

Public Internet Access in Serbia and Montenegro



Ranko Nedeljkovic¹, Dragan Bogojevic²,
Slobodan Lazovic³

¹Serbia and Montenegro Statistical Office,

²VF Holding a.d. Belgrade,

³Faculty of Traffic and Transportation Engineering,
University of Belgrade

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Contents



1. Introduction
2. Serbia and Montenegro (SMN): main facts
3. SMN Population: urban and rural
4. SMN Official Statistics for ICT
5. SMN Universal Service (ICT indicators): Fixed Telephony; Mobile Telephony; Cable TV Networks; Computers
6. Internet Access
7. Public Internet Access
8. SMN PIACs
 - 8.1. Other PIAC (Internet Cafes)
 - 8.2. DCC
 - 8.3. Education centers
9. PIAC Comparison: SMN and new EU10 countries
10. Proposal for Information Society Model for Developing Countries
11. Telecommunications Information Penetration (TIP): new indicator for Digital Divide
12. Conclusion
13. References

Serbia and Montenegro: main facts



AREA	km²
Total	102173
Montenegro	13812
Serbia	88361
Central Serbia	55968
Vojvodina	21506
Kosovo and Metohia*	10887

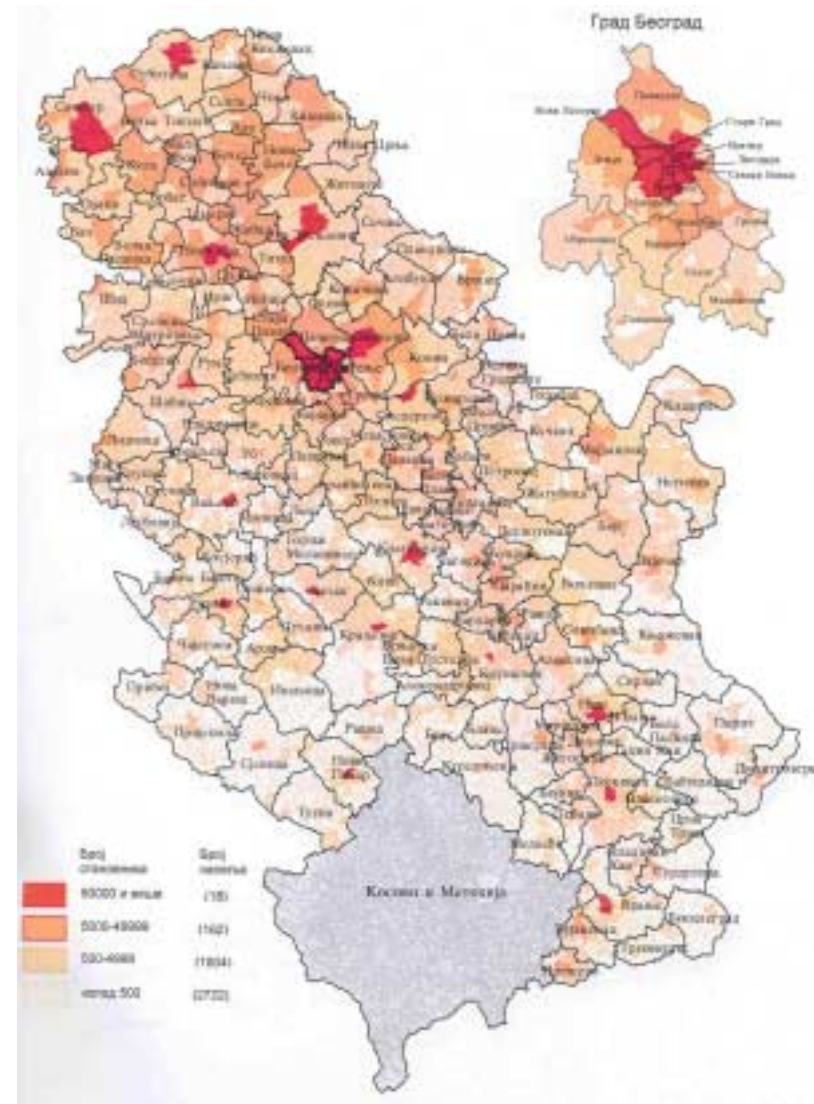
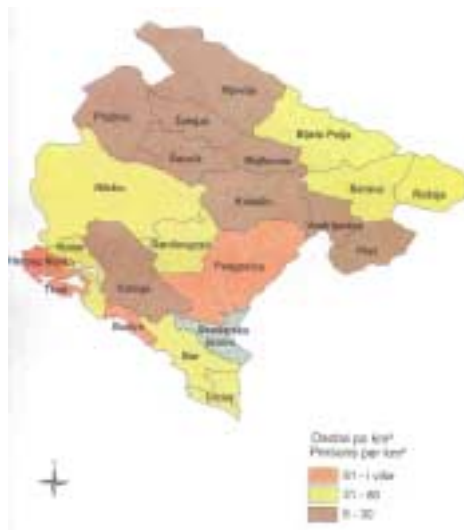
*Part of Serbia under United Nations jurisdiction

