

ICT AND RURAL MUNICIPALITIES REVISITED: ARE THEIR WEBSITES REALLY THE CORE NODES OF LOCAL SOCIAL NETWORKS?

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Domain(s) of the project

- Research project TIROLS
- *Experience and investigations in:*
- „Information Society / Knowledge Economy”:
ICT vs. socio-economic development
- Social networks
- Local communities
- Local self-governmental authorities / Websites
of the local authorities and the networks
around them
- *Methods of study: graph theory, clustering,
regression models, etc.*

ICT promises for rural areas

- **distance learning**, that would allow for catching up in educational level with the urban areas,
- **distance work**, allowing for moving of jobs (far) out into the countryside, even to the periphery,
- **e-administration**, facilitating administrative functions, especially in thinly populated areas,
- **marketing to the end customers** – not only rural tourism and leisure, but also health food and regional products, as well as anything else that countryside can offer,
- **business-to-business marketing and networking**, allowing for effective cooperation across farther distances than otherwise, also within broader business communities.

ICT and its local role

- Has the friction of space (distance) been overcome?
- Or is it simply *general socio-economic development → ICT penetration and uptake → general socio-economic development* feedback loop?
- What are the **preconditions for the effective functioning of this loop**, and so:
- What can be done on a local scale to make it work „properly“?

The suggested preconditions

- **Level of wealth** (purchase of equipment, service, provision + level of demand)
- **Level of education** (understanding of significance, capacity to use and degree of use)
- **Nature of activity** („distance” from the primary activities)
- **Location** (provision, transport & communication for direct interaction, functional character of locality)
- **„Networking”** (need, effectiveness and intensity of contacts, character of interaction, span & reach of contacts, level of trust)

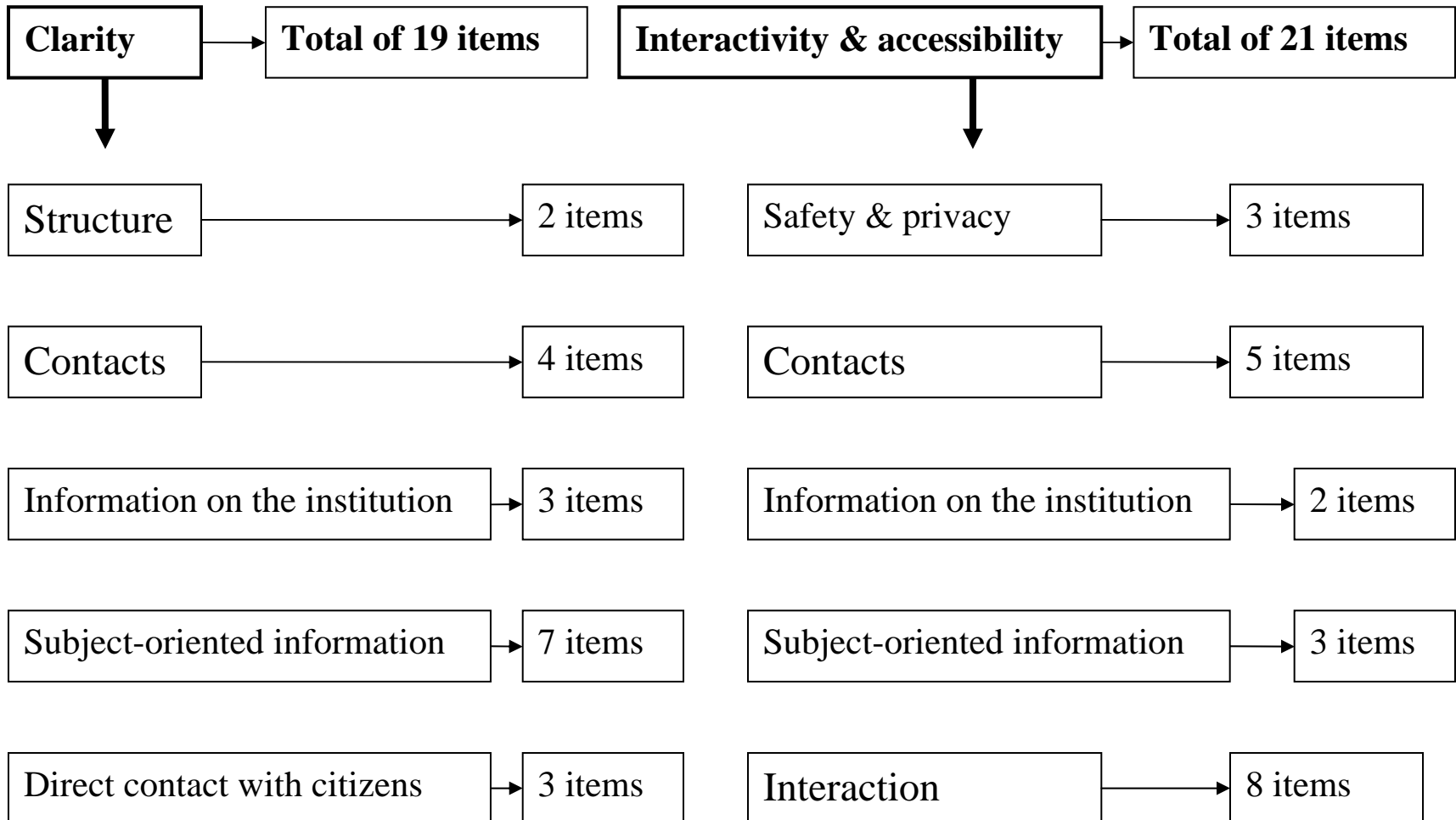
A community effect...?

