

COST
605

Econ@Tel. A Telecommunications Economic COST Network

WG2 meeting. Lisbon. 24-26 November 2008

UNIVERSAL SERVICE IN A BROADER
PERSPECTIVE :
THE EUROPEAN DIGITAL DIVIDE

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Introduction

- ✓ Universal service is the figure guaranteeing individual access to all citizens to those services which are considered basic

However, access is just one of the variables that determine the width of the *digital divide*



Adoption is the other one

Availability and affordability of communication services
*as well as the skills and knowledge needed to make the most
of the opportunities their usage can generate*

draw digital divides between regions as well as within countries

Introduction

Clearly, the digital divide will not close itself by focusing exclusively on providing access

√ *Many Europeans still reap few or no benefits from ICT and there are **resilient gaps** in ICT use* (item 3 of the Riga Declaration)

★ A **European Initiative on eInclusion** has been released in 2008

▶ However, no report has been published stating any national comparisons combining the various aspects of the *digital divide*

▶ The possible causes of the actual scenario have not been investigated either

Structure

- Methodology
- The situation of the EU 27 in the indicators selected
- An assessment of the relative position of the member states
 - ▶ Cluster analysis
 - ▶ Synthetic index
- Variables explaining the factors
- Conclusions

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Methodology

1. Selection of a set of **indicators** for carrying out the measurement of the progress of the information society in the European Union
2. Value achieved by the member states in these classifications

The simple knowledge of over ten values does not facilitate obtaining any precise relative country situation images

3. Factorial analysis (instrumental)
4. Preparation of a **synthetic index**
5. **Cluster analysis**
6. **Statistical analysis** defining what socio-economic, demographic or cultural variables affect the situation described

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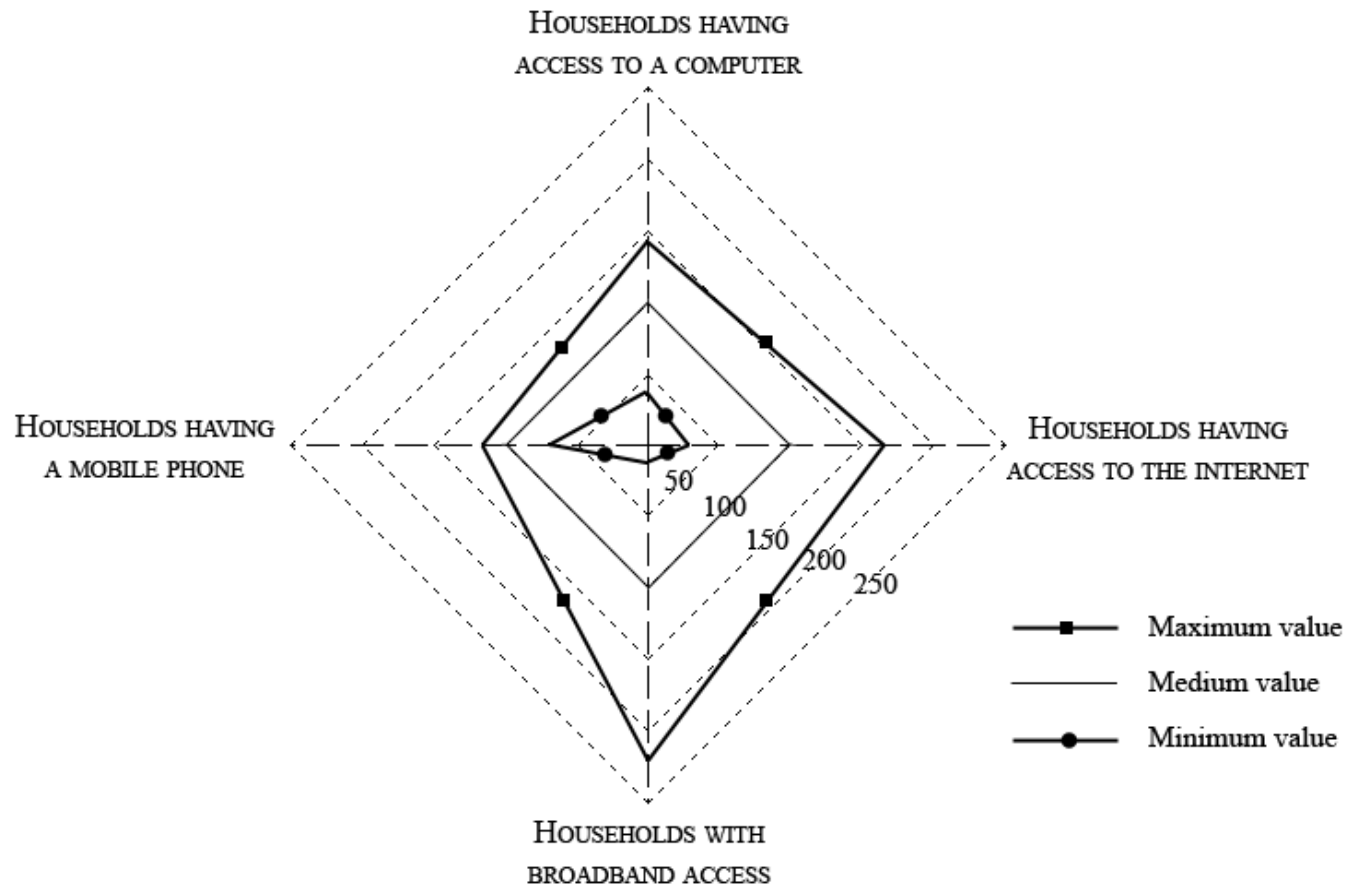
Indicators selected: three blocks

