

# The European Geography of the ICT Sector

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# ICT

- Office and Data Processing Equipment and Electronic Components
- Software
- Telecommunications

The Western EU periphery is a major player in Computer Hardware and Software.

- Around two-thirds of computers sold in Europe in the 1990s were assembled in Ireland or Scotland
- Ireland also accounted for over 40 percent of all packaged software and 60 percent of all business software sold in Europe

Not the case for Telecommunications Equipment.

# Computer Hardware

The relative importance of computer sector employment in EU15 countries

	Computer Equipment	Electronic components
Belgium	0.21	0.79
Denmark	0.55	0.65
Germany	0.82	0.90
Spain	0.48	0.44
France	1.48	1.80
Ireland	10.42	3.77
Italy	0.48	0.69
Austria	0.15	1.75
Portugal	0.06	0.71
Finland	0.31	1.07
Sweden	0.46	0.79
United Kingdom	1.79	1.10
Of which: .....Scotland	7.90	3.05
Netherlands	1.54	0.54

# Why have Ireland and Scotland been so successful in this sector?

- Both countries are English speaking
- relatively low labour cost locations within the EU15
- abundant supplies of skilled labour.
- Ireland: lowest effective rate of corporation tax in EU15
- Scotland: benefited from UK regional grants and other financial and fiscal incentives.

## Computer Assembly and Peripherals in Europe

- Over the period 1995 to 2000 there was a loss of 34,000 European jobs in the sector, with Ireland, Scotland and Hungary gaining against the trend.
- By the end of the period Ireland and Scotland had around 20,000 each in the segment and Hungary had around half of the 20,000 CEE jobs in the sector.

# Country Shares in World Computer Hardware Exports

		Computers		Elec components		
		1992	2000	1992	2000	
Europe	France	0.05	0.04	0.04	0.02	
	Germany	0.07	0.05	0.05	0.04	
	Ireland	0.02	0.05	0.05	0.06	
	Italy	0.03	0.01	0.03	0.01	
	Netherlands	0.04	0.08	0.05	0.05	
	United Kingdom	0.09	0.08	0.07	0.04	
	Hungary	0.00	0.01	0.00	0.01	
	Asia	Japan	0.21	0.08	0.16	0.09
		Taiwan	0.07	0.09	0.04	0.09
Hong Kong		0.02	0.02	0.06	0.07	
Korea Rep.		0.03	0.05	0.02	0.07	
China		0.00	0.06	0.01	0.04	
Singapore		0.13	0.11	0.06	0.08	
Thailand		0.01	0.01	0.03	0.05	
Malaysia		0.00	0.04	0.04	0.00	
Philippines		0.00	0.03	0.00	0.02	
Americas		USA	0.23	0.17	0.23	0.18
	Canada	0.02	0.01	0.04	0.02	
	Mexico	0.01	0.04	0.01	0.02	
	Costa Rica	0.00	0.00	0.00	0.01	

## Moving up the value chain into Electronic Components

- Most innovation now carried out by components suppliers.
- Increase in employment in components relative to computers in EU15 over the 1990s.
- Components employment growth more rapid in Ireland also (with about one-third of components employment now in Intel), with higher wages in components segment.
- In addition, even as computer assembly jobs shift overseas many of the computer firms remain and upgrade in Ireland.

# Software

The relative importance of computer software employment in EU countries

Belgium	0.89
Denmark	1.25
Germany	0.61
Spain	0.62
France	1.05
<b>Ireland</b>	<b>1.32</b>
Italy	1.04
Netherlands	1.25
Austria	0.78
Portugal	0.27
Finland	1.25
<b>Sweden</b>	<b>1.95</b>
<b>United Kingdom</b>	<b>1.47</b>

# Software

- Sweden and UK are IT-intensive economies (with high computer penetration rates) and their software sectors cater to this.
- Ireland's software sector is highly export-oriented.
- Around half of Irish foreign-firm software employment is in MLD (manufacturing, localisation and distribution) in firms such as Microsoft and Lotus, with the other half in software development.
- Indigenous software sector is as large as the foreign-owned sector. It grew out of servicing and supplying Ireland's foreign high-tech manufacturing firms and ultimately developed into exportable software products.

MLD will remain in Europe. Will it shift to the CEEC?

- Unlikely, because employs a large number of immigrants with Continental European language skills. CEEC unlikely to be able to attract these because of much lower wage levels!

CEEC software sector will grow however as computer penetration rates converge on the EU average

PC penetration rates in Europe: Number of PCs per 100 inhabitants

<b>EU</b>	<b>End 1999</b>	<b>Growth, 1997-1999 (%)</b>	<b>Accession States +</b>	<b>End 2000</b>	<b>Growth, 1998-2000 (%)</b>
Austria	36	29	Bulgaria	4.4	33
Belgium	39	16	Cyprus	28	97
Denmark	61	11	Cz Rep	13	47
Finland	40	17	Estonia	na	na
France	31	17	Hungary	3.6	43
Germany	36	20	Latvia	11.3	51
UK	49	4	Lithuania	8	44
Greece	11	38	Malta	21	32
Ireland	18	37	Poland	15.5	30
Italy	20	8	Romania	3.2	51
Lux	52	-	Slovakia	13.3	54
Netherlands	35	9	Slovenia	27.3	29
Portugal	22	24			
Spain	15	13			
Sweden	51	36			

# R&D

- Hardware R&D highly concentrated in more advanced (richer) countries.
- Software R&D more dispersed.
- Opportunities for CEEC in this sector!

# Telecommunications Equipment

Shares of Global Telecommunications Industry (SITC 76)  
Exports, 2002

SITC 762: Radio Broadcast Receivers	6 %
SITC 763: Sound recorders, phonographs	11 %
SITC 761: Television Receivers	11 %
SITC 764: Telecomm equipment, parts	72 %

# Radio broadcast receivers

- Of EU15, only Portugal has a revealed comparative advantage (RCA): 4 % of world exports.
- Of CEEC, only Hungary has RCA: 1.8 % of world exports.

# Sound recorders, phonographs

- No EU15 country has RCA.
- Of CEEC, only Hungary has RCA: 1.9 % of world exports.

# Television receivers

- Of EU15, only Spain has a revealed comparative advantage (RCA) in Television receivers.
- Of the CEEC, Poland, Hungary, Czech R., Lithuania, Slovakia, Slovenia and Romania – in descending order – have RCA.
- Spain accounts for 4 percent of world exports; Poland for 3.5 percent.

# Major component segments of Telecommunications Equipment and Parts (SITC 764)

<p><b>SITC 76432</b> Transmission apparatus for radio telephony incorporating reception apparatus</p>	<p>37.5 % of SITC 764 global exports</p>
<p><b>SITC 76493</b> Parts and accessories for television, radio and transmission apparatus</p>	<p>19.3 % of SITC 764 global exports</p>

# Major segments of telecomms parts and equipment

## SITC 76432:

### Mobile telephony

#### RCA in EU15:

- Finland
- 7.4 % of global exports
- UK 14.7
  - Sweden 3.9
  - Denmark 2.6
  - Germany 11.9

#### RCA in CEEC

- Hungary 3.5
- Estonia 0.3

## SITC 76493:

### Parts and accessories

#### RCA in EU15

- Sweden
- 4.8 % of global exports
- Finland 2.5

#### RCA in CEEC

- Hungary 3.5
- Estonia 0.3