- Given these preconditions, there must be a distinct community-level (not just individual- or household-level) effect...
- ...both in terms of „statistics” (averages and their comparison) – in fact, at any level, and...
- ...in terms of the concrete structure of a community (economic, social, professional,..., networking)

The work to date... (1)

- Evaluation of local authority websites, continuously since 2003 (province of Masovia, all counties and a sample of municipalities)
- WAES + WSOSI (new) methodologies: altogether $40+70=110$ binary criteria
- Also a sample of municipalities within a deeper study in the FP6 FARO EU project („role of ICT in local development of rural areas”)
- A superficial evaluation of relation to local development levels and character of municipalities
- To be continued and expanded...

The work to date (2): WAES criteria structure



The work to date... (3)

- Why the capital province of Masovia? Is the weight of Warsaw not too big?
- This province is the biggest one in Poland, and most differentiated, and on the average not differing from the rest of Poland, so taking a sample is fully justified

Item (year 2003)	Poland: average (min/max over provinces)	Masovia
Population density	122.3 (59.0 / 384.6) persons per sq. km	144.0
Urban population share	61.8 (40.5 / 79.1) % of total population	64.6
Share of farming land	58.7 (49.7 / 69.8) % of total land	69.8
Share of forested land	28.5 (20.9 / 49.7) % of total land	22.3
Protected natural areas	33.1 (16.4 / 62.0) % of total land	30.1
Access to wastewater treatment	57.1 (44.6 / 75.8) % of total population	45.1
Unemployment rate	18.1 (13.9 / 28.8) % of active population	13.9
Wages & salaries	100 (83.7 / 129.2) for Poland = 100	129.2

The work to date... (4)

Results for the counties – a summary (WAES scores [max = 40]):

Year	2003	2004	2005	2006	2007	2008
Average score	14.57	22.19	27.86	28.29	30.88	33.24
Increase from year to year, %	xxx	52.3	25.5	1.5	9.2	7.5
min / max values	0 / 35	0 / 35	9 / 36	0 / 36	22/37	23/38
Ranges (max-min)	35	35	27	36	15	15
Standard deviation of scores	9.89	7.50	5.32	5.86	3.49	3.20
<i>Clarity [max = 20]</i>	8.64	13.62	16.29	16.43	17.74	18.27
<i>Interactivity [max=20]</i>	5.93	8.57	11.57	11.86	13.14	14.96

