Context indicators at the regional level: the Italian experience

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Agenda

PART 1. Context Indicators: The Italian Experience in past programming cycles

- Context Indicators:

  Definition and tasks

- Experience of past programming cycles:
  The selection criteria used to identify Context Indicators
- The situation in 2007-2013 programming period:
  The DPS data base

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PART 2. The Smart Specialization Strategy: context indicators for strategy definition and implementation

- Context indicators:
  - The main role of context indicators guiding Smart Specialisation Strategy
  - The search for relevant indicators within the paradigm of knowledge economy
  - An experiment in applying the Knowledge Assessment Metodology to Italian regions

PART 3
Selecting Context Indicators for the SSS Swot Analysis

- Context indicators for the Swot Analysis

  A set taken from:

  the Department for Cohesion and Development Policies (DPS) database

  the KAM experiment

- Conclusion

  Still missing dimensions of analysis: suggestions for further integration and regional profiling

Premise

The smart specialization strategy in Italian regions

- The **«Cluster Tecnologici» tender** by the Ministry for Research (30.05.2012) **9 tehnological areas:** Green Chemistry, Agrifood, Life Environment Technologies, Life Science, Technologies for Smart Communities, Instruments and systems for land and sea mobility, Aerospace, Energy, Intelligent Manufacturung

- **Thematic projects to support Regions** in designing and implementing Research and Innovation Policies (Precommercial Procurement, Tehnological Foresight, Evaluation Methods, Indicators to monitor the Technological Districts performances). New edition.

- **Ex-Ante Conditionality Workgroup on «Smart Specialization»** (art.9. p.1, EC Regulation Proposal 2014 – 20: «availability of a regional Smart Specialization Strategy»). Work in progress with the regional activity; regions asking for **support in the definition of a set of indicators** useful to guide the design and implementation of the SSS.

Part 1

Context Indicators:

The Italian Experience in past programming cycles

Defining Context Indicators

- Context indicators provide information describing variables relative to the social and economic context of a country/region (European Commission, 2006).

- They are built at territorial level to evaluate geographical dimension of phenomena and to support and guide the policy making process.

- A very important difference between context indicators and output and result indicators is that the former ones are not necessarily linked to policy

The tasks of Context Indicators (CI)

a. to ***measure*** well-being, quality of services, supply of infrastructures, labour market conditions, competitiveness, etc.

b. to ***describe*** strengths and weaknesses of areas targeted by policy;

c. to ***guide*** regions to increasing ***awareness*** of the regional potential according to the suggested development strategy

d. to ***help*** territorial actors to ***share «the vision»*** about their development path within the national framework

e. to ***track the advancement*** toward the final objectives of regional policies

The Italian Experience: first steps

- **Start.** Italy started defining Context Indicators at the end of 1999 during ex ante evaluation phase of Community Strategic Framework 2000-2006. They increased by time, and are still in use today.

- **Problem.** *How to find clear indicators to represent policy objectives in an incomplete information framework?*

- **Solution.** *Involve all the relevant actors in the choice of indicators and choose more than one indicator for each phenomenon*

The Italian Experience: the role of DPS-UVAL

- The selection of indicators was conducted by the Department for Development Policies (DPS) together with central and regional administrations

- The aim of DPS was to select bottom-up indicators through partnership and co-decision.

Formal agreement with the National Statistic Office (ISTAT)

- *to improve the statistical information available*
- *to obtain more detailed information*
- *to finance the production of statistical information at territorial level.*

This agreement has been renewed over the years

The Italian Experience: the selection criteria

- Unambiguous measuring of weaknesses and strengths of an area (well-being, development opportunities);
- Availability at regional level (for all regions);
- Timeliness (on average the delay is limited to one year);
- Availability of time-series and updates;
- Uncontroversial quality of data.

The Italian Experience: the database today

- 206 indicators (168+38 specific gender indicators) at regional and subregional level.
- the time series of the indicators by sectors and priorities of development policies (2000-2006; 2007-2013).
- also available in "Comma Separated Value « (CSV) format.