BLOCK	INDICATOR
BLOCK A: HOUSEHOLDS EQUIPMENT	Households having access to a computer(A_COM)
	Households having access to the Internet (A_INT)
	Households with broadband access (A_BA)
	Households having access to, via one of its members, a mobile phone (A_TM)
BLOCK B: ADOPTION BY INDIVIDUALS	Individuals using a computer (in the last three months) (B_COM)
	Individuals using the Internet (in the last three months) (B_INT)
	Individuals ordering goods or services, over the Internet, for private use (in the last three months) (B_BUY)
BLOCK C: USE OF eGOVERNMENT BY INDIVIDUALS	Individuals using the Internet for obtaining information from public authorities web sites (in the last three months) (C_OBT)
	Individuals using Internet for downloading official forms (in the last three months) (C_DOW)
	Individuals using Internet for sending filled forms in the last three months (C_SEN)

Equipment

Position	Member state	Households having a computer	Households having Internet	Households with broadband access	Households having a mobile phone	VALUE_ICT BLOCK A
1	NETHERLANDS	133.33	163.27	220.00	108.24	156.21
2	DENMARK	141.67	161.22	210.00	109.41	155.58
3	SWEDEN	136.67	157.14	170.00	111.76	143.89
4	FINLAND	118.33	132.65	176.67	114.12	135.44
5	LUXEMBOURG	128.33	142.86	146.67	110.59	132.11
6	UNITED KINGDOM	118.33	128.57	146.67	105.88	124.86
7	GERMANY	128.33	136.73	113.33	101.18	119.89
8	BELGIUM	95.00	110.20	160.00	100.00	116.30
9	MALTA	101.67	108.16	133.33	102.35	111.38
10	SLOVENIA	108.33	110.20	113.33	105.88	109.44
11	AUSTRIA	111.67	106.12	110.00	105.88	108.42
12	ESTONIA	86.67	93.88	123.33	102.35	101.56
13	SPAIN	95.00	79.59	96.67	103.53	93.70
14	FRANCE	93.33	83.67	100.00	95.29	93.08
15	IRELAND	98.33	102.04	43.33	105.88	87.40
16	LATVIA	68.33	85.71	76.67	100.00	82.68
17	PORTUGAL	75.00	71.43	80.00	101.18	81.90
18	ITALY	80.00	81.63	53.33	109.41	81.09
19	HUNGARY	83.33	65.31	73.33	98.82	80.20
20	CYPRUS	86.67	75.51	40.00	107.06	77.31
21	POLAND	75.00	73.47	73.33	87.06	77.22
22	LITHUANIA	66.67	71.43	63.33	94.12	73.89
23	CZECH REPUBLIC	65.00	59.18	56.67	101.18	70.51
24	SLOVAKIA	83.33	55.10	36.67	100.00	68.78
25	GREECE	61.67	46.94	13.33	92.94	53.72
26	BULGARIA	35.00	34.69	33.33	75.29	44.58
27	ROMANIA	43.33	28.57	16.67	68.24	39.20

