The Triple Helix as nexus in smart specialization strategies

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THE CHALLENGE anno 2013

• The need to align:
  o Innovation Policy + New Industry Policy

• Innovation Policy:
  o 3% norm
  o Horizon 2020
  o EU >< national/regional R&D budgets (±5%)

• New Industry Policy:
  o Avoid the pitfalls of the past
  o Focus on consortium- & project-driven approaches
  o With an explicit transformation objective
THE NEXUS

**Smart Specialization Strategy --- “3S”:**
- Combining, linking Innovation Policy & New Industry Policy
- Objective: the knowledge-based transformation of the industrial/business texture of a region or nation

**What? Choices based on:**
- Unique knowledge, innovation and economic capabilities present in a region or nation,
- Clustering of activities on the basis of an entrepreneurial discovery process,
- Supported by cycles of policy learning in a Triple Helix context and approach.

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3S TRANSFORMATION: 4 MODES

- **Transition** is one pattern of structural changes that a smart specialization strategy is likely to generate. Transition occurs when a new economic domain emerges from existing industrial commons (a collection of R&D, engineering, and manufacturing capabilities that sustain innovation). *E.g. the development and growth of a sustainable chemistry sector out of the present chemical industrial commons.*

- **Modernization** is another pattern. It is manifest when the development of specific applications of a general-purpose technology produces a significant impact on the efficiency and quality of an existing (often traditional) sector. *E.g. rejuvenating present, traditional manufacturing operations through the introduction of mechatronics’ technologies.*

- **Diversification** in a narrow sense is a third pattern. In such cases the discovery concerns potential synergies (economies of scope, spillovers) that are likely to materialize between an existing activity and a new one. *E.g. diversification of traditional textile activities into a high value-added technical textiles industry.*

- A fourth strategic pattern involves the **radical foundation** of an economic activity domain. In this case, the discovery is that R&D and innovation in a certain field has the potential to make some activities progressive and attractive that had not been previously. *E.g. nanotechnologies for health via medical technology applications.*
THE ANALYTICAL BASIS

\[
RCA = \frac{X_{e,s}}{X_{e,a}} \frac{X_{r,s}}{X_{r,a}}
\]

LEGEND

Variable:

\(X\) = the activity considered (export, patents, publications, …)

Subscripts:

\(e\) = the focal entity (country or region), \(r\) = the reference group of entities (countries or regions),
\(s\) = the activity considered (e.g. technology domain or economic sector), \(a\) = all activities considered
### Table 2 Energy & Fuels (biodiesel)

Data sourced from Thomson Reuters Web of Knowledge.

<table>
<thead>
<tr>
<th>Country</th>
<th>ISI Category (N=39160)</th>
<th>Topic (N=7059)</th>
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<tbody>
<tr>
<td></td>
<td>Papers Share MOCR MECR RCR</td>
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</tr>
<tr>
<td>Belgium</td>
<td>198 0.7% 3.94 3.49 1.13</td>
<td>50 0.7% 4.14 3.82 1.08</td>
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<tr>
<td>Brazil</td>
<td>523 1.8% 3.50 3.82 0.91</td>
<td>140 2.0% 3.71 3.76 0.99</td>
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<tr>
<td>Denmark</td>
<td>318 1.1% 5.00 3.28 1.52</td>
<td>75 1.1% 10.01 3.44 2.91</td>
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<tr>
<td>France</td>
<td>1265 4.3% 3.27 3.23 1.01</td>
<td>328 4.6% 3.80 3.80 1.00</td>
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<td>Germany</td>
<td>1294 4.4% 3.35 3.06 1.09</td>
<td>326 4.6% 4.63 3.80 1.22</td>
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<td>Greece</td>
<td>462 1.6% 3.38 3.27 1.04</td>
<td>120 1.7% 3.59 3.13 1.15</td>
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<tr>
<td>India</td>
<td>1510 5.2% 4.11 3.97 1.04</td>
<td>421 6.0% 4.53 3.88 1.17</td>
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<td>Italy</td>
<td>811 2.8% 3.40 3.44 0.99</td>
<td>223 3.2% 3.89 3.65 1.06</td>
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<tr>
<td>Japan</td>
<td>1524 5.2% 3.52 3.87 0.91</td>
<td>499 7.1% 4.29 4.14 1.04</td>
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<tr>
<td>Netherlands</td>
<td>480 1.6% 3.94 3.44 1.14</td>
<td>94 1.3% 4.65 3.89 1.19</td>
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<tr>
<td>China</td>
<td>3759 12.9% 3.68 3.58 1.03</td>
<td>1218 17.3% 4.12 3.78 1.09</td>
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<tr>
<td>Poland</td>
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<td>97 1.4% 3.66 3.66 1.00</td>
</tr>
<tr>
<td>Spain</td>
<td>1120 3.8% 3.51 3.76 0.93</td>
<td>262 3.7% 3.62 3.70 0.98</td>
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<tr>
<td>Sweden</td>
<td>568 1.9% 3.71 3.44 1.08</td>
<td>93 1.3% 3.66 3.64 1.00</td>
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<tr>
<td>UK</td>
<td>1424 4.9% 3.26 3.12 1.05</td>
<td>307 4.3% 3.78 3.09 1.22</td>
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<tr>
<td>USA</td>
<td>5136 17.6% 3.50 3.23 1.08</td>
<td>1036 14.7% 4.11 3.60 1.14</td>
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<td>EUR15</td>
<td>7778 26.7% 3.38 3.31 1.02</td>
<td>1806 25.6% 4.02 3.58 1.12</td>
</tr>
</tbody>
</table>

Source: ECOOM
THE ANALYTICAL BASIS, STIE strenghts

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THE ANALYTICAL BASIS, STIE strengths

Source: ECOOM

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THE ANALYTICAL BASIS, STI & Economic Performance based on RCA

Flemish data, ECOOM

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THE ANALYTICAL BASIS, Economic strengths

Flemish data, ECOOM & STORE

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THE ANALYTICAL BASIS, Combining export intensity/share & technology basis

Flemish data, ECOOM & STORE

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CONCLUSION

Country or regional (baseline) profile:
- Indicators
- Priorities
- Clusters
- Institutions

Country or regional governance mechanisms for:
- Priority-setting
- Clustering

Tribe Helix interactive process of policy action & policy learning to support, stimulate, select clusters of smart specialization activity built on the knowledge and innovation resources present in country or region

Entrepreneurial discovery processes by lead actors and lead institutions supporting country/ regional presence in global economic value chains

3S Portfolio:
- Modernization
- Transition
- Diversification
- Foundation