

**COINVEST**

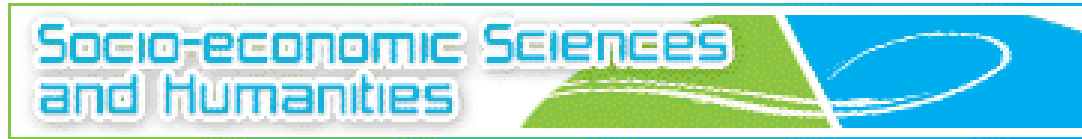
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# **COINVEST: Competitiveness, Innovation and Intangible Investment in Europe**

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# Club Economika 2000 Sofia

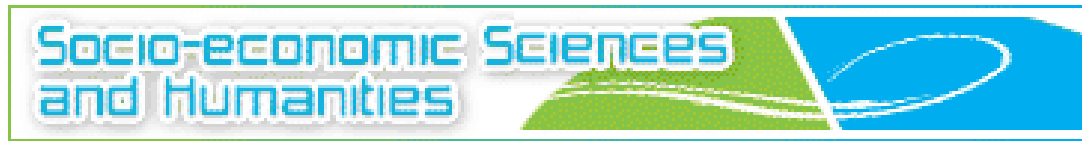
- Bulgaria: overall scoping of intangibles
- Measuring software & databases



# 1. Overall Scoping of Intangibles

## Computer Software

- NSI Business Statistics data used to capitalise spending on computer software (NACE 7220). Data is collected from reported supplements to company balance sheets
- Estimates of own use applying methodology of UK team, based on the Bulgarian Labour Force Survey.
- Survey on Information and Communication Technologies in Non-Financial Enterprises

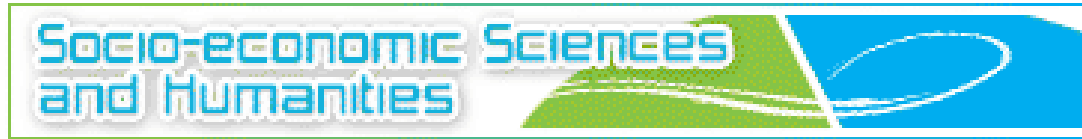


## Computerized Databases

- Same NSI source, as per NACE 7230 (data processing) & 7240 (database activities).
- Own use included in above software estimates.

## Scientific R & D

- (1) Same NSI source as above, as per NACE 7310 (natural sciences & engineering).
- (2) Survey on innovation activities in enterprises covering 2004-2006.



## Mineral Exploration

- NSI Business Statistics

## Copyright & License Costs

- NSI Business Statistics
- Data from National Film Centre for some years

## Architectural & Engineering Design

- NSI data, as per NACE 7420 (Architectural & engineering activities). Estimated as half of industry purchased services.



## R & D in Social Sciences and Humanities

- NSI data, as per NACE 7320 (social sciences & humanities), same methodology as US and UK.

## Advertising Expenditures

- NSI series, as per NACE 7440
- Complementary data from market studies.

## Market Research

- NSI series, as per NACE 7413 minus public opinion polling. Same methodology as US & UK.



# Firm-Specific Human Capital

Vocational Training in Enterprises Survey, carried out in  
2000, 2003, 2005, 2006

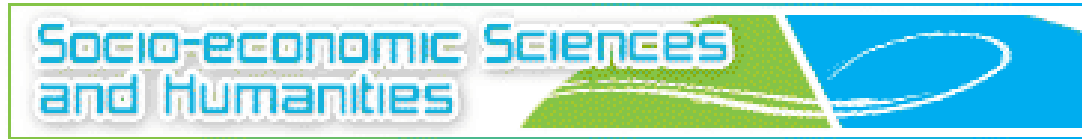
## Organizational Structure

### Purchased

- NSI series, as per NACE 7414 "Business and Management Consultancy Activities"

### Own account

- Estimated 20% of managers' earnings using NSI business statistics data



## 2. Computer Software

### Method 1:

Use of revenues of firms in NACE 7221 & 7222

### Method 2:

Use of balance sheet data

### Method 3:

Use of NSI survey of investment in ICT (2005, 2006 only)





## Revenues of NACE 7221 & 7222

	2002	2003	2004	2005	2006
Total investment in software (mln BGN)	180	183	230	354	388
Share of GDP (%)	0.56	0.53	0.59	0.83	0.79



	2002	2003	2004	2005	2006
Software professionals	23,010	25,935	30,307	32,420	34,067
Software professionals in NACE 7221 & 7222	8,035	8,525	9,268	11,034	13,699
Difference	14,985	17,410	21,039	21,386	21,368
Average wage in NACE 7221 & 7222 (thousand)	6,690	6,743	7,778	9,066	11,878
Correcting coefficient	1,327	1,330	1,330	1,264	1.236



## Time allocation of ICT investment

1996 (%)	Industry	Energy & construction	Retail & tourism	Transport & communications	Financial services	Others
For own use	23	34	76	41	13	5
For sale	53	2	6	13	72	0
Other	24	64	18	46	15	95



## Additional investment in software products (outside NACE 7222 & 7223)

	2002	2003	2004	2005	2006	2007
Accounting for time allocation	108,760	122,488	186,215	210,051	256,216	108,760
Not accounting for time allocation	77,219	86,966	132,212	149,136	181,914	77,219



## Total investment in software with and without accounting for work time allocation (w.t.a.)

	2002	2003	2004	2005	2006
Total software investment without accounting for w.t.a.	288,809	305,033	416,112	563,986	644,223
<b>Share of GDP</b>	<b>0.89</b>	<b>0.88</b>	<b>1.07</b>	<b>1.32</b>	<b>1.31</b>
Total software investment accounting for w.t.a.	257,268	269,511	362,109	503,071	569,921
<b>Share of GDP</b>	<b>0.79</b>	<b>0.78</b>	<b>0.93</b>	<b>1.18</b>	<b>1.15</b>



## Estimates using balance sheet data

	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Investment in software, non-financial sector	113,740	69,226	117,171	178,258	119,875
Share in GDP	<b>0.35</b>	<b>0.20</b>	<b>0.30</b>	<b>0.42</b>	<b>0.24</b>
Investment in software, financial sector			7,797	3,659	5,943
Investment in software, both sectors			123,649	179,761	122,740
Share in GDP			<b>0.32</b>	<b>0.41</b>	<b>0.25</b>



## Databases

	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Investment in databases (mln BGN)	51,232	67,017	93,164	129,616	251,199
Share in GDP	0,16	0.19	0.24	0.30	0.51



## Investment in software: share of GDP by different methods

	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Method 1, not accounting for w.t.a.	1.05	1.07	1.31	1.62	1.82
Method 1, accounting for w.t.a.	0.95	0.97	1.17	1.48	1.66
Method 2, non-financial sector	0.51	0.39	0.54	0.72	0.75
Method 2, non-financial & financial sectors			0.56	0.71	0.76
Method 3				0.59	0.65