The Italian Experience: the database today

DESCRIPTION OF INDICATORS

- Sectors
- Code
- Technical definition
- Associated data
- Territorial scale
  - by Nation
  - by Region
  - by Province
  - by Town
  - other
- Covered period
  - ante 1995
  - 1995 - 2013
- Update
- Other information
  - source
  - note

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Context Indicators for the programming period 2007 - 2013

National Strategic Framework: 9 priorities

1. *Human resource improvement and enhancement*
2. *Research and innovation promotion for competitiveness*
3. *Sustainable and efficient use of environmental resources for development*
4. *Social inclusion, services for quality of life and territorial attractiveness*
5. *Promotion of natural and cultural resources to enhance attractiveness and development*
6. *Transport networks and links*
7. *Competitiveness of production systems and employment*
8. *Competitiveness and attractiveness of cities and urban areas*
9. *Internationalization*

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Sample of Context Indicators by NSF priority (1/3)

SECTOR	*INDICATOR*	*LAY*	*CN*	*S*	*I*
PRIORITY 1 - HUMAN RESOURCES IMPROVEMENT AND ENHANCEMENT					
EDUCATION AND TRAINING	Percentage of the population aged 25-64 studying or attending a professional training course (percentage)	2011	6	5,1	5,7
EDUCATION AND TRAINING	Percentage of the population aged 25-64 with at most a middle school diploma	2011	40,5	50,8	44,3
EDUCATION AND TRAINING	Science and technology graduates aged 20 to 29 (per 1000 people)	2009	14,9	8,7	12,2
PRIORITY 2 - RESEARCH AND INNOVATION PROMOTION FOR COMPETITIVENESS					
R&I	Employees in R&D sector (per 1000 people)	2009	4,7	2	3,8
R&I	R&D *intra muros* expenditure of Public Administration, Universities and Private and Public Enterprises (percentage of GDP)	2009	1,4	0,9	1,3
R&I	R&D expenditure of private and public enterprises (percentage of GDP)	2009	0,8	0,3	0,7
R&I	R&D expenditure of Public Administration and universities (percentage of GDP)	2009	0,5	0,6	0,5
R&I	Patent applications to the European Patent Office (EPO) (per million people)	2009	53	8,4	37,4
R&I	Average innovation expenditure of Regions per employee (M€)	2004	4	1,9	3,7
INFORMATION SOCIETY	Percentage of Enterprises in Industry and Services -less than 10 employees - with computer availability	2007	63,2	62,7	63,4
INFORMATION SOCIETY	Percentage of Enterprises in Industry and Services with - more than 10 employees - with computer availability	2010	95,6	92,8	95,1
INFORMATION SOCIETY	Percentage of Municipalities with wide broadband on total number of Municipalities	2009	75,5	70,9	74,6
INFORMATION SOCIETY	Percentage of household internet access	2011	57,3	48,6	54,6
INFORMATION SOCIETY	Percentage of people (aged 6 and over) affirming to have used internet during the last 3 months	2011	53,4	41,4	49,3
INFORMATION SOCIETY	Percentage of employees in enterprises with more than 10 employees in Industry and Services who use internet	2010	35,2	22,4	33,2
INFORMATION SOCIETY	Percentage of Enterprises in Industry and Services with more than 10 employees holding a web site	2010			3

Sample of Context Indicators by NSF priority (2/3)

SECTOR	*INDICATOR*	*LAY*	*CN*	*S*	*I*
PRIORITY 3 - SUSTAINABLE AND EFFICIENT USE OF ENVIRONMENTAL RESOURCES FOR DEVELOPMENT					
ENERGY	Share of renewable Energy production on domestic electricity consumption	2011	24	27,9	23,8
ENERGY	Share of renewable Energy production (GWh) on total electricity production (GWh)	2010	30,4	21,2	25,9
ENERGY	Share of renewable energy generation capacity (MW) on total electricity generation capacity (MW)	2011	33,4	35,5	33,9
PRIORITY 4 -SOCIAL INCLUSION, SERVICES FOR QUALITY OF LIFE AND TERRITORIAL ATTRACTIVENESS					
SOCIAL CAPITAL	Percentage of volunteers on total population aged 14 and over	2010	15	7,7	12,6
SOCIAL CAPITAL	Percentage of Employees in cooperatives on total number of employees	2009	3,7	4,5	4
PRIORITY 5 - PROMOTION OF NATURAL AND CULTURAL RESOURCES TO ENHANCE ATTRACTIVENESS AND DEVELOPMENT					
CULTURAL HERITAGE	Percentage of Paying visitors out of non-paying visitors in Museums (non-State owned Institutes) with paid admission	2006	482	494	420,7
CULTURAL HERITAGE	Paying visitors out of non-paying visitors in public Museums with paid admission	2011	176	135	165,8
CULTURAL HERITAGE	Employees in Cultural sector (percentage out of total)	2009	1,6	1	1,5
PRIORITY 6 - TRANSPORT NETWORKS AND LINKS FOR MOBILITY					
TRANSPORT AND MOBILITY	Percentage of persons satisfied with seven different identified aspects of transport service out of the total number of users	2011	51	47,3	49,7
TRANSPORT AND MOBILITY	Goods transported in and out by rail (tons per 100 inhabitants)	2010	36,5	9,2	27,4
TRANSPORT AND MOBILITY	Goods transported in and out by road (tons per capita)	2010	30,8	14,2	24,6