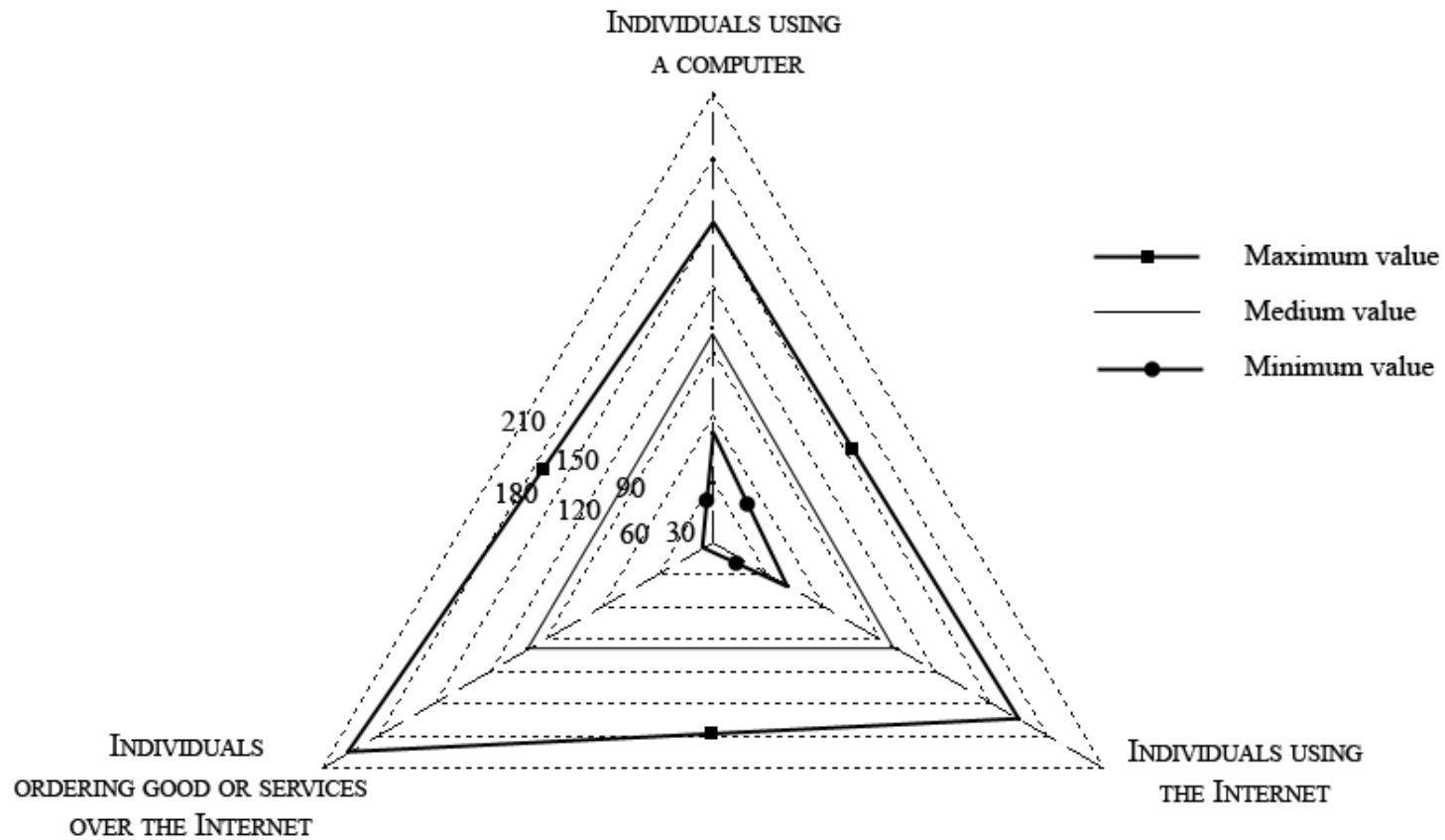
Equipment



Adoption

Position	Member state	Individuals using a computer	Individual using the Internet	Individuals ordering goods or services over the Internet	VALUE_ ICT BLOCK B
1	SWEDEN	147.46	165.38	195.00	169.28
2	NETHERLANDS	142.37	155.77	180.00	159.38
3	DENMARK	145.76	159.62	155.00	153.46
4	GERMANY	128.81	132.69	190.00	150.50
5	UNITED KINGDOM	123.73	126.92	190.00	146.88
6	LUXEMBOURG	128.81	136.54	175.00	146.78
7	FINLAND	135.59	148.08	145.00	142.89
8	AUSTRIA	115.25	117.31	115.00	115.85
9	BELGIUM	113.56	119.23	70.00	100.93
10	IRELAND	98.31	98.08	105.00	100.46
11	FRANCE	93.22	90.38	95.00	92.87
12	ESTONIA	105.08	117.31	20.00	80.80
13	SLOVENIA	96.61	98.08	40.00	78.23
14	SLOVAKIA	103.39	96.15	35.00	78.18
15	SPAIN	91.53	92.31	50.00	77.94
16	LATVIA	89.83	96.15	25.00	70.33
17	CZECH REPUBLIC	88.14	84.62	35.00	69.25
18	POLAND	81.36	76.92	45.00	67.76
19	HUNGARY	91.53	86.54	25.00	67.69
20	MALTA	72.88	73.08	45.00	63.65
21	LITHUANIA	79.66	80.77	10.00	56.81
22	ITALY	72.88	69.23	25.00	55.70
23	PORTUGAL	71.19	69.23	25.00	55.14
24	CYPRUS	74.58	65.38	25.00	54.99
25	GREECE	64.41	55.77	15.00	45.06
26	BULGARIA	50.85	46.15	10.00	35.67
27	ROMANIA	50.85	40.38	5.00	32.08

