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Development of the ICT industry in Slovakia

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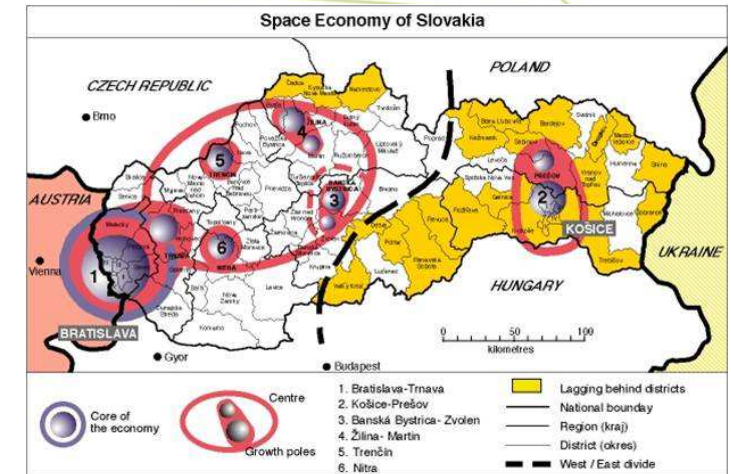


Agenda

- Rationale of the reserach in ICT industry and methodology
- Development of ICT industry
- R&D activities in the Slovak ICT industry
- Support policy
- Conclusions

Rationale of the research and methodology

- ICT industry - one of the fast growing industries in the Slovak economy.
 - The industry has developed very dynamically during the last years and represents an important source of innovations.
 - Progressive growth in number of firms in the ICT industry and employment growth as well.
 - The ICT sector has been a source of growth particularly because of FDI.
- ESPON Project-“Knowledge creation and acquisition in the ICT industry“
- Case study approach and qualitative methodology to discuss industrial development and determinants in terms of knowledge and innovation creation and acquisition processes in selected regions.
- Selection of ICT firms & institutions for interviews:
 - Bratislava - ICT firms (Accenture, Erni, Gordias, Innovatrics, Ness Slovensko, Sygic), nstitutions (IT Asociations of SR, Slovak Innovation and Energy Agency)
 - Košice - ICT firms (ICOS, Ixonos, NESS KDC, Novitech, RWE IT, Telegrafia)
 - Institutions (Košice Self-Governing region, Košice IT Valley)



Profile of the Bratislava region

Table:

Population	606,753
GDP per capita (EUR)	26, 996
Employment in technology and knowledge-intensive sectors (%)	6,92
Employment in IT in 2008	8,075
Employment in IT in 1997	1,563
Number of ICT firms in 2010	4,961
Number of ICT firms in 1997	9,481

Source: Eurostat, 2008, Infostat, 2010, Statistical Office of the SR, 2011.

Profile of the Bratislava region

- Highly concentrated ICT industry
- Specific in case of number of ICT firms (SMEs as well as presence of big multinational enterprises).
- **34,32 %** of ICT firms registered in 2010.
 - Number of ICT firms increase from 2481 in 1997 to 4 961 in 2010.
 - Domination of firms in SW consulting (45,11 % of firms in SR).
 - *Important shift from hardware production (beginning of 1990s) in direction to higher value-added services.*
- Growing demand for human resources in ICT (SW developers, etc.).
- Employment increase in 1997-2008 of 31,61%.
 - Computing services 184 % ($\frac{3}{4}$ v BA)



ICT industry in the Bratislava region

Table: Employment in the IT industry in Bratislava region in 1997 - 2008

	Section	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
30	Production of office machines, computers	233	276	402	379	356	354	374	397	481	476	463	361
31	Production of electric machines, appliances	2745	2495	2051	1923	2046	1555	1446	1573	1786	1413	1415	1246
32	Production of radio, TV, comm. devices and applian.	313	170	370	398	335	301	176	153	188	194	214	307
64	Communications	9719	10002	10015	9905	9445	8986	8716	9144	8797	8610	9089	9191
72	Computing services	1563	2397	2193	2505	2870	3068	2843	3637	5246	5933	7545	8075
	Total	14573	15340	15031	15110	15052	14264	13555	14904	16498	16626	18726	19180

