# Statistics

## INDUSTRY, TRADE

in focus

**SECTORIAL PROFILES** 

THEME 4 - 9/1999

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# Telecommunication services in Europe

Martti LUMIO

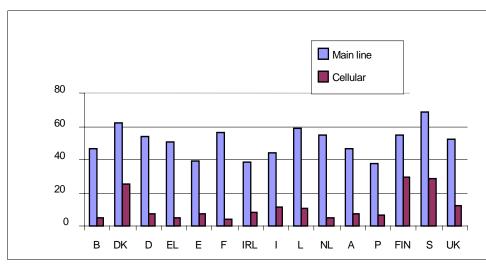


Figure 1: Number of subscribers per hundred inhabitants in 1996

#### INTRODUCTION

Telecommunication services have been expanding very rapidly, with the growth in mobile telephony, data transmission, and the internet fuelling demand. In most EU countries the industry was preparing for the liberalisation of the market at the beginning of 1998. Compared to the GDP, turnover from telecommunications was 2%, which does not seem much considering the expectations placed on the coming information highways. However prices have been declining substantially, thus reducing the growth in turnover. In proportion to the population, turnover is highest in the Nordic Countries and Luxembourg.

Looking at the numbers of subscribers to the various networks it would seem, that the market for new main lines in the fixed network is close to saturation point in the countries with a high density of fixed telephone lines. The growth is clearly more rapid in the countries with lower density. However, the number of ISDN lines is growing rapidly everywhere, reflecting the users' demand for faster data communication. The development is leading to a more even level of density of fixed networks across Europe.

Mobile phones are spreading rapidly everywhere, including countries where the densities of fixed and mobile networks were high to start with. At present, the mobile phone seems rather to be a complement than a substitute for the fixed line. Density of mobile phones is highest in the Nordic Countries.

Detailed tables are available in the New Cronos database and will be shortly published on CD-ROM, along with data on postal services.

#### 1. Telecommunication market in the national economies

		- Mio E0	CU -			- %	<b>%</b> -		- ECU -
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	1996/GDP	Turnover96 /Inhabitant
EU-15	92.730	122.246	129.362	135.583	100,0	6,9	4,8	2,0	364
В	2.113	3.084	3.298	3.529	2,6	9,3	7,0	1,7	348
DK	1.772	2.366	2.572	3.167	2,3	7,7	23,1	2,2	603
D	19.780	33.158	35.296	33.032	24,4	12,3	-6,4	1,8	404
EL	1.016	2.073	2.139	2.468	1,8	16,1	15,4	2,5	236
E	6.332	8.368	8.724	9.164	6,8	6,6	5,0	2,0	234
F	14.891	19.642	20.390	21.537	15,9	6,5	5,6		
IRL	982	1.114	1.209	1.396	1,0	4,2	15,5	2,5	386
1	14.017	15.015	15.303	18.127	13,4	1,8	18,5	1,9	
L	156	232	236	255	0,2	8,7	8,4	1,9	619
NL	4.100	6.114	6.491	6.672	4,9	9,6	2,8	2,1	431
Α	2.222	2.674	3.299	3.163		8,2	-4,1	1,8	393
Р	1.245	1.813	1.941	2.390	1,8	9,3	23,1	2,8	
FIN	1.750	1.651	1.977	2.217	1,6	2,5	12,2		
S	3.929	3.522	5.342	5.971	4,4	6,3	11,8	3,0	
UK	18.427	21.419	21.149	22.496	16,6	2,8	6,4		

Table 1: Turnover of telecommunication enterprises

Over the period 1990-1995 turnover grew steadily. The growth rate was higher than that of GDP implying a growing share of telecommunications in the national economies. The upward trend continued in 1996, but slowing down. In Germany and Austria a year of negative growth was recorded, but a high rate of growth in most other countries offset this setback. Although the EU total grew consistently, there were great variations across countries. These can be explained to a great extent by the fact that turnover is expressed in ECU and changes in currency rates show in the time series. The column presenting the distribution of turnover among the countries in 1996 gives the result that countries with large populations contribute to the total roughly in proportion to their population.