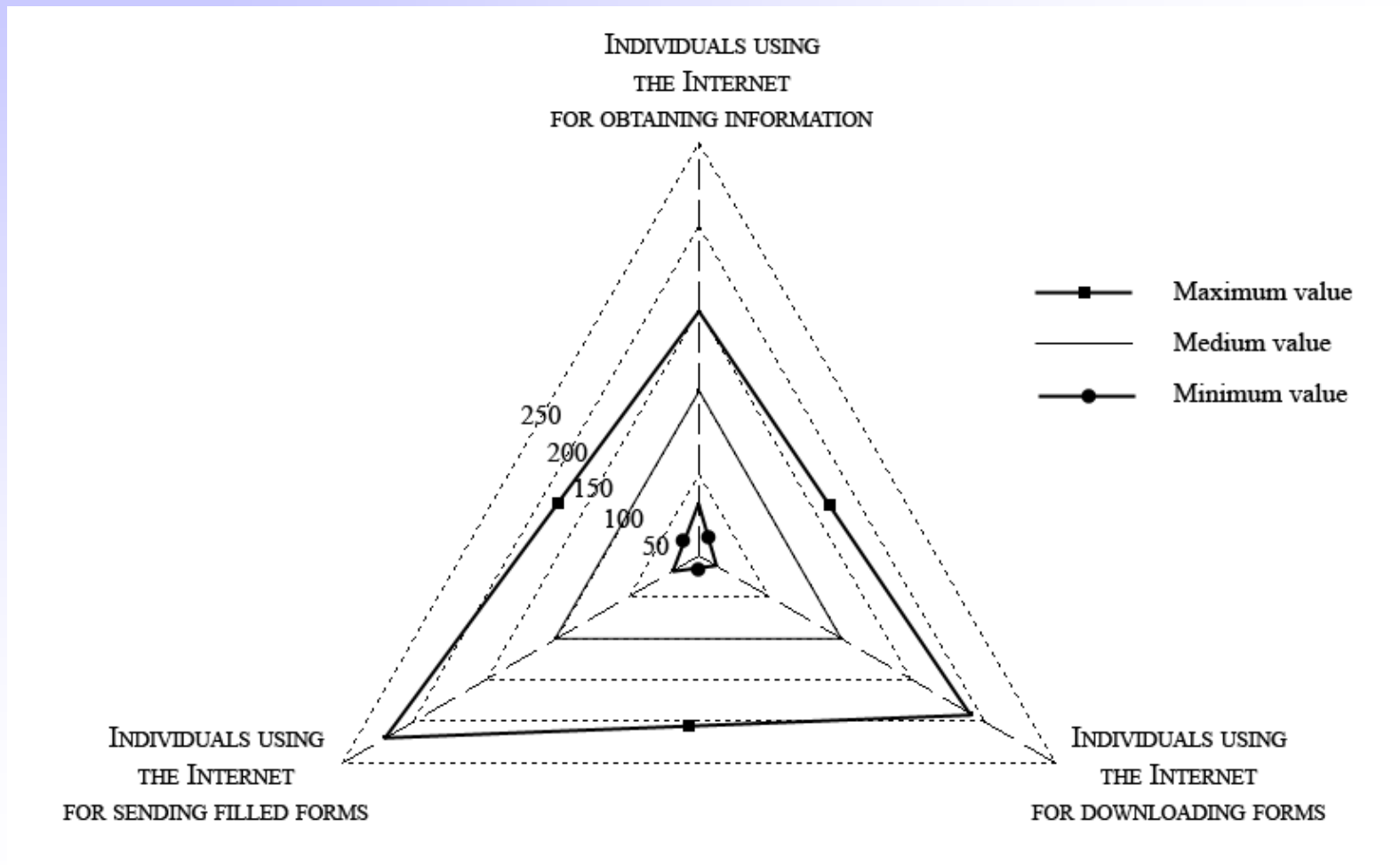
Adoption



Interaction with the government (e-government)

Position	Member state	Individuals obtaining information	Individuals downloading forms	Individuals returning filled forms	VALUE ICT BLOCK C
1	NETHERLANDS	139.56	132.68	219.76	164.00
2	LUXEMBOURG	125.80	191.73	146.11	154.55
3	SWEDEN	146.93	148.43	157.49	150.95
4	IRELAND	102.70	146.46	167.66	138.94
5	PORTUGAL	96.81	118.50	193.41	136.24
6	FRANCE	127.76	120.08	150.90	132.91
7	FINLAND	128.75	146.46	116.17	130.46
8	ESTONIA	106.88	111.42	167.07	128.45
9	AUSTRIA	116.22	142.91	118.56	125.90
10	SLOVAKIA	135.14	132.28	87.43	118.28
11	SLOVENIA	135.14	134.25	74.25	114.55
12	DENMARK	116.71	95.28	122.16	111.38
13	SPAIN	121.38	111.81	87.43	106.87
14	ITALY	100.74	116.14	82.04	99.64
15	GERMANY	98.53	99.61	81.44	93.19
16	HUNGARY	74.45	100.00	70.66	81.70
17	LATVIA	109.83	59.84	71.86	80.51
18	CYPRUS	86.73	88.98	60.48	78.73
19	LITHUANIA	73.46	63.39	87.43	74.76
20	BELGIUM	101.47	48.82	71.86	74.05
21	MALTA	85.26	81.89	53.89	73.68
22	CZECH REPUBLIC	89.43	66.93	41.32	65.89
23	POLAND	75.18	64.17	43.71	61.02
24	BULGARIA	57.49	60.63	58.08	58.74
25	UNITED KINGDOM	82.06	42.13	43.11	55.77
26	GREECE	47.17	12.60	44.31	34.69
27	ROMANIA	31.20	18.50	17.37	22.36