HOUSEHOLDS AND POPULATION ACCORDING TO CENSUSES

	<i>Households, thousands</i>	<i>Population, thousands</i>	<i>Population, per 1 km²</i>	<i>Persons per HH</i>
2002	2790	8066	88	2,9

SMN Urban & Rural Population

	<i>Urban %</i>	<i>Rural %</i>
1991	51.2	48.8
2002	56.8	43.2



Urban and Rural Localities

Towns over 500 000: 1
Belgrade 1.576.124



Towns over 50 000 inhabitants: 19

Towns 10.000 – 49.999: 63

Urban 2.500 – 9.999: 77

Urban < 2.500 34



Other (rural) settlements 7.190

TOTAL 7.410

SMN Universal service (ICT indicators)



per household (SMN: 2.790.000 HH):

Indicator	2002 (source WDI [6])		2004 national sources ([7], [8], [9])	
	Number	% HH	Number	% HH
Electricity	-		34 billion kWh	
Radio	2.396.000	85.9%		
Television	2.275.000	81.5%		
Telephone:				
– only fixed	1.876.000	67.2%	2.626.339	94.1%
– only mobile	2.070.000	74.2%	4.303.807	154.6%
– fixed and mobile	3.946.000	141.4%	6.930.146	248.4%
Computer	218.580	7.8%	500.000	17.9%
Internet access	483.940	17.3%	680.000	24.4%
Cable TV	200.000*	7.2%	300.000**	10.8%

* source [10]

** source [11]

TELECOMMUNICATIONS 2004

Fixed telephony

	Serbia	Monte Negro [9]	SCG
Subscribers	2.456.037	170.302	2.626.339
ISDN B chanells	64.380	7.550	71.930
ISDN BRI (2B+D)	19.860		
ISDN PRI (30B+D)	822		
X.25/X.28	208		
Frame Relay	914		
Internet backbone	191		

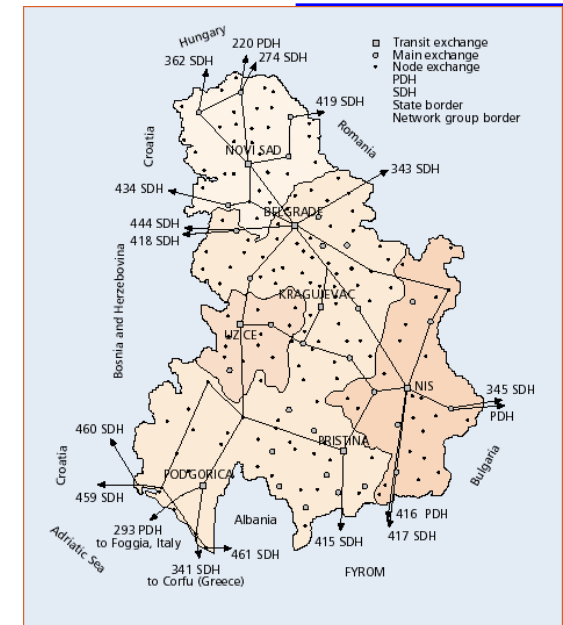
Mobile telephony

	064 [7] & 063 [8]	067+069 [9]		
subscribers	2.033.807+	1.900.000	370.000	4.303.807
covered area	78%;	90%		
population	94%;	95%		
base stations	466;	700		

CATV [12] 300.000 [12] - 300.000

Internet [12], [9] 640.000 40.000 680.000

Public Internet Access in Serbia and Montenegro



Public Internet Access



Digital Community Centers DCC	0
Education Centers	6
Other (PIAC)	53

SMN PIACs

Public Internet Access Centers

Source: Authors investigations

Internet cafes

Urban > 500.000 Belgrade (14)