Source: Statistical Office of SR

Profile of the Košice region

Table:

Population	775,509
GDP per capita (EUR)	10,193
Employment in technology and knowledge-intensive sectors (%)	4,05
Employment in ICT in 2010	7,598
Number of ICT firms in 2010	1,288

Source: Eurostat, 2008, Infostat, 2010, Statistical Office of the SR, 2011.

Development of ICT industry in Bratislava region

❑ Before 1989

- Computing centres in former state enterprises (PVT).

❑ 1990-95

- Local firms and subsidiaries of global ICT enterprises
Asseco (1990), **PosAm** (1990), **Datalan** (1990) **HP** (1991), **Soitron** (**Tronet** (1991, predecessor of the company), **Siemens** (1991, **Siemens IT Solutions and Services** predecessor Software House), **Soitron** (1991), **Gratex** (1991), **Eset** (1992), **Anasoft** (1992), **DITEC** (1993) and others.
- Mobile operators - **EuroTel** (1990, predecessor of **T-Mobile**).

❑ 1995-2004

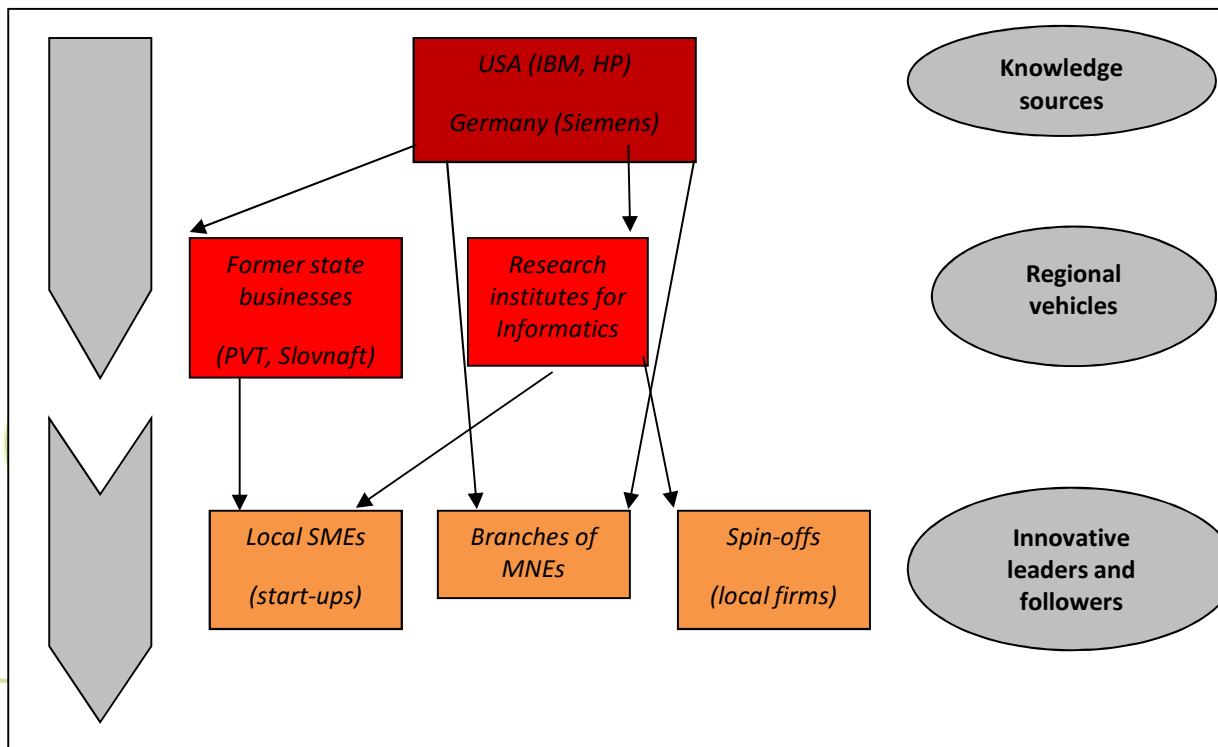
- Telecom and mobile operators - **Globtel** (1997, before **Orange**), **Slovak Telecom** (2005), **O2 Slovakia** (2006).
- Subsidiaries of global IT centres - **IBM** (2000), **Dell** (2002), **Accenture** (2002), **AT&T** (2002).
- innovative firms in information security sector - **Gordias** (1997),
- firms in the internet business - **Millenium 000** (1998),

