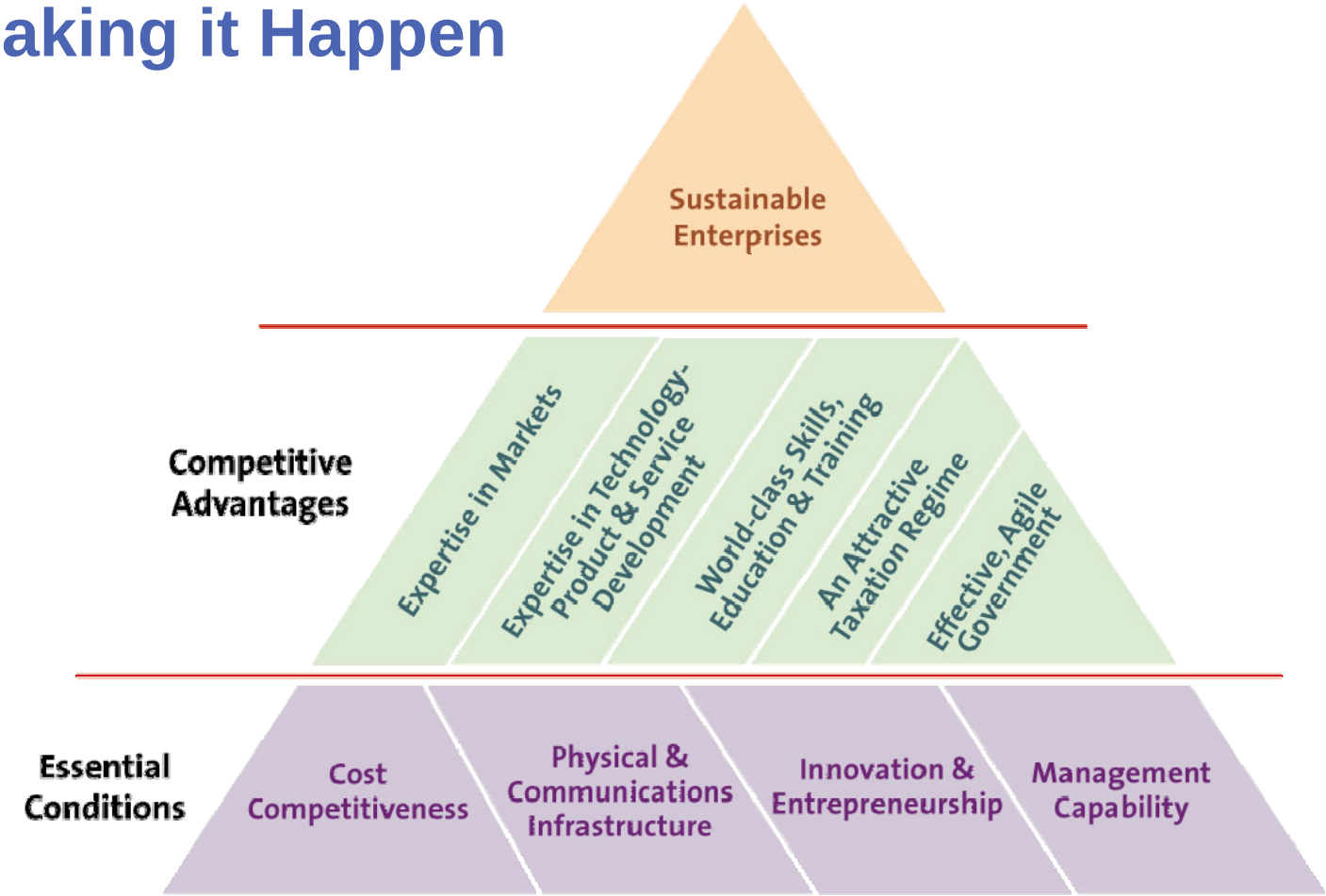
Making it Happen



It can work – a case study

- Apple in Cork employed 1200 people in manufacturing
- Manufacturing went elsewhere – globalisation
- Employment fell to 400
- Local management re-invented function of business
- Secured European HQ and other R&D services
- Employment rises and company more embedded
- Other activities come in following success – Treasury, web support, supply chain management and financial shared services
- Employment now stands at over 1000

New Data requirements?

- Number of HQ's based in country per 100 businesses?
- Growing Importance of service sector – R&D and Innovation NACE74 and wider
- Distance to market from R&D centre and partners
- Conversion of commercial success and productivity
- Emergence of new technologies
- Better sectoral data for S.O.E.'s and Niche markets

New data requirements?

- Promoting use of CIS4 and CIS5 softer innovation data
- Benefits from spill-over effects (SME-large)
- Contact with customers and markets
- Expenditure on R&D market-watch
- Net gains of R&D – jobs created v jobs lost?

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Thank you

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