What to measure in innovation ecosystems: Lithuanian experience

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17 April, 2018 | 3rd Learning Journey in Vilnius
Content review

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II. Lithuanian SMART Specialization Evaluation System
III. Set of Indicators
IV. Example Key Indicators: SMART Specialization
V. Example Key Indicators: MANUMIX Policy-Mix
Lithuanian SMART Specialization Evaluation Cycle

1. **New Strategy**
2. **Process Efficiency (Implementation)**
3. **Impact**
4. **Efficiency (ROI)**
5. **Efficacy (compared to ROI)**
6. **Effectiveness (money + expectations)**
7. **Relevance (is it right?)**
Lithuanian SMART Specialization Evaluation System (1)

**Monitoring**
Includes monitoring and evaluation of Smart Specialisation programme indicators

- Monitoring period - last 12 months
- 5 evaluation reports in total

**Interim Evaluation**
Includes evaluation of the Smart Specialisation programme progress on relevance, effectiveness, efficiency, and etc. aspects

- The progress evaluation period is every 24 months
- 2 evaluation reports in total
- Entrepreneurial Discovery Process applied

**Impact Assessment**
Includes SMART Smart Specialisation programme final impact assessment (as ex-post)

- Impact assessment period is 5 years
- 1 evaluation report in total

Innovation policy evaluation in SMART specialization context
# Lithuanian SMART specialization Evaluation System (2)

<table>
<thead>
<tr>
<th>No.</th>
<th>Scope of assessment</th>
<th>Type of assessment</th>
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<tbody>
<tr>
<td>1.</td>
<td>Changes in environmental factors that could affect the implementation of the Smart Specialization Program</td>
<td>Monitoring</td>
</tr>
<tr>
<td>2.</td>
<td>The relevance of the Smart Specialization Program priorities for investment and the impact perspectives</td>
<td>Monitoring, Interim</td>
</tr>
<tr>
<td>3.</td>
<td>Implementation of R&amp;D&amp;I policy instruments</td>
<td>Monitoring, Interim</td>
</tr>
<tr>
<td>4.</td>
<td>Implementation of projects funded by R&amp;D&amp;I policy instruments</td>
<td>Monitoring, Interim</td>
</tr>
<tr>
<td>5.</td>
<td>Participation in international research programs</td>
<td>Monitoring, Interim</td>
</tr>
<tr>
<td>6.</td>
<td>The status of research and education institutions in the international context</td>
<td>Monitoring, Interim</td>
</tr>
<tr>
<td>7.</td>
<td>R&amp;D&amp;I trends in business sector</td>
<td>Monitoring, Interim, EDP</td>
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<td>8.</td>
<td>R&amp;D&amp;I trends in research sector</td>
<td>Monitoring, Interim, EDP</td>
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<tr>
<td>9.</td>
<td>Effectiveness of R&amp;D&amp;I policies</td>
<td>Interim, Impact (ex-post)</td>
</tr>
<tr>
<td>10.</td>
<td>Impact of Smart Specialization Program on economic sectors</td>
<td>Impact (ex-post)</td>
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<td>11.</td>
<td>Impact of the implementation R&amp;D&amp;I policies on the priorities of the Smart Specialization program</td>
<td>Impact (ex-post)</td>
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</table>
Set of Indicators

**Input Indicators**
Monitoring whether adequate public and private resources are allocated, how efforts and resources are concentrated in different areas of Smart Specialization

**Output Indicators**
Monitoring the implementation of the priorities of the Smart Specialization Program

**Outcome Indicators**
Monitoring the progress of the Smart Specialization Program and the value of the products created during its implementation, the benefits to the direct target groups

**Impact Indicators**
Monitoring the impact of the implementation of the Smart Specialist program on the country’s economy
Example Key Indicators: SMART Specialization