Sample of Context Indicators by NSF priority (3/3)

SECTOR	INDICATOR	LAY	CN	S	I
PRIORITY 7 - COMPETITIVENESS OF PRODUCTIVE SYSTEMS AND EMPLOYMENT					
COMPETITIVENESS	Percentage of Employees in the Business Services sector out of the total number of employees in the Market Services sector (percentage)	2010	31,2	28,3	30,4
COMPETITIVENESS	Percentage of SME's employees in Industrial District - year 2001	2005	30,7	8,1	23,8
COMPETITIVENESS	Gross fixed investments (% of GDP)	2010	18,9	21,4	19,4
COMPETITIVENESS	Added value per employee in Sme (M€ present value)	2005	33,8	24,4	31,5
ENTERPRISES TURNOVER	Difference between Enterprise birth and death rates (percentage)	2010	-1,4	-0,2	-1,1
SECTORAL TREND	Added value of Business Services Sector per Employee in the Same Sector	2011	106	93,4	103,6
SECTORAL TREND	Added Value of Industry Sector per employee in the Same Sector	2010	54,6	42	52,4
FINANCIAL TREND	Differences in interest rates on financing (Southern regions vs Center – Northern regions) (percentage)	2009		1	0,1
FINANCIAL TREND	Bank loans (average annual amount) (% of GDP)	2009	70,1	37,3	62
FINANCIAL TREND	Venture capital: early stage ((% of GDP)	2011	0	0	0
R&I	Percentage of enterprises which have introduced product and /or service innovation out of the total number of enterprises	2008	32,7	22,7	30,7
PRIORITY 8 - COMPETITIVENESS AND ATTRACTIVENESS OF CITIES AND URBAN AREAS					
TRANSPORT AND MOBILITY	Number of passengers carried by the local transport system in Provinces' main towns (per 1000 inhabitants)	2010	291	98,7	228,6
TRANSPORT AND MOBILITY	Place-km offered by local transport system in Provinces' main towns (1000 per inhabitants)	2010	5,8	2,7	4,8
TRANSPORT AND MOBILITY	Urban lines of local transport system in Provinces' main towns per 100 km2 of urban area (percentage)	2010	144	141	125,3
PRIORITY 9 - INTERNATIONALISATION AND INVESTMENTS, CONSUMPTION AND RESOURCE ATTRACTIVENESS					
INTERNATIONALISATION	Percentage of export value in sectors with dynamic world demand in total export value (percentage)	2011	29,3	43,7	29,3
INTERNATIONALISATION	Foreign direct net investments (outward) of regions (GDP %)	2011			