The work to date... (5)

- Correlations between WAES and „rurality”:

<i>Correlation between WAES and:</i>	Population density	Share of urban population	Share of farming land	Share of forest area	<i>L</i> composite index of rurality
2003	0.183	0.086	-0.194	-0.100	0.180
2004	0.233	0.172	-0.194	0.068	0.216
2005	0.195	0.110	-0.239	0.080	0.188
2006	0.149	0.089	-0.211	0.074	0.150
2007	0.467	0.429	-0.430	-0.038	0.470

The work to date (6): addition of the „*weighted distance*” variable

- Measure of „peripherality” – possibly when associated with other variables
- Average distance to 2-3 nearest larger urban centres, weighted by their population-based magnitude
- In this case one centre is always Warsaw, the second one is the county seat, sometimes a third centre is accounted for

The work to date (7): Domains of WSOSI

- *A footer* – name of the unit considered and address data, as well as data on the person conducting assessment and the date of assessment
- 1. Statistical data on the area
- 2. History of the area
- 3. Natural environment
- 4. Offer for investors
- 5. Public transport
- 6. Education
- 7. Culture
- 8. Sports & recreation
- 9. Tourism
- 10. Health care
- 11. Important addresses & telephones
- 12. Picture gallery
- 13. Geographical location
- 14. General current info

Each of the above domains contains five individual binary criteria: $14 \times 5 = 70$

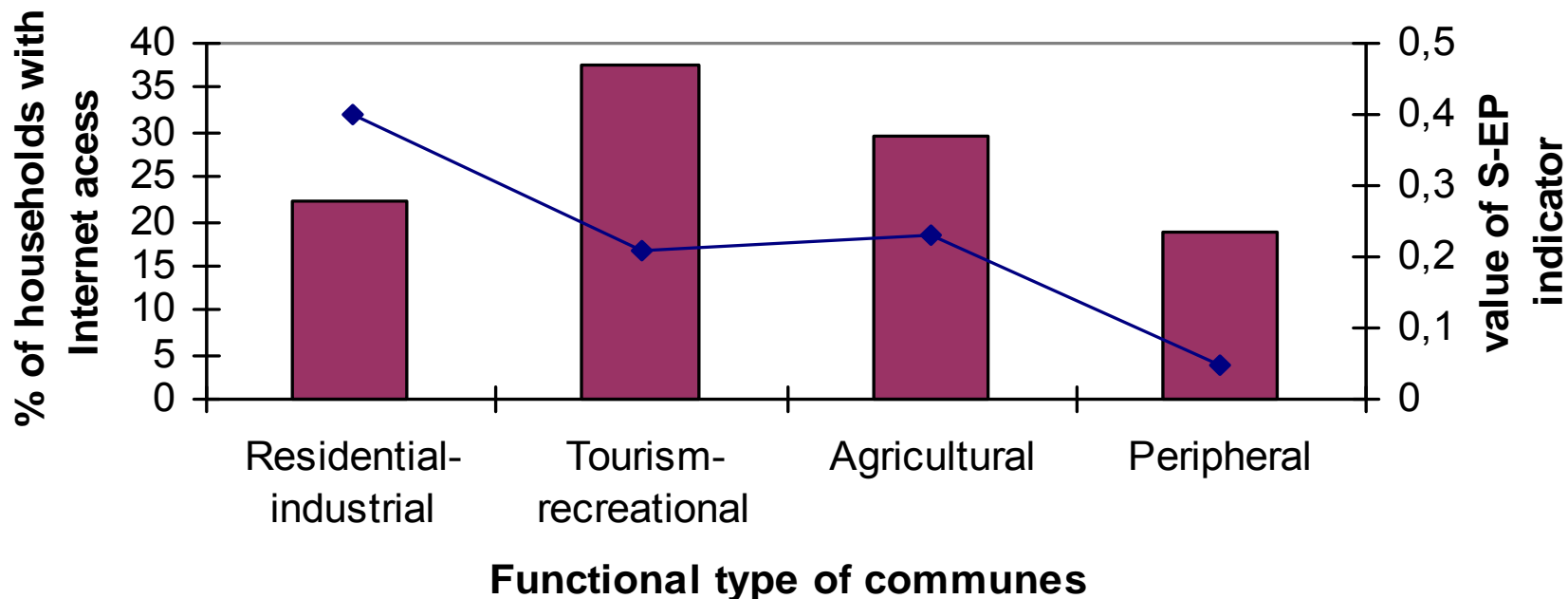
- *Comments* (on the strong and weak aspects of the website, and other)
- Signature and date