Input level

- Normalized citation rate
- Number of publications
- Requested amount of public investment
- ERI spin-offs
- The amount of public investment allocated
- R&D infrastructure by ERI who submitted and received funding
- Field of economic activity / economic field of activity for which the project is intended
- The number of ERI researchers who submitted the application and received funding
- Number of employees / researchers of the applicants who submitted and received funding
- Ratio of requested and targeted public investments
- Volume of applications for international research programs
- Number of patents and other intellectual outputs
- International publications
- Annual export volumes of applicants and applicants who received funding
- Annual R&D expenditures of applicants who submitted and received funding
- Concentration of Technologies (Herfindahl–Hirschman (HH) index)
- Estimated Return on Investment
**Example Key Indicators: MANUMIX Policy-Mix**

<table>
<thead>
<tr>
<th>Targeted Scientific Research in the Field of Smart Specialization</th>
<th>Promotion of Activities of Centres of Excellence and Centres for Innovation and Technology Transfer</th>
<th>Commercialization of R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIENTIFIC RESEARCH: Research; attraction of foreign-based scientists; R&amp;D activities of parallel laboratories</td>
<td>CAPACITY BUILDING: Competence development of R&amp;D personnel</td>
<td>The general final goal of R&amp;D production commercialization is settled</td>
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<td><strong>Participants:</strong> Institutions of research and education</td>
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</tr>
<tr>
<td>University hospitals</td>
<td>University hospitals</td>
<td>Companies licensed to use intellectual property created in IRE.</td>
</tr>
</tbody>
</table>

The most problematic area of policy intervention is settled.

Same target group is influenced over the policy process.

The general final goal of R&D production commercialization is settled.
## Key Performance Indicators

<table>
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<th>SCIENTIFIC RESEARCH</th>
<th>CAPACITY BUILDING</th>
<th>TESTING R&amp;D-BASED IDEAS</th>
<th>R&amp;D COMMERCIALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research; attraction of foreign-based scientists; R&amp;D activities of parallel laboratories</td>
<td>Competence development of R&amp;D personnel</td>
<td>Technology development, prototyping, testing, demonstration</td>
<td>Market launch and full commercial application</td>
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### KEY PERFORMANCE INDICATORS

- Number of patents, prototype technology and other intellectual outputs
- R&D expenditure as a percentage of total costs
- Number of enterprises cooperating with ERI
- Number of new companies that received investments

**Indicators applied only to the commercialization instrument**
Curent MANUMIX Policy-Mix Indicators under SMART Specialisation Evaluation

During the SMART specialization assessment, the evaluation indicators, which include the level of input and impact, are distinguished.

### Input Indicators (to distinguish potential)
- Requested amount of public investment; The amount of public investment allocated;
- Ratio of requested and targeted public investments; Number of ERI researchers who received funding; ERI annual R&D orders; Licensees and other R&D activities; ERI spin-offs;
- Number of publications; Normalized citation rate; International publications; Volumes of applications for international research programs; ERI R&D infrastructure; Technological Concentration

### Output Indicators (to distinguish performance)
- Number of new companies that received investments; Number of enterprises cooperating with ERI; Increase in the financial value of ERI contracts with companies

### Outcome Indicators (to distinguish results)
- R&D expenditure as a percentage of total costs; Number of patents, prototype technology and other intellectual outputs

### Impact Indicators
- Employment; Added value; Productivity; Export; Investments; Receptivity for technologies and highly skilled workforce; Better success rate in Horizon 2020; Number of publications; ERI revenues from the results of intellectual activity
Main Challenges

- How to assess the suitability of every policy instrument to achieve the strategic objective?

- How to assess the relative impact of every policy instrument?

- How to assess the degree to which every intervention is competing or is complementary in terms of contribution?
The assessments of the appropriateness of the policy instruments must include qualitative data and the reconstruction of the intervention logic.

The assessments must include the theory of change.

Evaluations should address the issues of the effectiveness of policy instruments, that can be answered with the help of quantitative and qualitative data triangulation.
Thank you!