50.000 > 499.999 Novi Sad (8), Subotica (5), Nis (4), Smederevo (3), Pancevo (3),
Kragujevac (2), Cacak (2), Zrenjanin (1), Sabac (1)
Total 29

10.000 > 49.999 Vrsac (1), Loznica (1), V. Plana (1), Sm. Palanka (1), Jagodina (1),
Despotovac (2)
Total 7

2.500 > 9.999 Sokobanja (1), Palic (1), Kopaonik (1)
Total 3

Education Centers

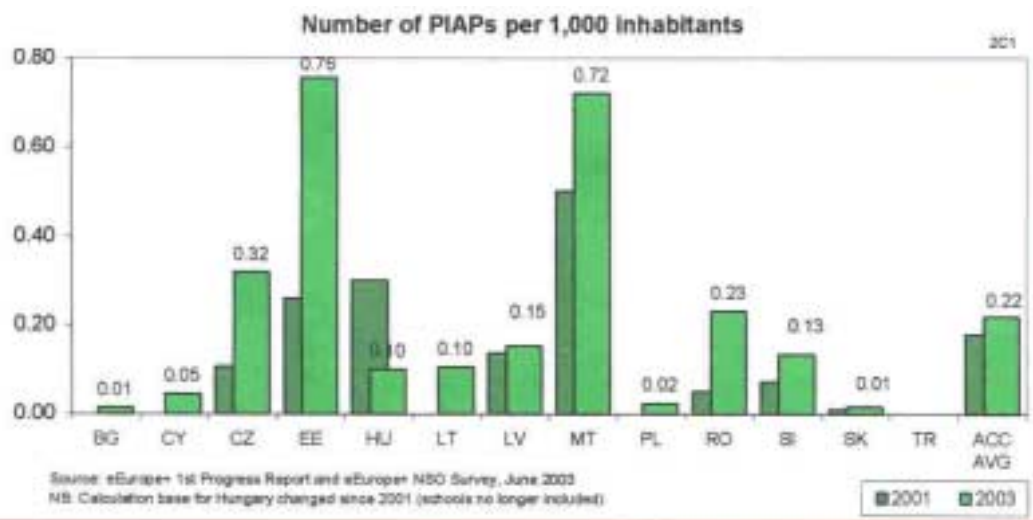
Urban > 500.000 Belgrade (4) (Belgrade library, ETF, SF, FON)

50.000 > 499.999 Cacak (2) (City library, Technical faculty)

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PIAC Comparison: SMN and new EU 10 countries



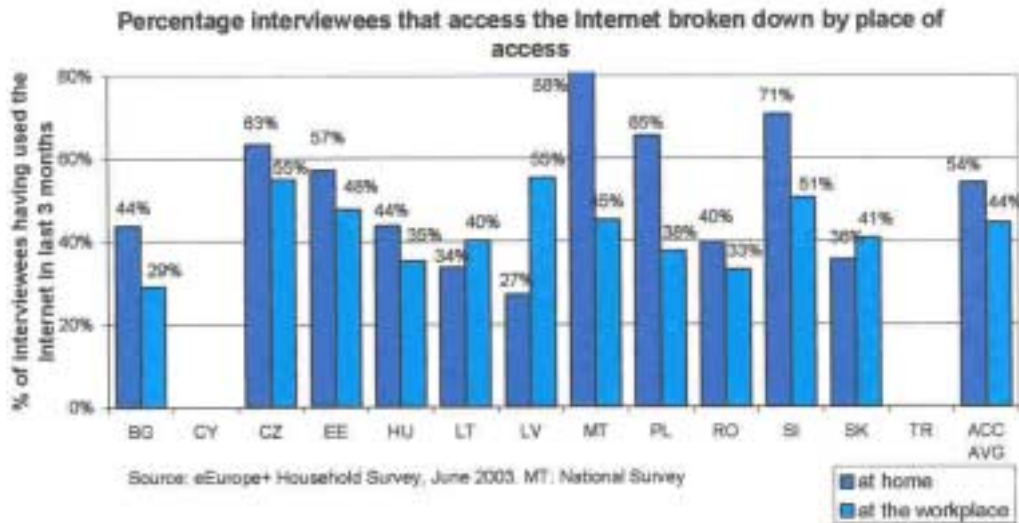
PIAPs per 1000 inh.