The work to date... (8)

- WAES+WSOSI scores for representative municipalities vs rurality...

Municipality	Population density	Businesses per 1000 persons	Weighted distance	WAES+WSOSI scores
Nieporęt	127	137	20.2	82
Łochów	89	67	51.7	78
Belsk Duży	63	61	33.6	74
Jabłonna	198	128	12.6	72
Grudusk	40	66	61.1	38
Stara Biała	90	48	15.0	37
Zakrzew	115	62	30.6	35
Korczew	29	11	83.2	35
Rzekuń	67	60	34.5	28
Łąck	52	61	40.0	27
Leoncin	32	73	37.3	24
Sanniki	69	56	70.1	14
Ceranów	22	9	97.4	3

The work to date... (9)

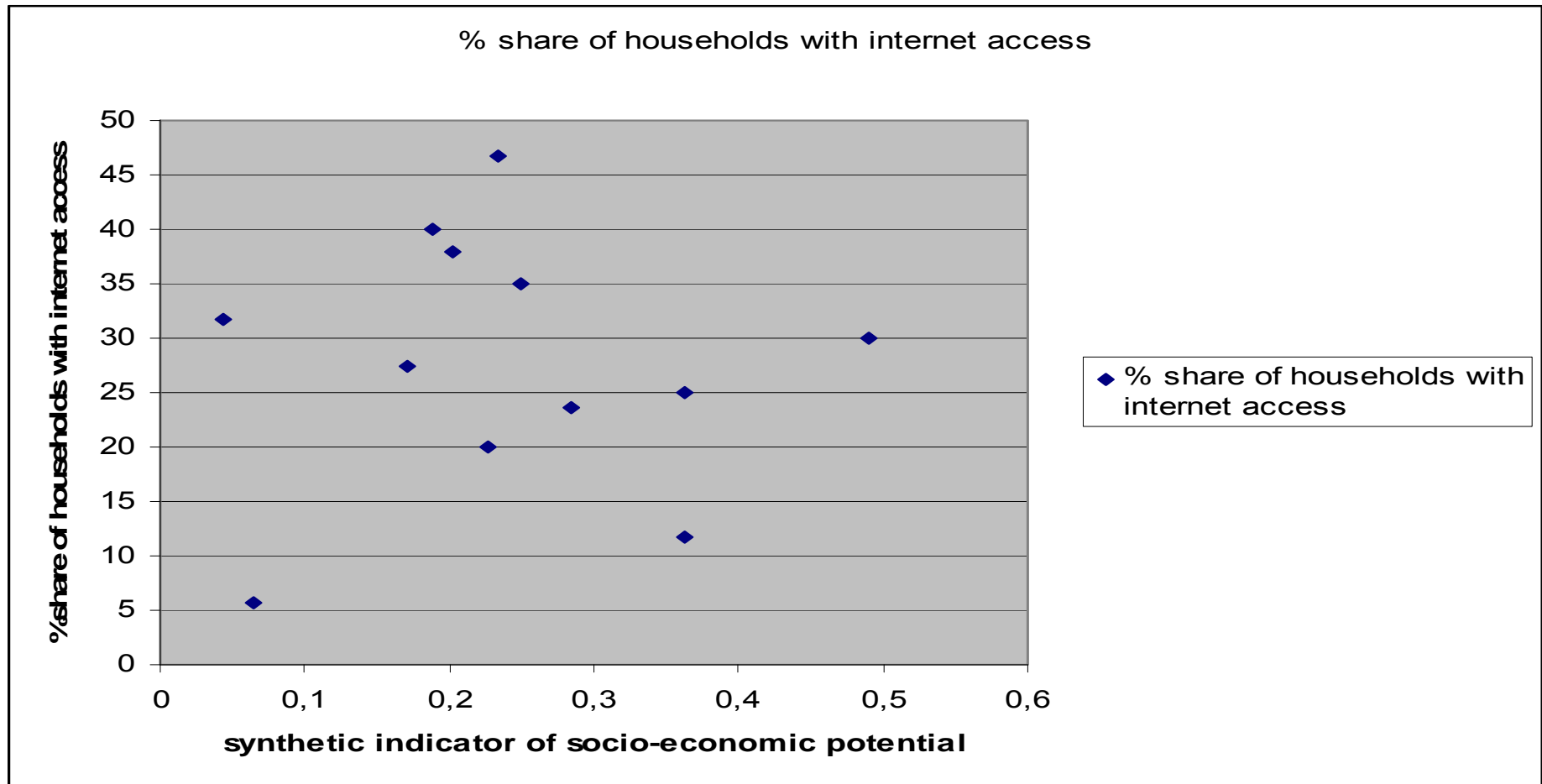


■ households with the Internet access —◆— value of S-EP indicator

S-EP indicator – a composite index of socio-economic development level

Source: taken from the FARO-EU-based paper by the team from IAFE, Warsaw

The work done to date (10): Another view of the same:

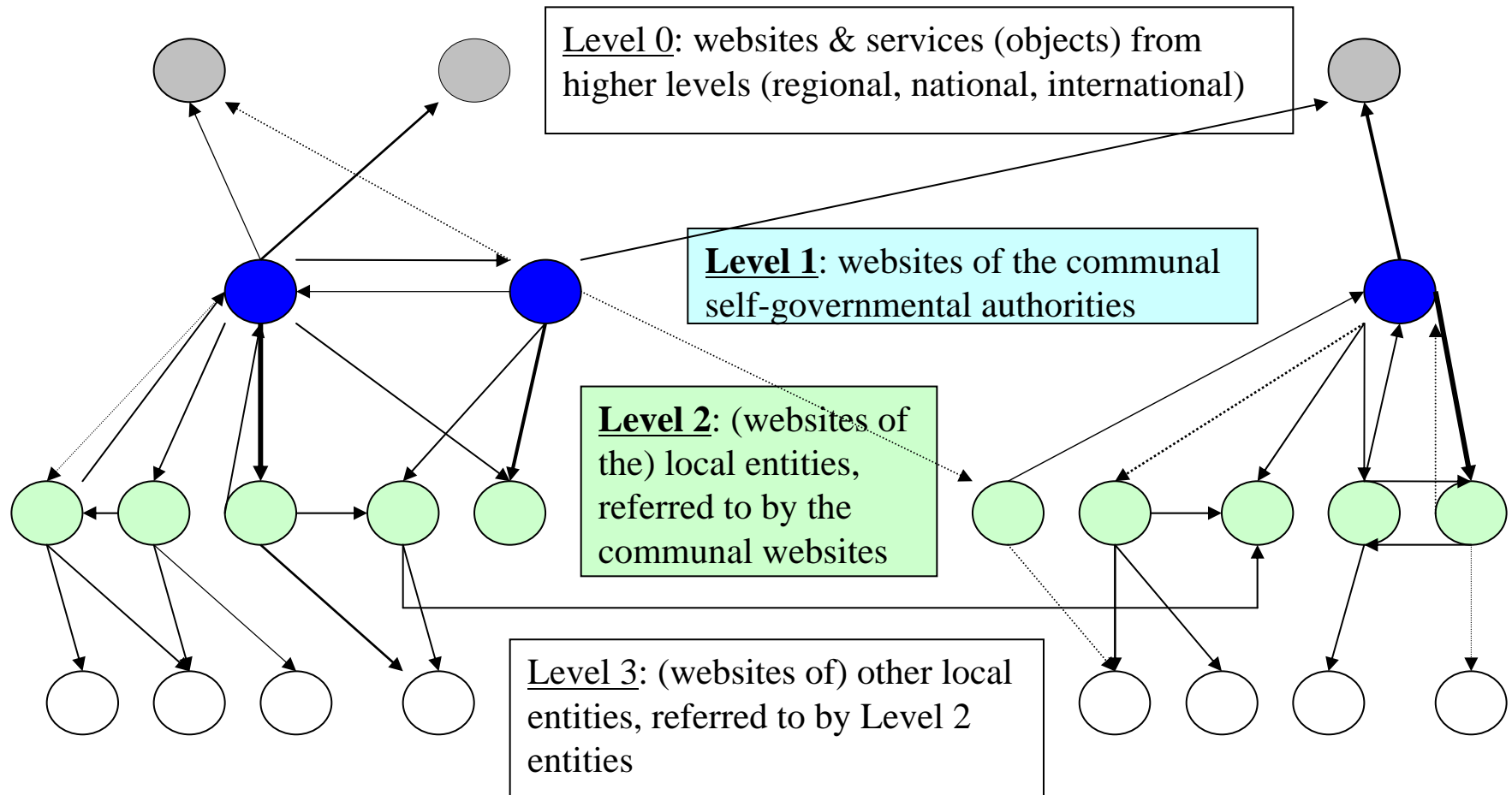


Source: as before

Current and future work... (1)

- Empirical analysis of the web-based connections at the municipality level (links, web addresses, e-mail addresses,...)
- Characterisation of the respective networks
- Relation to socio-economic development indices, static and dynamic
- Conclusions & recommendations...

Current and future work... (2)



Current and future work... (3)

Results from the pilot study on quantity and quality of address information for other entities provided by the local authority (commune) websites, November 2009

Municipality	Score	Municipality	Score
Jabłonna	53	Nowe Miasto	11
Nieporęt	50	Sanniki	10
Nadarzyn	49	Raszyn	8
Łochów	44	Leoncin	7
Żabia Wola	44	Grudusk	4
Karczew	40	Stara Biała	4
Lesznowola	35	Jedlnia Letnisko	0
Belsk Duży	28	Przyłęk	-4
Korczew	24	Rzekuń	-5
Klembów	23	Zakrzew	-7
Klwów	22	Rościszewo	-8
Michałowice	15	Szulborze Wielkie	-15
Olszanka	15	Kuczbork Osada	-16
Ceranów	14	Izabelin	-19
Łąck	14	Wieczfnia Kościelna	-23

Current and future work (4)