Scaled with the GDP, the turnover from

telecommunications varies from 1,7% in Belgium to 3,0% in Sweden. This does not seem much, but additional weight is given to the branch by the fact, that it provides the "information highways" to the use of information, computing and content industries composing the most dynamic sector of the modern information society. The ratio seems difficult to explain by the level of income, degree of competition or similar causes alone.

Turnover per inhabitant shows that most money on telecommunications is spent in the Nordic countries and Luxembourg. The lowest sums are spent on telecommunications on the Southern side of the Union. A tendency to spend more on telecommunications in the better off countries is evident, but does not alone explain the variation.

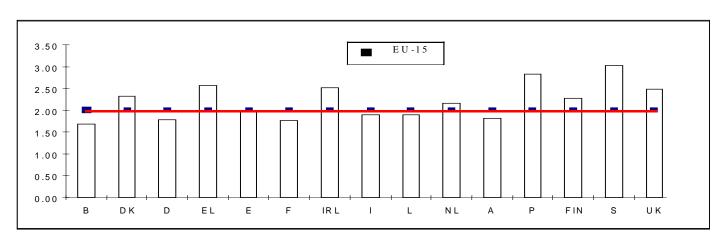


Figure 2: Percentage of telecommunications turnover in 1996 GDP

#### 2. Subscribers to telecommunications networks

The number of main telephone lines per 100 inhabitants varied in 1996 from 38 (Ireland and Portugal) to 68 (Sweden). The difference is getting smaller, since the growth rate is clearly higher in the countries with a low density of main lines. Saturation of the market seems to be close in the countries with a high density of main

telephone lines, especially where mobile networks are developing rapidly. Germany is an exception to the rule because of the needs brought about by the reunification of the country. The countries with a low density of main lines also seem to take a prolonged transition period to adapt to the liberalisation of the market.

		- thousar	nd lines -			- % -		
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	Lines / 100 Inhabitants
EU-15	153.439	176.896	182.568	188.197	100,0	3,5	3,1	50
В	3.913	4.526	4.632	4.725	2,5	3,4	2,0	47
DK	2.911	3.123	3.203	3.251	1,7	1,9	1,5	62
D	32.000	39.900	42.000	44.100	23,4	5,6	5,0	54
EL	3.949	4.976	5.163	5.329	2,8	5,5	3,2	51
E	12.603	14.685	15.095	15.413	8,2	3,7	2,1	39
F	28.085	31.600	32.400	33.000	17,5	2,9	1,9	57
IRL	983	1.240	1.310	1.390	0,7	5,9	6,1	38
1	22.350	24.542	24.845	25.259	13,4	2,1	1,7	44
L	184	222	231	244	0,1	4,6	5,9	59
NL	6.940	7.830	8.120	8.431	4,5	3,2	3,8	54
Α	3.223	3.681	3.749	3.779	2,0	3,1	0,8	47
Р	2.379	3.444	3.586	3.724	2,0	8,6	3,9	38
FIN	2.670	2.801	2.810	2.842	1,5	1,0	1,1	56
S	5.850	5.967	6.013	6.032	3,2	0,6	0,3	68
UK	25.400	28.358	29.411	30.678	16,3	3,0	4,3	52

Table 2: Subscribers to main telephone lines

The dramatic rise of cellular mobile telephone systems in the EU continued in 1996 with an increase of nearly 59%. In 1996 there were over 33 million subscriptions to cellular mobile telephone systems. The highest shares of the EU market were registered in the United Kingdom (21%), Italy (19%) and Germany (17%). Since 1990 the number of subscribers has risen by nearly 1000%. The highest growths in 1996 were recorded in Spain (218%), Belgium (103%) and Greece (102%), reflecting the low

starting levels and implying that the differences in densities will in future get smaller. The densities of mobile telephony are by and large highest in the Nordic countries, which took an early start in developing mobile communications, and the growth continues rapid even there. This fact is reflected in the slowing growth of fixed networks in these countries, as seen in the previous table.