❑ 2004-2014

- ❑ Information security - **Innovatrics** (2004), **Ardaco** (2006),
- ❑ New technologies, e.g. mobile navigations - **Sygic** (2004), mobile marketing - **mSolutions** (2006).



Origin of the ICT industry in Bratislava region



Source: own elaboration based on interviews

Interviews results – Bratislava region

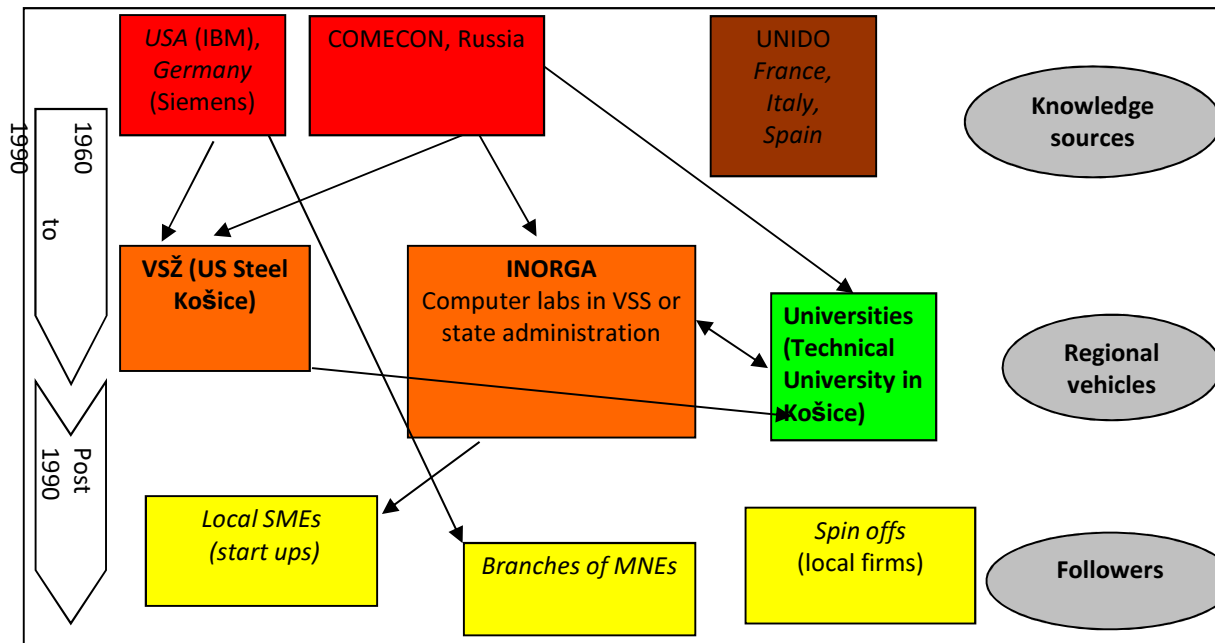
Firms	Year of foundation	Turnover in Euro	R&D spending (%)	Export in turnover (%)	Nr. of employees
Accenture	1992	-	-	-	
ERNI	2007	1,6 mil.	90	100	35
Gordias	1997				5
Innovatrics	2004	N/A	40	80	15
NESS Slovakia	2001	35 mil.	10	25	400
Sygic	2004	6,1 mil.	24,5	100	80