Correlation analysis – WSOPI vs. socio-economic data

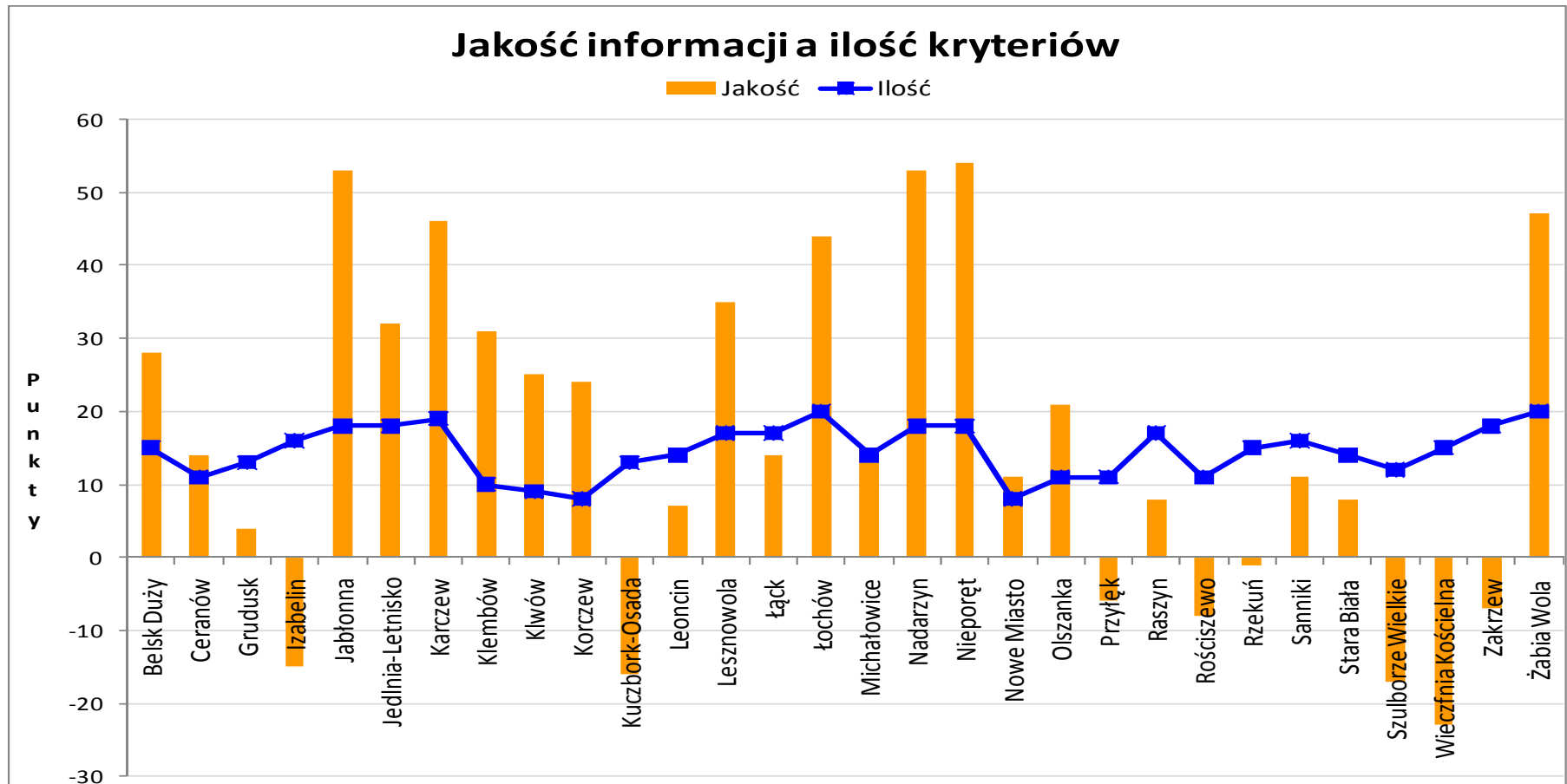
Variable	Municipal budget revenue from personal income tax	Total municipal budget revenue per capita	Population density	Employed per 1000 inhabitants	Businesses per 1000 inhabitants	<i>WSOPI</i> scores
Municipal budget revenue from personal income tax	1					
Total municipal budget revenue per capita	0.90	1				
Population density	0.79	0.70	1			
Employed per 1000 inhabitants	0.73	0.77	0.85	1		
Businesses per 1000 inhabitants	0.82	0.76	0.92	0.94	1	
<i>WSOPI</i> scores	0.30	0.32	0.25	0.30	0.34	1

Current and future work (5)

Information quality vs. number of items included:

blue line – number of items; yellow bars – quality of information

Correlation coefficient: **0.41**



ERDN 2010 - Warsaw, October
2010

Current and future work... (6)

- pilot study completed: distinct differences among municipalities in terms of quality & quantity of „address information” provided through their websites
- similarity to certain previously observed patterns (nature of activity + wealth + location), but more remains to be investigated, and so...
- ...initial stage of the proper study is underway: empirical study of a sample of municipality websites on levels 1 and 2 has been started...
- ...and already big differences in the properties of the networks can be noticed (extension, density, strength of links)
- next steps to be done over the fourth quarter of 2010 and first half of 2011

**THIS IS ALL, FOR NOW,...
THANK YOU VERY MUCH FOR
YOUR ATTENTION
AND
WE WISH YOU
A BETTER NEXT PRESENTATION...**