		- thousand s	ubscriptions-			- % -		
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	Subsc./100 Inhabitants
EU-15	3.114	13.536	21.097	33.485	100,0	46,6	58,7	9
В	45	128	235	478	1,4	39,5	103,3	5
DK	148	504	822	1.317	3,9	40,9	60,1	25
D	273	2.495	3.750	5.790	17,3	68,9	54,4	7
EL	0	167	273	550	1,6		101,5	5
E	55	412	944	2.997	9,0	76,8	217,5	8
F	284	722	1.024	2.463	7,4	29,3	140,5	4
IRL	25	88	158	289	0,9	44,6	82,7	8
1	266	2.240	3.863	6.422	19,2	70,8	66,2	11
L	1	13	27	45	0,1	115,5	67,7	11
NL	79	321	513	804	2,4	45,4	56,7	5
Α	72	278	347	563	1,7	36,8	62,2	7
Р	7	174	341	664	2,0	120,8	94,7	7
FIN	258	676	1.039	1.502	4,5	32,1	44,5	29
S	463	1.380	2.025	2.492	7,4	34,3	23,1	28
UK	1.140	3.940	5.736	7.109	21,2	38,1	23,9	12

Table 3: Cellular mobile telephone systems subscriptions



		- number	of lines -			- % -		
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	Lines / 100 Inhabitants
EU-15	25.208	1.618.295	2.714.130	::	100,0	154,9	*100,0	*1,5
В	208	9.039	28.071	54.555	1,6	166,7	94,3	0,5
DK	0	5.885	14.082	29.851	0,9		112,0	0,6
D	16.400	536.700	961.600	1.963.900	56,1	125,8	104,2	2,4
EL	0	0	0	469	0,0			0,0
E	0	5.392	28.012	96.040	2,7		242,9	0,2
F	6.600	920.000	1.278.000	::	::	186,7	::	::
IRL	0	0	0	0	0,0			0,0
1	0	15.225	49.061	104.578	3,0		113,2	0,2
L	0	306	1.656	3.911	0,1		136,2	0,9
NL	0	6.000	23.700	100.000	2,9		321,9	0,6
Α	0	3.949	16.813	42.018	1,2		149,9	0,5
Р	0	1.827	7.891	19.729	0,6		150,0	0,2
FIN	0	10.972	25.544	27.200	0,8		6,5	0,5
S	0	10.000	19.700	::	::		::	::
UK	2.000	93.000	260.000	::	::	164,7	::	::

Table 4: ISDN (Integrated Services Digital Network) subscriber lines

\* Estimation

The number of ISDN subscriber lines continued to rise Netherlands (+322%) and Spain (+243%). Germany highest growths in 1996 were recorded in the of ISDN lines.

dramatically in 1996, by more than a 100 %. The and France have clearly the highest number and density

#### Investments in telecommunications 3.

		- Mio	ECU-		-%-
	1990	1994	1995	1996	Invest./ Turnov.(1)
EU-15	::	31.989	31.299	35.494	29
В	657	866	878	868	29
DK	414	377	416	557	17
D	9.383	10.652	9.430	11.838	40
EL	297	534	515	583	31
E	5.574	2.420	2.564	3.418	43
F	::	3.981	4.980	4.677	24
IRL	229	217	237	335	21
1	6.383	4.614	3.605	4.640	37
L	48	54	57	124	32
NL	1.169	1.235	1.253	1.133	23
Α	1.108	1.259	1.221	702	40
P	562	381	352	461	28
FIN	643	470	642	681	31
s	1.032	775	972	799	
UK	3.864	4.154	4.177	4.678	

Table 5: Gross investment in telecommunication services, incl. land and buildings

The share of telecommunications of total investment is around 3%, which is very high compared to its share of GDP. In 1996 the average level of investments in telecommunications services rose in most of the Member States, with Luxembourg increasing it's investments by over 100% in ECU terms. In 1996 investments fell France, Austria, Belgium, Netherlands and in Sweden. High investment rates in relation to turnover in the 90's were recorded in Spain, Germany and Austria. The lowest rates were those of Denmark, UK and Sweden.