Part 2

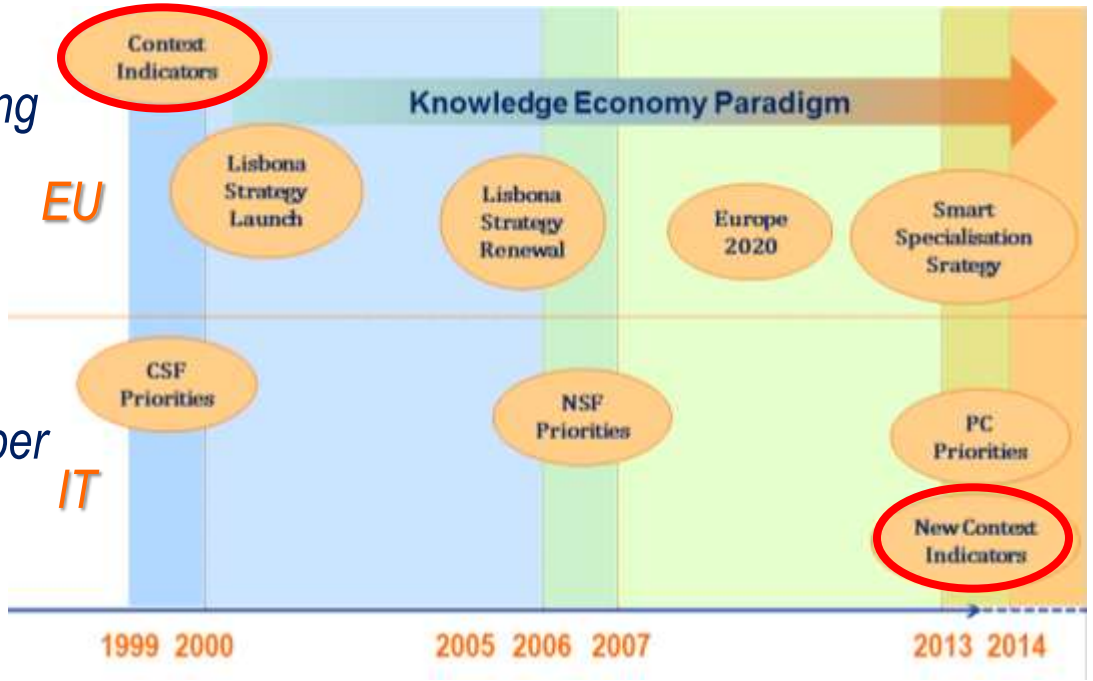
The Smart Specialization Strategy: using context indicators

to guide Regions toward the strategy definition and implementation

SSS and the emerging of a new development paradigm: looking for indicators appropriate for the knowledge economy

1999-2000: *CI for defining strenghts and weaknesses along one main dimension: agglomeration advantages*

2005-07: *CI increasing in number without changing the logic of application actually.*



2012-13: *the Europe 2020 strategy, the rising of Smart Specialisation Strtegy and the final understanding of the Knowledge Economy paradigm.*
Using CI to catch the multidimensional aspects of the «regional knowledge based economies»

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The role of CI and the definition process: a top-down approach to guide, diffuse and sensitize regions about SS trajectory

They suggest:

- ✓ *an **analysis** based on a SWOT and a wide profiling of the regions to target a **specialisation - diversification strategy new to the most of the territories***
- ✓ *the involvement of local actors and to **understand and share the «vision»** of the development path at regional and national level.*

c *They **guide** regions to increasing **awareness** of their potential according to the suggested development strategy*

d *They help territorial actors to **share «the vision»** about their development path within the national framework*

Searching for indicators to measure the territorial development within the knowledge economy

- *Global Competiteveness Index (GCI)- World Economic Forum*
  http://www.weforum.org
- *Knowledge Assessment Methodology – World Bank*
  http://web.worldbank.org
- *Regional Innovation Scoreboard*
  http://www.proinno-europe.eu
- *OECD science technology and industry scoreboard 2011*
  http://www.oecd.org
- The Networked Readiness Index 2012 (WEF INSEAD)
  http://www.weforum.org

An experimentation at DPS

Applying the KAM metodology to Italian regions

- *Developed by the World Bank within the K4D - Knowledge for Development Program*
- *Aimed at identifying strenghts and weaknesses and benchmark developed and developing countries within their transition process toward the knowledge economy*
- *Based on 83 variables normalized on a scale from 0 to 10 classified by 4 pillars*
- *To calculate*
  - *the KEI - Knowledge Economy Index (4 pillars), measuring the territorial performance, and*
  - *the KI – Knowledge Index (3 pillars), measuring the potential of the territory*

in the light of the knowledge economy

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Applying the KAM metodology to Italian regions

Pillar 1 **Economic and institutional regime**	Pillar 2 **Education and skills**	Pillar 3 **Information and communication infrastructure**	Pillar 4 **Innovation system**
The country's economic and institutional regime must provide incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship.	The country's people need education and skills that enable them to create and share, and to use it well.	A dynamic information infrastructure is needed to facilitate the effective communication, dissemination, and processing of information..	The country's innovation system—firms, research centers, universities, think tanks, consultants, and other organizations—must be capable of tapping the growing stock of global knowledge, assimilating and adapting it to local needs, and creating new technology.