SMN: 0.007

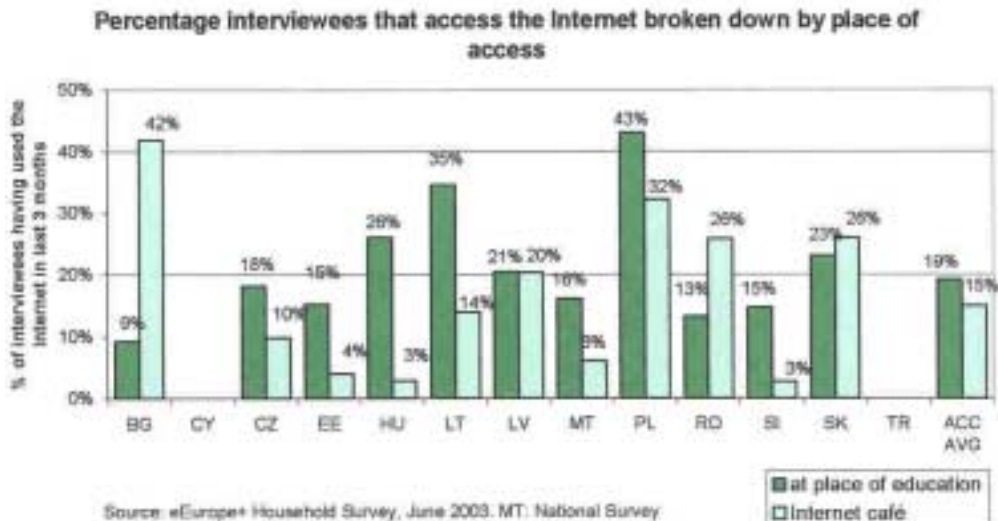
Level of Bulgaria and Slovakia (0.01)

Source [13]

Location of access: SMN and new EU 10 countries



Source [13]



Source [15], sample 1515, Serbia, Nov. 2001

Location of Access

SMN:

at home: 33%

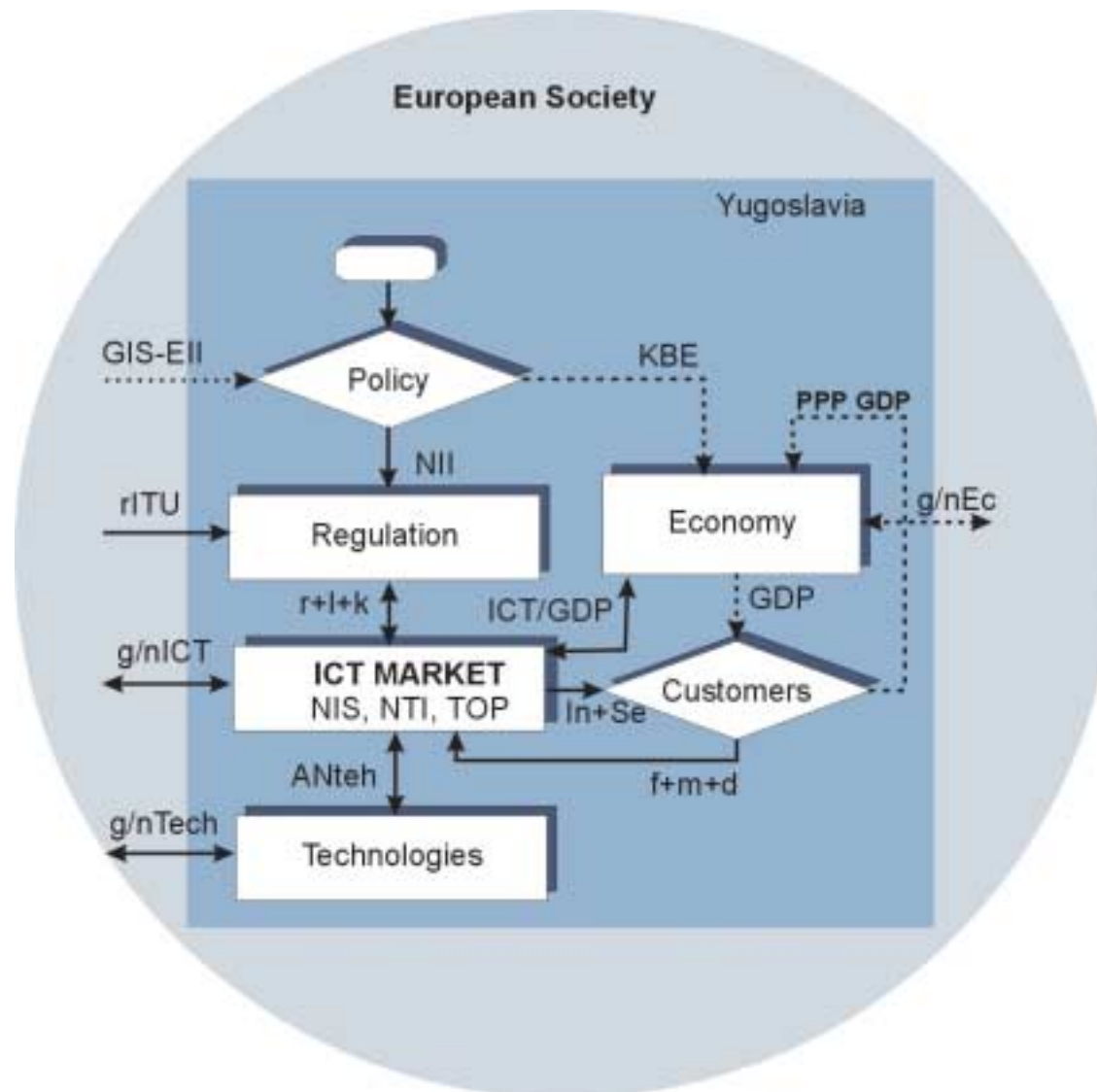
at the workplace 30%

at home & workplace 23%

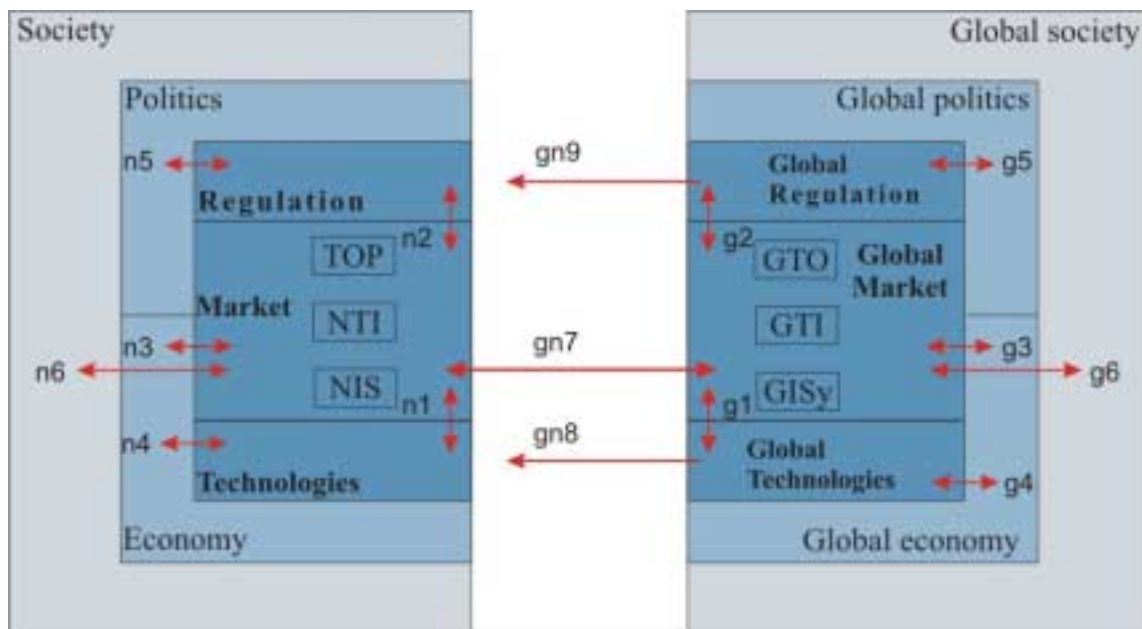
other 13%

Use Internet 12%

Proposal: Information Society Model for Developing Countries



Indicators



100 indicators in 6 groups:

- ❑ Society 10
- ❑ Economy 5
- ❑ Telecommunications 47
- ❑ ICT market 22
- ❑ IT indicators 7
- ❑ R&D indicators 9

Relations

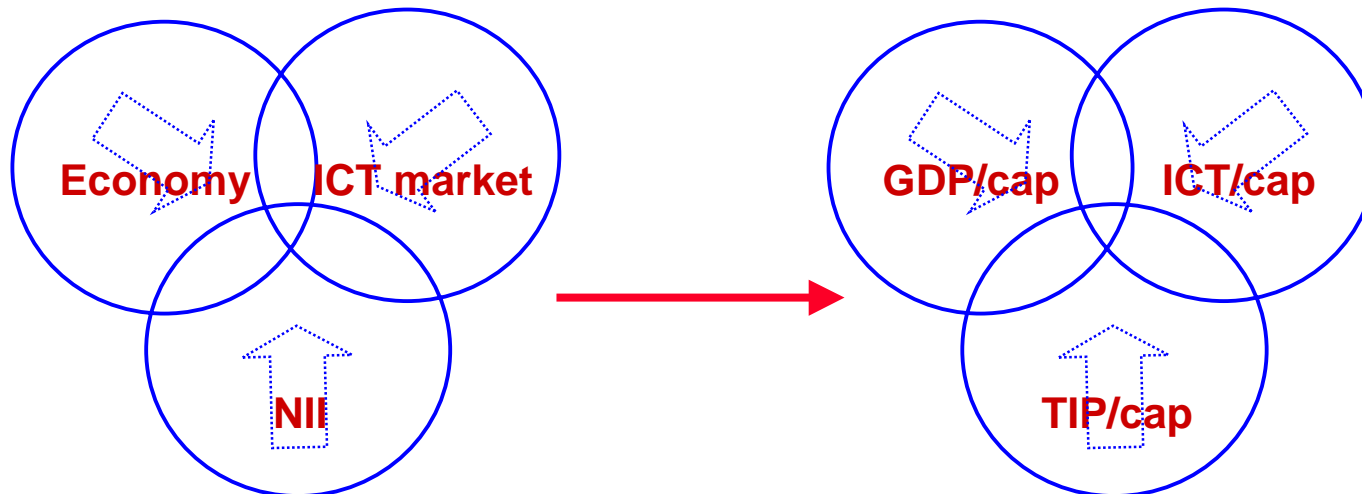
□ Adequate Telecommunications Development:

$$Tel_{adeq} = NII_{adeq} = TIP_{adeq}$$

□ We study relations between:

- TIP: telecommunications information penetration;
- GDP: per capita gross domestic product and
- ICT: information communication technology market

$$TIP_T = f(TIP_{T-1}, GDP_T, ICT_T), T=1996-2002$$



TIP (pcTIP)

Telecommunications Information Penetration

Parameter **TIP**, (per 100 inhabitants *pcTIP*), includes:

- ❑ MTL: Main Line per 100 inhabitants,
- ❑ Mob: Mobile subscribers per 100 inhabitants,
- ❑ CaTV: Number of CaTV subscribers per 100 inhabitants
- ❑ PC: Number of PCs per 100 inhabitants
- ❑ Int: Internet users per 100 inhabitants.