Source: own elaboration based on interviews

Development of the ICT industry - Košice region

- Domestic companies, their knowledge base is coming from big companies before 1989;
- Companies established in relation to East Slovakian Steel (VSZ), e.g. Procesná automatizácia, **ICOS**, Kybernetika;
- Companies established in relation to other big companies (e.g. **Telegrafia** with connection to former Czechoslovak company Tesla Pardubice);
- Companies established after chancel of research institute INORGA (Apex, **Novitech**, INCOS, Acase);
- Domestic companies established on the basis of academic environment of Košice universities (e.g. Elfa, VSL Software, Intersoft);
- Domestic companies established on the *green field* – innovative SMEs established without any relations to previous development (**Lynx**, Datacreo);
- Subsidiaries of international companies and operation centres (**Siemens PSE**, **Ness KDC**, T-Systems, **Ixonoss**) – reason for location in Košice - low price of high qualified labor forces, language proficiency (English, German), cultural proximity (e.g. in comparison to India or China), etc.

Development of ICT industry - Košice region



Source: Hudec, Šebová, 2011

Interviews results – Košice region

Firms	Year of foundation	Turnover in Euro	R&D spending (%)	Export in turnover (%)	Nr. of employees
ICOS	1991	2 mil.	-	5 %	50
Ixonos	2007	3,85 mil.	0	100	191
NESS KDC	2005	12 mil.			290
RWE IT	2004	14 mil.	5	95	230
Telegrafia	1989	10,5 mil.	8-10	15-30	70
Novitech	1991	7 mil.	2	20	200

Source: own alleboration based on interviews



R&D in the ICT industry in Slovakia

- *Own R&D activities – important competitive advantage for ICT firms.*
- R&D in ICT industry are more unique, research potential is not so high to cover the needs for highly-qualified human resources.
- Multinational ICT enterprises (e.g. IBM, HP) - R&D mostly in home countries.
- Examples of own R&D in Slovak ICT firms
 - Eset, Innovatrics, Asseco Solutions, PosAm, Sygic, Ness KDC



Policy assessment

- The level of perception of supporting policy between private firms in ICT sector is very low. The funding schemes are either not used by all ICT firms, if they are used, firms are mostly not successful in final approval of projects - administrative difficulty and bureaucracy, etc.
- Some of the big ICT firms have received state support for creating of new labor places (e.g. NESS KDC, T-Systems), or some support from city of Košice (e.g. NESS KDC by granting of city building for new development centre).
- State support in this way is often perceived as “market deforming”. Representatives of ICT firms are generally not at all satisfied with existing policy measures. They are facing too much bureaucracy by EU project applying.
- ICT firms are awaiting more financing in education and training, as direct support.
- Several initiatives of Košice IT Valley (Technical University, Košice Self-government Region, ICT firms) focused on education and training.

Conclusions

- ICT firms in the Bratislava region progressively changed the structure of creation of added value in fundamental way.
 - In the beginning of 1990s, the ICT firms created a larger part of the added value from the sale of purchased technologies and products, at present, a larger part of the added value is created from the sale of their own products and ICT services.
- We have observed the continuation of the global trend of the integration of ICT firms in the SR into strong multinational groups.
- Innovation leaders in the area of Information Security (development of anti-virus software, biometrical products) and Mobile Navigations dominate the innovations in the ICT sector in the Bratislava region. Product and process innovations are concerned. These firms managed to be well-established in the global market by the development of specific product (software), which today reaches top parameters due to innovations over the years.
- The local industry basis of the Košice region has influenced the recent form of the ICT sector;
- A remarkable shift from hardware sales to own ICT product or service development has been observed;
- The Košice region represents a typical European nearshore locality exporting ICT services abroad.



- 5th Central European Conference in Regional Science (CERS)
 - October 5th – 8th, 2014, Košice, Slovak Republic
- Winter Seminar in High Tatras, March 2015
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