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An experimentation at DPS

Applying the KAM metodology to Italian regions

*1. **Selection** of KAM indicators based on their adaptability to a regional context, through the application of two criteria:*

Suitability	**Availability**
appropriateness of the indicator to measure phenomena at regional level	*capability to collect the related data at subnational level from aknowledged statistical sources*

*2. **Evaluation** of the consistency of the selected set: from **83** Indicators at **national level** to **51** Indicators at **regional level***

*3. **Integration** between the resulting set and the most suitable indicators in the DPS database*

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An experimentation at DPS

First outcomes and consideration for future application

INDICATOR 1 – ECONOMIC AND INSTITUTIONAL REGIME
Gross Capital Formation as % of GDP (Average)
Employment in Services (% of total employment)
Trade as % of GDP
Soundness of Banks
Exports of Goods and Services as % of GDP
Difference between Enterprise Birth and Death Rates (percentage)
Cost to Register a Business (% of GNI per capita)
Days Required to Start a Business
Cost to Enforce a Contract (% of debt)
Rule of Law
Control of Corruption

INDICATOR 2 – EDUCATION AND SKILLS
Adult Literacy Rate (% age 15 and above)
Secondary Enrollment (% gross)
Tertiary Enrollment (% gross)
Public Spending on Education as % of GDP
School Enrollment, Secondary, Female (% gross)
School Enrollment, Tertiary, Female (% gross)
No Schooling, total
No Schooling, female
Secondary School completion, total (% of pop 15+)
Tertiary School completion, total (% of pop 15+)
Secondary School completion, female (% of pop 15+)
Unemployment Rate (% of total labor force)
Employment in Industry (% of total employment)
Employment to Population ratio
Adult Unemployment rate
Long-term Unemployment, total
Labor Force with Tertiary Education (% of total)
Labor Force with Secondary Education (% of total)

INDICATOR 3 – INFORMATION AND COMUNICATION INFRASTRUCTURE
Telephones per 1,000 people
Telephone Mainlines per 1,000 people
Mobile Phones per 1,000 people
Computers per 1,000 persons
TV Households with Television
Daily Newspapers per 1,000 people
International Internet Bandwidth (bits per person)
Internet Users per 1,000 people
Fixed Broadband Internet Access Tariff (€ per month)

INDICATOR 4 – INNOVATION SYSTEM
FDI Outflows as % of GDP
FDI Inflows as % of GDP
Royalty and License Fees Payments, (€ millions)
Royalty and License Fees Payments (€ millions) per million population
Royalty and License Fees Receipts (€ millions)
Royalty and License Fees Receipts (€ millions) per million population
Royalty and License Fees Payments and Receipts (€ millions)
Royalty and License Fees Payments and Receipts (€ millions) per million population
Science and Engineering Enrollment Ratio
Science Enrollment Ratio
Patent Applications Granted by the EPO per million people
High-Technology Exports as % of Manufactured Exports
Private Sector Spending on R&D

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First outcomes and consideration for future application

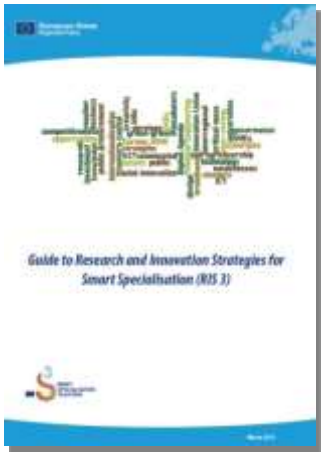
REGIONS	KNOWLEDGE INDEX	Pillar 2 EDUCATION	Pillar 3 ICT	Pillar 4 Innovation Ssystem
Emilia-Romagna	8,32	7,90	8,50	8,55
Friuli-Venezia Giulia	7,93	6,59	9,50	7,70
Lombardia	7,92	5,61	9,00	9,15
Lazio	7,20	7,50	6,50	7,60
Trentino-Alto Adige	7,00	4,89	10,00	6,10
Toscana	6,91	6,33	7,50	6,90
Piemonte	6,75	5,44	6,00	8,80
Marche	6,48	7,18	7,00	5,25
Veneto	6,39	5,66	5,50	8,00
Liguria	5,61	6,23	4,00	6,60
Umbria	5,36	7,83	4,50	3,75
Abruzzo	4,72	6,26	3,50	4,40
Valle d'Aosta	4,53	2,78	8,00	2,80
Campania	3,64	4,13	2,00	4,80
Sardegna	3,42	2,51	5,00	2,75
Molise	3,10	4,49	3,00	1,80
Basilicata	2,70	3,70	2,50	1,90
Puglia	2,49	3,66	0,50	3,30
Sicilia	2,43	2,73	1,50	3,05
Calabria	2,05	3,34	1,00	1,80

Part 3

Selecting Context Indicators for the SSS Swot Analysis

Guide to RIS 3

Step 1- Analysis of the regional context and potential for innovation



RIS3 needs to be based on a sound analysis of the regional economy, society, and innovation structure, aiming at assessing both existing assets and prospects for future development.