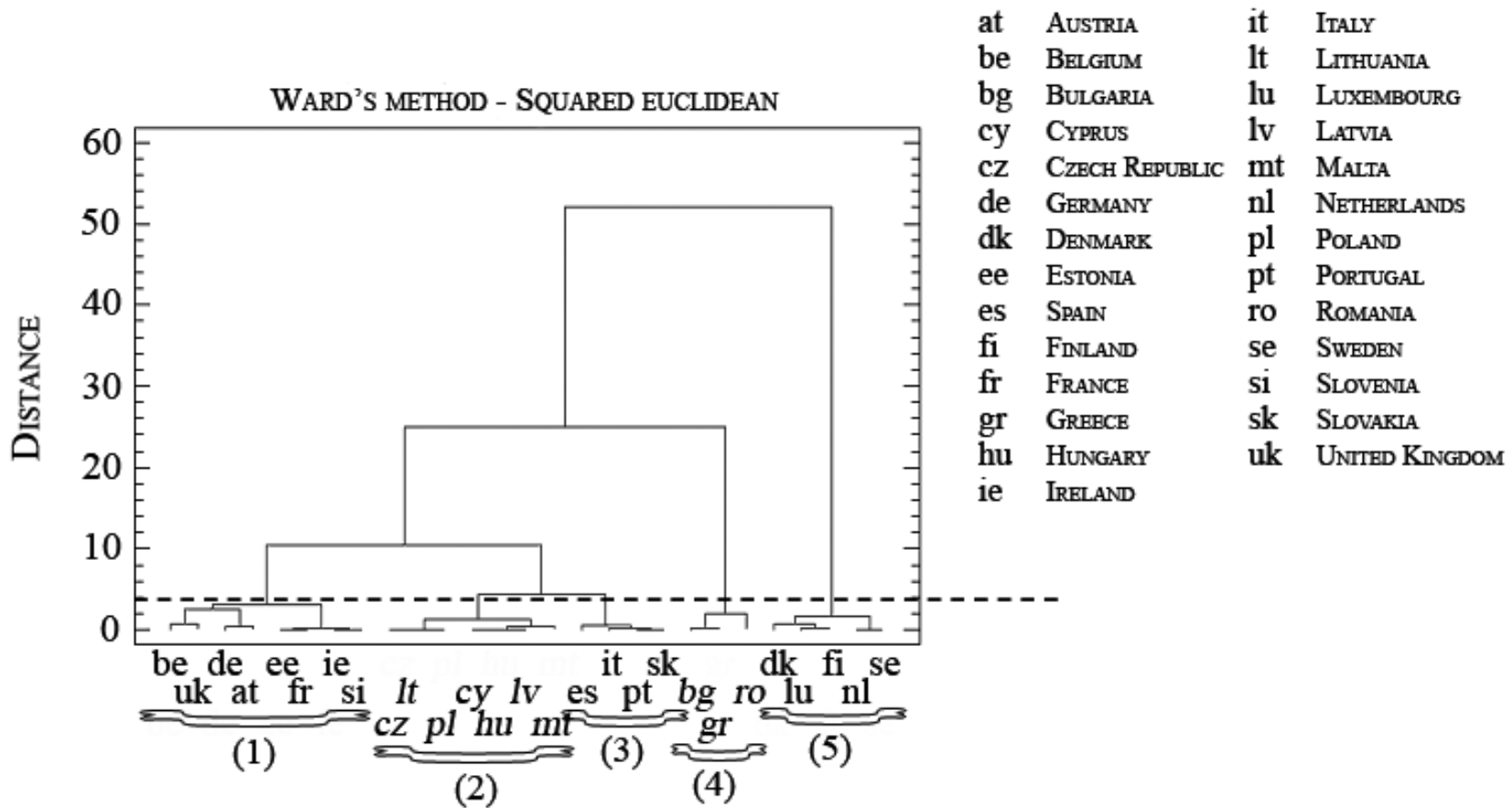
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Cluster analysis