(1) On the average in the 90's.



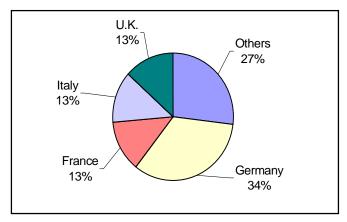


Figure 3: Share of the EU total investment in 1995 by country

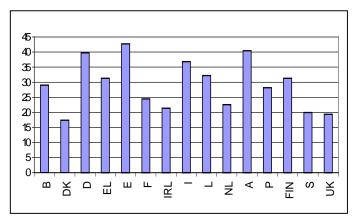


Figure 4: Investments: average percentage of turnover by country in the 90's

#### 4. Employment in telecommunications

There has been a general downward trend in employment in the telecommunications sector in the 90's, which continued in 1996 with the largest falls registered in Sweden (-16,4%), Portugal (-6,2%) and Germany (-5,5%). Bearing in mind the growing turnover

in the branch this implies a rapid improvement in the productivity of labour. Some of this development can be attributed to outsourcing related to privatising. Turnover per employee seems to be highest in Luxembourg and Sweden, as illustrated in Figure 5.

		- number of	employee -			- % -		-thousand ECU-
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	Turnov.96/ Employee
EU-15	1.002.661	932.003	887.784	868.419	100,0	-2,4	-2,2	156
В	26.295	26.049	26.012	26.193	3,0	-0,2	0,7	135
DK	17.862	16.435	16.235	15.663	1,8	-1,9	-3,5	202
D	212.205	231.000	220.000	208.000	24,0	0,7	-5,5	159
EL	28.086	26.140	24.581	23.808	2,7	-2,6	-3,1	104
E	75.350	74.697	70.885	72.386	8,3	-1,2	2,1	127
F	155.814	167.880	167.600	166.401	19,2	1,5	-0,7	129
IRL	13.544	12.662	11.707	11.560	1,3	-2,9	-1,3	121
I	117.986	105.500	101.900	100.005	11,5	-2,9	-1,9	181
L	812	870	800	816	0,1	-0,3	2,0	313
NL	29.262	31.671	30.548	29.690	3,4	0,9	-2,8	225
Α	18.415	17.832	17.800	17.878	2,1	-0,7	0,4	177
Р	23.563	20.989	19.845	18.617	2,1	-3,4	-6,2	128
FIN	20.067	14.978	16.084	16.551	1,9	-4,3	2,9	134
S	36.500	34.300	29.913	25.001	2,9	-3,9	-16,4	239
UK	226.900	151.000	143.000	141.000	16,2	-8,8	-1,4	160