The common principle that is central to such analyses is the adoption **of a wide view of innovation that spans across economic activities and involves many sectors of the civic society.**

The analysis should cover three main dimensions:

- regional assets, such as technological infrastructures,
- linkages with the rest of the world and the position of the region within the European and global economy, and
- dynamics of the entrepreneurial environment.

This analysis needs to be based on

SWOT analysis

Regional Profiling

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How to inform the SWOT Analysis

	Helpful to achieving the objective	Harmful to achieving the objective
Internal Origin (attributes of the system)	S Strenghts	W Weaknesses

Context Indicators

to measure strenghts and weaknesses of the regional system

Which strenghts and weaknesses?

Four pillars as for the KEI

Which indicators?

A set obtained by merging selected «DPS CI and Regional KAM Indicators».

Integrating KAM and DPS Context Indicators

INDICATOR 1 – ECONOMIC AND INSTITUTIONAL REGIME
Gross Capital Formation as % of GDP (Average)
Employment in Services (% of total employment)
Trade as % of GDP
Soundness of Banks
Exports of Goods and Services as % of GDP
Difference between Enterprise Birth and Death Rates (percentage)
Cost to Register a Business (% of GNI per capita)
Days Required to Start a Business
Cost to Enforce a Contract (% of debt)
Rule of Law
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Added value of Business Services Sector per Employee in the Same Sector
Added Value of Industry Sector per employee in the Same Sector

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Population Studying or Attending a Professional Training Course
Science and Technology Graduates aged 20 to 29 per 1,000 people

INDICATOR 3 – INFORMATION AND COMUNICATION INFRASTRUCTURE
Telephones per 1,000 people
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Computers per 1,000 persons
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Daily Newspapers per 1,000 people
International Internet Bandwidth (bits per person)
Internet Users per 1,000 people
Fixed Broadband Internet Access Tariff (€ per month)
Enterprises in Industry and Services - less than 10 employees - with Computer Availability (percentage)
Enterprises in Industry and Services - more than 10 employees - with Computer Availability (percentage)
Municipalities provided with Wide Broadband as percentage of the total number
Household Internet Access as percentage of the total
Number of Employees in Enterprises (with more than 10 employees) in Industry and Services who use internet (percentage)
Enterprises in Industry and Services (with more than 10 employees) holding a Web Site as percentage of the total

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FDI Outflows as % of GDP
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Private Sector Spending on R&D
R&D *intra muros* Expenditure of Public Administration, Universities and Private and Public Enterprises (percentage of GDP)

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Still missing dimensions of analysis: suggestions for further integration and regional profiling

Firms adaptability to change

«**Agents of change**» (Foray, 2000)
Carter's indicator: «rate of knowledge workers within firms»

Entrepreneurship

Global Entrepreneurship Index -GEINDEX
(Acs and Zerb, 2009)
14 indicators
(E.Attitudes – E.Activities – E.Expectiations

Knowledge Intentive Services

KIS as innovation levers of the other sectors. Possible indicator: "*Employees in KIS ICT based (NACE 64, 72, 73) as percentage of the total".* (Challenges for EU support to innovation in services- Fostering new markets and jobs through innovation, PRO INNO Europe, n. 12)

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Still missing dimensions of analysis: suggestions for further integration and regional profiling

Diversification Rate

Inter-Industry Relatedness Index
(Teece et al, 1994)
Measure of the correlation between 2 industrial sectors

Specialization Rate

Revealed technological/comparative advantages Indicator
(Balassa, 1965)
Measure of the specialization (technological or trade) of a country/region

Intensity of connections

Measure of wideness and density of connections (track of knowledge exchange flows – collaboration) among the different actors of the territory (Triple Helicx, Etzkowitz, 1994). SNA Density measure.

Thanks for your attention

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