Synthetic index

Member state	Factor 1	Factor 2	IISS	IISS_Mod	Group		
NETHERLANDS	10.91	7.65	8.98	1683.96	1		
SWEDEN	10.81	7.41	8.87	1663.57	1		
DENMARK	9.88	4.80	7.87	1476.71	1		
LUXEMBOURG	7.96	6.47	6.65	1248.04	2		
FINLAND	7.84	5.34	6.43	1205.66	2		
GERMANY	5.65	1.92	4.41	826.38	2		
UNITED KINGDOM	4.85	-0.30	3.54	664.55	2		
AUSTRIA	3.40	3.04	2.88	539.48	2		
BELGIUM	1.87	-0.63	1.31	245.06	3		
SLOVENIA	1.36	1.96	1.24	233.20	3		
IRELAND	0.68	2.47	0.80	149.35	3		
ESTONIA	0.62	1.75	0.67	125.58	3		
EU 27	0.68	0.27	0.53	100.00			
FRANCE			0.06	1.51	0.23	42.96	3
SPAIN			-0.65	0.48	-0.42	-79.67	3
MALTA			-1.31	-1.72	-1.17	-220.16	3
SLOVAKIA			-2.14	0.55	-1.51	-283.98	3
LATVIA			-2.68	-1.93	-2.21	-414.06	4
PORTUGAL			-3.34	0.37	-2.42	-454.20	4
ITALY			-3.33	-0.75	-2.55	-477.69	4
HUNGARY			-3.38	-2.22	-2.76	-518.01	4
CYPRUS			-4.12	-2.25	-3.31	-620.87	4
CZECH REPUBLIC			-4.34	-3.28	-3.60	-674.93	4
POLAND			-4.69	-4.35	-3.99	-747.97	4
LITHUANIA			-5.04	-3.59	-4.15	-778.16	4
GREECE			-8.62	-7.19	-7.23	-1355.80	5
BULGARIA			-10.68	-7.48	-8.79	-1648.22	5
ROMANIA			-12.27	-10.30	-10.29	-1930.78	5

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Factor 1 for households

Equipment, except the mobile telephony indicator, plus adoption

Variables	Model
Per capita GDP	0.0560996 *** (0.0125135)
Adult participation in lifelong learning	0.35326 *** (0.0921529)
Density of population	0.00450963 ' (0.00225359)
Employment rate	0.242028 ' (0.136866)
Intercept	-25.2938 ** (8.23464)
R ²	84.2553 %
R ² (adjusted by degrees of freedom)	81.5171 %
F-Snedecor	30.77

Standard error is shown between brackets
*** p < 0,001 ** p < 0,01 * p < 0,05 ' p < 0,1

Factor 2 for households

Electronic interaction with the government plus mobile telephony indicator

Variables	Model
Factor 1 for households	0.672668 *** (0.0467691)
Intercept	-0.00000356108 (0.279696)
R ²	88.8347 %
R ² (adjusted by degrees of freedom)	88.4052 %
F-Snedecor	206.86

Standard error is shown between brackets
*** p < 0,001 ** p < 0,01 * p < 0,05 ' p < 0,1

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Descriptive part: classifications

- The classifications are headed by the *Netherlands* and the *Nordic countries* (particularly by Sweden and Denmark)
- These are followed by the *Central European countries* (and particularly by Luxembourg) and the *United Kingdom*
- With values close to the European average, *Ireland* also exceeds the central values while, of the countries entering the Union in May 2004, only *Slovenia* and *Estonia* stand out
- Below the average, the *south of the EU 15* (Spain, Italy, Portugal and Greece) are mixed with the *penultimate extension*, with Malta, Slovakia and Latvia obtaining the best records
- *Bulgaria* and *Romania* close, almost without exception, the lists of all the indicators, and in many cases at quite a distance from the rest

Qualitative conclusions

The situation exposed shows a few striking data but no major surprises



The *digital divide* is not a new phenomenon

The *per capita income* appears as a determinant variable in the models

✓ The remaining variables selected in the models shed more light

Other barriers are:

- ▶ A smaller number of adults under preparation
 - ▶ The dispersion of population
 - ▶ Unemployment

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