$$TIP = MTL + Mob + CaTV + PC + Int$$

$$pcTIP = pcMTL + pcMob + pcCaTV + pcPC + pcInt$$

Analytical formulation for TIP and pcTIP

$$\underline{TIP_{ad} = f(t, TIP_{t_0}, GDP, mICT, TEH, REG)}$$

$$\underline{pcTIP_{ad} = f(t, pcTIP_{t_0}, pcGDP, pcICT, TEH, REG)}$$

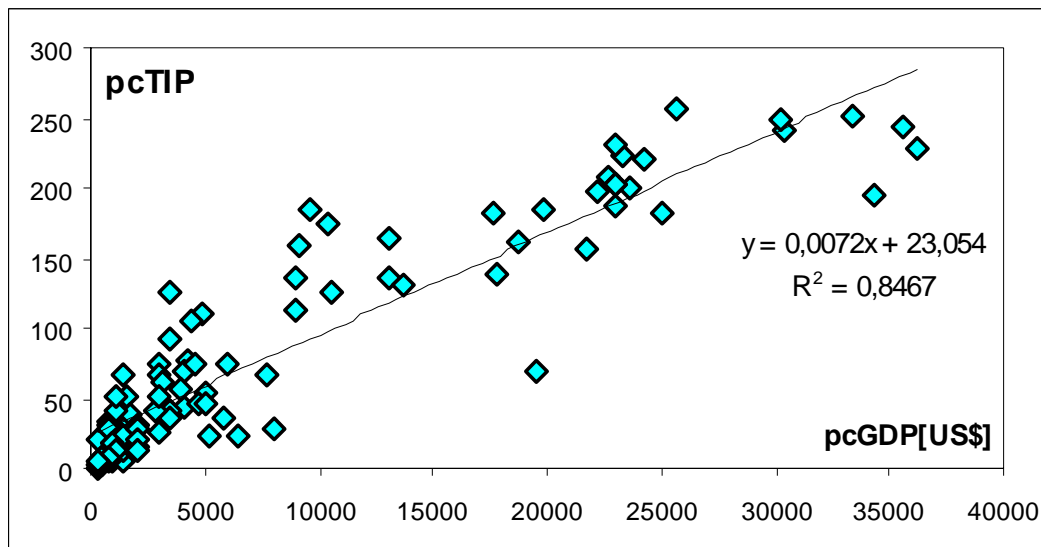
$$GDP = \Sigma (\text{national income})$$

$$pcGDP = GDP/POP$$

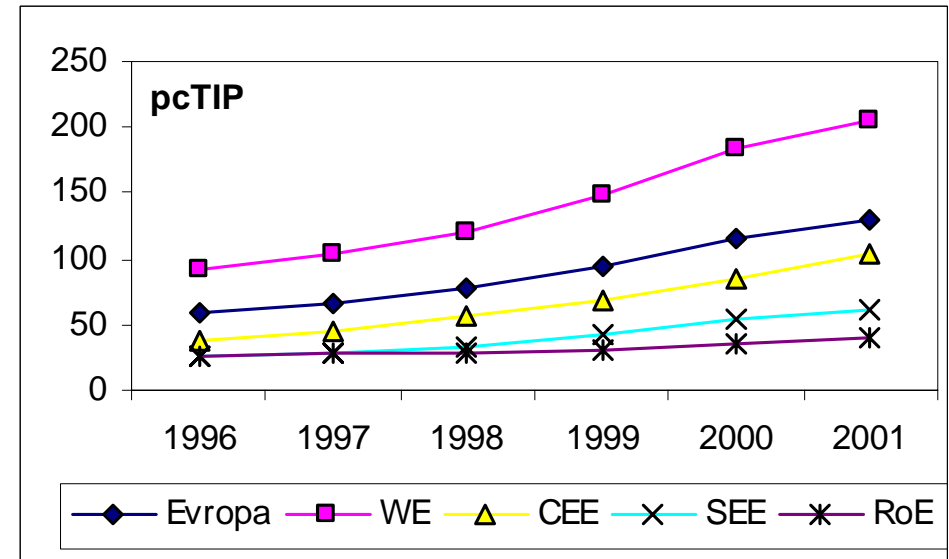
$$mICT = mIT + mTT$$

$$pcICT = pcIT + pcTT = mICT/POP$$

TIP: new indicator for Digital Divide ?

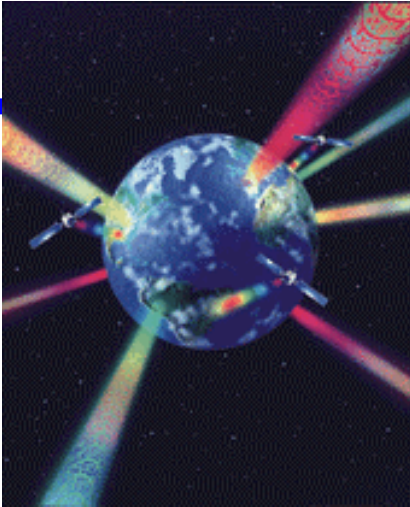


Source [14]



Source [14]

Conclusions



- Serbia and Montenegro: very³ specific country (countries)
- Telecommunications: mobile overtakes fixed telephony
- PIAC: only Internet cafes in large cities
- Other (rural) settlements: no PIACs
- Strong government role for telecommunications, but weak for public Internet access
- New indicator: Telecommunications Information Penetration
- New telecommunications development model for developing countries

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