Table 6: Total employment in telecommunications



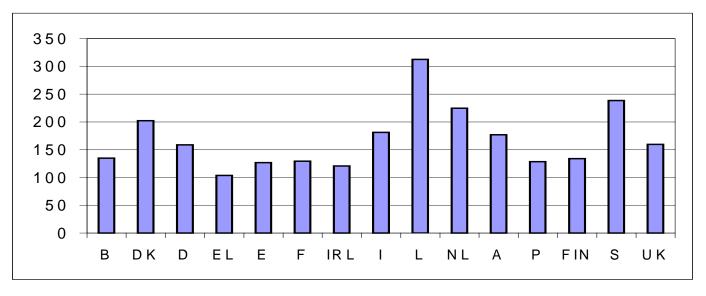


Figure 5: Turnover in thousand ECU, per employee in 1996

#### 5. Waiting list for main telephone lines

		- number	of lines -	
	1990	1994	1995	1996
EU-15	::	::	::	::
В	18.365	1.745	::	::
DK	0	0	0	0
D	25.530	::	::	::
EL	1.091.233	217.923	135.003	78.637
E	379.900	14.128	13.183	11.000
F	::	0	0	0
IRL	2.000	::	::	::
I	65.000	38.000	32.000	::
L	3.146	149	12	0
NL	20.000	::	::	::
Α	34.719	12.056	9.990	3.706
Р	222.404	16.701	6.419	7.642
FIN	0	0	0	0
S	0	0	0	0
UK	0	0	0	0

Table 7: Waiting list for main telephone lines

This indicator of the level of quality of service has reached zero in many countries and is quickly diminishing, where a waiting list still exists. As this ideal level is reached, it loses its relevance as an indicator.

#### 6. Outgoing international traffic

Outgoing international telephone traffic has grown very rapidly over the period, by almost 10% per year from

1990 to 1995 and 7% in 1996. The traffic per inhabitant was by far highest in Luxembourg.

		- Mio M	inutes -			- % -		- Minutes -
	1990	1994	1995	1996	1996/tot.	1990/95	1995/96	Traffic96/ Inhabitant
EU-15	13.617	19.883	21.677	23.198	100,0	9,7	7,0	62
В	731	1.049	1.106	1.166	5,0	8,6	5,4	115
DK	368	485	529	570	2,5	7,5	7,8	109
D	3.146	4.958	5.244	5.200	22,4	10,8	-0,8	64
EL	213	425	463	518	2,2	16,8	11,9	49
E	611	947	1.063	1.189	5,1	11,7	11,9	30
F	2.126	2.602	2.804	2.970	12,8	5,7	5,9	51
IRL	261	324	407	580	2,5	9,3	42,5	160
1	1.043	1.760	1.908	2.124	9,2	12,8	11,3	37
L	151	213	232	248	1,1	9,0	6,9	601
NL	905	1.346	1.459	1.534	6,6	10,0	5,1	99
Α	559	810	901	947	4,1	10,0	5,1	118
Р	156	263	300	340	1,5	14,0	13,3	34
FIN	186	258	315	332	1,4	11,1	5,4	65
S	631	820	878	941	4,1	6,8	7,2	106
UK	2.530	3.623	4.068	4.539	19,6	10,0	11,6	77

Table 8: Total outgoing international telephone traffic

#### > ESSENTIAL INFORMATION - METHODOLOGICAL NOTES

In the NACE Rev.1 statistical classification of economic activities in the European Community, the class 64.2. Telecommunications defined İS transmission of sound, images, data or other information via cables, broadcasting, relay or satellite. This includes telephone, telegraph and telex communication, maintenance of the network and transmission (transport) of radio and television programmes. In practice, usually

only the activities of telecommunication operators are included, sometimes only the incumbent operator. Broadcasting activities are, not separated from the main activity of production of radio and television programmes, included in the class 92.20. New telecomms-related services are usually classified in business services classes 72 or 74.

With the opening of the market to competition, confidentiality issues have

become more problematic and data collection for the database is growing more difficult. This has led to the use of various sources in complementing the data, usually using figures of the ITU to fill in gaps in the time series produced by the national statistical systems. Although a general conformity of the data has been checked, changes between individual years may be due to varying sources. Still the general picture given is reliable.



### Further information:

Language required:  $\square$  DE  $\square$  EN  $\square$  FR

#### Data bases

**New Cronos** 

Domain: Theme 4, COINS

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☐ Theme 6 'Exter	nal trade'		☐ Visa ☐ Euroo Card No:		. 1
Theme 8 'Envir	onment and energy UR □ PDF: 60 EUR □			ra-Community VAT number	:/

reimbursement will not be possible.