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Toward Innovation and Sustainable Growth
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Understanding the Knowledge-Based Roots of Regional Development

Prof. Giovanni Schiuma
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Agenda

- New Regionalism
- A Value-based interpretation of Regional Development
- IC as Value Driver of Regional Development
- Empirical Evidences of the Relevance of IC for Region Growth
- Final Discussion and Implications
The New Regionalism
Region is re-emerging as a unit of economic analysis for both interpretative and normative purposes

(Bassand, 1993; Claval, 1998; Cooke et al., 1997; Danson et al., 2000; Giddens, 1998; Harvie, 1994; Sharpe, 1993; Tomaney and Ward, 2000).
Relevance of Regions for Wealth Creation

In today’s global economy the territorial sphere is a fundamental unit of analysis for understanding political, social and economic processes.

Regions represent key dimensions to plan, design and implement development policies.
Understanding Regional Development

Interpreting regions as business units – two approaches

**PORTERIAN APPROACH**

To deliver high standard of living for their citizens, regions have to be competitive: Regional Competitiveness is based on productivity (Porter, 1990)

- Brooksbank and Pickernell, 1999;
- UK DTI, 1998;
- Dunning et al., 1998;
- European Commission, 1999;
- Gudgin, 1996;
- Haley and Baker, 1999;
- OECD, 1996

**‘REGIONAL SCIENTISTS’**

- Krugman, 1996;
- Scott and Lodge, 1985;
- Boltho, 1996;
- Kitson, Martin and Tyler, 2004;
- Boschma, 2004;
- Cellini and Soci, 2002;
- Camagni, 2002;
- Martin and Tyler, 2003;
- Budd and Hirmis, 2004;
- Gardiner et al., 2004;
- Kitson et al., 2004

‘Regions compete in the business environment’

‘Regions are neither a small version of a Nation, nor an agglomeration of firms’
A Holistic View of Regional Development

From a competitive perspective to a value-based understanding of the regional development

Dimensions of Value Creation of a Region

- Economic Value
- Social-Cultural Value
- Regional Development & Value Creation
- Environmental Value
- Cognitive Value
What are the value drivers of Regional Development?

Regional processes

"Intellectual Capital is the group of knowledge assets of a Region that most significantly drive its value creation dynamics."
Knowledge assets are critical success factors to stimulate and enhance the regional development ….

…. that the growth of a region is increasingly based on the development of the knowledge domain which drives the emergence of specialized competences as well as of dynamic capabilities

…. the definition and implementation of policies programs and projects aimed to support the regional development have to be based on an understanding and assessment of the knowledge assets building the IC of a region.
Empirical Evidences of the Relevance of IC for Regional Development

**Hypothesis:**

Knowledge assets ($IC = wetware + netware + hardware + software$) have a significant positive effect on the value creation of a region (as measured by economic value, socio-cultural value, environmental value and cognitive value).

Calculation of Linear Correlation between RICI and VCI

Exploring the links between Knowledge Assets and Value Creation Dimensions by a Robust Canonical Analysis
Empirical Evidences – The case of Italian Regions

Linear Correlation

\[ y = 1.3416x - 0.0509 \]
\[ R^2 = 0.7836 \]
Empirical Evidences – The case of Italian Regions

Robust Canonical Analysis
The Relationships Between Knowledge Assets and Value Creation

<table>
<thead>
<tr>
<th>Independent and Control Variables</th>
<th>Economic-Value Creation</th>
<th>Socio-Cultural Value Creation</th>
<th>Environ. Value Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetware (Human Capital)</td>
<td>0.5073</td>
<td>0.5855</td>
<td>0.4416</td>
</tr>
<tr>
<td>Hardware (Structural Capital)</td>
<td>0.4426</td>
<td>0.4441</td>
<td>0.2643</td>
</tr>
<tr>
<td>Software (Social Capital)</td>
<td>0.5748</td>
<td>0.4631</td>
<td>0.8174</td>
</tr>
<tr>
<td>Regional Size</td>
<td>-0.0183</td>
<td>0.0399</td>
<td>0.1505</td>
</tr>
<tr>
<td>Companies’ Presence</td>
<td>0.4649</td>
<td>0.4939</td>
<td>0.2105</td>
</tr>
</tbody>
</table>
Empirical Evidences (RCA) – The case of Italian Regions

Role of Knowledge Assets on Value Creation

- WETWARE: $a = 0.55$
- HARDWARE: $a = 0.45$
- SOFTWARE: $a = 0.51$

Role of Control Variables on Value Creation

- REGIONAL SIZE: $a = -0.51$
- COMPANIES’ PRESENCE: $a = 0.48$

Empirical Evidences (RCA)
Definition of methodologies for IC assessment and reporting at regional level

Identification of standard indicators for IC assessment

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevance (1-7)</th>
<th>Literature support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of graduates / 100 people 25 years old</td>
<td>7</td>
<td>Hinz and Junghauer-Gauss (1999); GC Report</td>
</tr>
<tr>
<td>New S&amp;E graduates per 1000 population aged 20-29</td>
<td>7</td>
<td>European Commission (2005a)</td>
</tr>
<tr>
<td>Number of graduates employed after three years from the degree / 100 graduates</td>
<td>7</td>
<td>European Commission (2005a)</td>
</tr>
<tr>
<td>PC users / 100 people</td>
<td>4</td>
<td>CoC (2005)</td>
</tr>
<tr>
<td>Number of professionals working in public and private R&amp;D activities</td>
<td>7</td>
<td>Malecki (2004)</td>
</tr>
<tr>
<td>Number of people with basic educational skills / 100 people</td>
<td>5</td>
<td>Malecki (2004)</td>
</tr>
<tr>
<td>Number of PhD scientists and engineers</td>
<td>7</td>
<td>Malecki (2004); CoC (2005); GC Report</td>
</tr>
<tr>
<td>Number of scientists and engineers graduates / 100 graduates</td>
<td>7</td>
<td>Malecki (2004); CoC (2005); GC Report</td>
</tr>
<tr>
<td>Number of university students in a mobility program / number of the university students</td>
<td>5</td>
<td>European Commission (2005a)</td>
</tr>
<tr>
<td>Number of qualified workforce availability</td>
<td>5</td>
<td>Prin (1995); Dakhli and De Clercq (2004a); CoC (2005)</td>
</tr>
<tr>
<td>Number of high school degree people / 100 people 19 years old</td>
<td>6</td>
<td>GC Report (2002)</td>
</tr>
<tr>
<td>High-skilled IT workers</td>
<td>5</td>
<td>GC Report (2002); European Commission</td>
</tr>
<tr>
<td>Number of professional managers leading firms of the region</td>
<td>5</td>
<td>GC Report (2002)</td>
</tr>
<tr>
<td>Professional and vocational training</td>
<td>5</td>
<td>Prin (1995); Dakhli and De Clercq (2004a); CoC (2005)</td>
</tr>
<tr>
<td>Population with tertiary education per 100 population aged 25-64</td>
<td>5</td>
<td>European Commission (2005a)</td>
</tr>
<tr>
<td>Participation in life-long learning per 100 population aged 25-64</td>
<td>5</td>
<td>European Commission (2005a)</td>
</tr>
</tbody>
</table>
IC as a bundle of knowledge assets is at the basis of Regional development.

Regions need to put in place systematic approaches of IC assessment for policy and programs design and implementation.

Regions need to design and implement policies, programs and initiatives aimed to stimulate and support IC development and management.
Knowledge assets are Dynamic

We need to link the approaches for assessing IC with those for managing knowledge assets
We need to integrate KM and IC perspectives in order to explore how KA dynamics create Value.

Learning organisation

Organisation learning

Individual learning

Relevance of knowledge

Intangible, Intellectual Capital & HR

Relevance of IC as intangible assets

Models/tools for KM

Impacts of KM

Measuring, reporting IC

IC Management

IC Dynamics for Value Creation
Thank you

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Knowledge Assets Items

- Number of graduates / 100 people 25 years old;
  - Number of graduates employed after 3 years from degree / 100 graduates;
  - Number of professionals working in public and private R&D activities;
  - Number of high school degree people / 100 people 19 years old.

- Number of Universities in the Region;

- Number of Research Centers in the Region;
  - Number of Associations in the Region.

- Rate of irregular work;
  - Women employed / 100 employed;
  - Crime rate

Wetware          Hardware          Software

Control Variables Items

- Resident Population;
- Registered Companies
- Demographic Density
- Entrepreneurial Density

Regional Size    Companies’ Presence
### Value Creation Items

<table>
<thead>
<tr>
<th>Economic Value</th>
<th>Socio-Cultural Value</th>
<th>Environmental Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Gross Regional Product per capita;</td>
<td>- Unemployment rate;</td>
<td>Energy consumption;</td>
</tr>
<tr>
<td>- Savings Deposits per capita;</td>
<td>- Incidence of relative poverty among families.</td>
<td>- Use of renewable energy;</td>
</tr>
<tr>
<td>- Value Added per capita;</td>
<td></td>
<td>- Recycling rate;</td>
</tr>
<tr>
<td>- Employment rate.</td>
<td></td>
<td>- Air quality;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Gas emission.</td>
</tr>
</tbody>
</table>
New Regionalism

Economic Factors
- Successful local economic and production systems
- Exploitation of local resources
- Territorial competition in the world market

Political and Institutional Factors
- Decentralisation of administrative competencies
- Success of federal models of governance

Socio-Cultural Factors
- Emergence of local and regional identities

Problems of Nation States
- Multilevel Governance Models
- Social Pluralism

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