Lithuania: Towards a RIS3 strategy

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Our questions to the critical peer friends:

1. How the priorities should be implemented taking into account the different maturity of the participating sectors?

2. How the implementation of the selected priorities should be measured?

3. How RIS3 implementation should be coordinated with other R&I policy measures?
Strategic vision Lithuania2030

National strategy Lithuania2030 approved by Lithuanian Parliament, May 2012:
Lithuania is a smart country: a good place to live and work

- Smart society: happy society that is open [openness] to the ideas of each citizen [creativity], to innovations and challenges, demonstrating solidarity, self governance and political maturity [responsibility].
- Smart economy: economy that is flexible and able to compete globally [openness], generating high added value, based on knowledge, innovations entrepreneurship [creativity] and social responsibility as well as “green” growth [responsibility].
- Smart governance: governance that is open and participatory [openness], delivering, meeting public demands and ensuring high quality services [responsibility], as well as competent government, able to take targeted strategic decisions [creativity].

The vision Lithuania2030 will be implemented by National Progress Program and OP
The context: manufacturing and added value to GDP

Source: Eurostat
The context: industrial structure

Structure of Lithuanian manufacturing industry by turnover in 2012, %

- Manufacture of refined petroleum products: 34.8%
- Manufacture of food products: 11.6%
- Manufacture of chemical products: 17.2%
- Manufacture of furniture: 5.8%
- Manufacture of wood and of products of wood: 2.1%
- Manufacture of plastic products: 3.7%
- Manufacture of fabricated metal products: 2.9%
- Manufacture of wearing apparel: 2.3%
- Manufacture of beverages: 2.5%
- Other manufacturing industries: 3.9%

Source: Enterprise Lithuania, 2013
The context: industry growth

Changes in turnover by manufacturing industry in 2012, € million

Source: Enterprise Lithuania, 2013
The context: R&D landscape

23 universities: 14 state, 9 private
24 colleges: 13 state, 11 private
21 research institutes: 13 state, 8 private
17 300 researchers, 7 800 with PhDs
300 – 400 new doctoral degrees each year
9.7 % researchers in business and industry
0.92 % of GDP expenditure on R&D
€ 73,6 mil. business expenditure on R&D (2011)
9 granted EPO patents from 64 applications (2002 – 2011)

Source: Ministry of Science and Education, MOSTA, 2013
The context: Valleys

“Santaka” valley
- Sustainable Chemistry and Biopharmacy;
- Mechatronics and Related Technologies;
- Future Energy and Environment Engineering;
- Information and Communication Technologies

“Santara” valley
- Biotechnology;
- Molecular Medicine and Biopharmacy;
- Research of Ecosystems and Sustainable Environment;
- Design, Informatics and Technologies of Communications

“Sunrise” valley
- Laser and Light Technologies;
- Material Science and Nanoengineering;
- Electronics and Organic Electronics;
- Civil Engineering

“Nemunas” valley
- Agrobiotechnology, Bioenergy and Forestry;
- Safe and Healthy Food Technologies

Maritime sector valley
- Marine environment;
- Marine technologies

Source: Ministry of Science and Education, 2013
The context: innovation

Figure 2: EU Member States’ innovation performance

Source: Innovation union scoreboard
Our progress on RIS3

- Development of methodology
  December 2012

- Development of management structure
  January 2013

- Improvement of methodology and awareness raising
  (constant activity)
  February 2013

- Analysis of key challenges, trends and drivers at national and international level. Expert panels.
  March/April 2013

- Assessment of current potential in R&D and business.
  March/April 2013

- National survey and expert panels.
  PRIORITY FIELDS
  May/June 2013

- KET and process analysis in the priority fields
  July/August 2013

- Panels, surveys, stakeholder workshops
  PRIORITY IN THE PRIORITY FIELDS
  September/October 2013

- Project pipeline, roadmaps and strategy for RIS3 implementation, monitoring and evaluation system
  End of 2013
Process of identification

RIS3 guide

National methodology

Analysis of potential in R&D
Analysis of potential in economy
Analysis of challenges

Consultation with RIS3 platform
7 panels with stakeholders
Consultation with Ministries
National survey (n= 614)

Priority field 1...6
Priority implementation programs
Joint research-business projects

Priority 1
Priority X

Monitoring and impact evaluation
# Key challenges

<table>
<thead>
<tr>
<th>The most important challenges (prioritised)</th>
<th>Response rate, % out of 614 respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>The deteriorating demographic situation</td>
<td>62,1%</td>
</tr>
<tr>
<td>Insufficient diversification of energy sources, high energy price, improvident and ineffective use of energy</td>
<td>56,6%</td>
</tr>
<tr>
<td>Unsustainable regional development, poverty, shadow labour market and lack of social cohesion</td>
<td>55,6%</td>
</tr>
<tr>
<td>The deteriorating psychological state of the society, growing alienation and intolerance, insufficient fostering of the culture</td>
<td>54,1%</td>
</tr>
<tr>
<td>Gap between skills and labour market needs, insufficient development of talent and creative potential</td>
<td>43,5%</td>
</tr>
<tr>
<td>The lack of business-science, intersectoral and international cooperation in creating new knowledge, technology and innovations</td>
<td>40,5%</td>
</tr>
<tr>
<td>The lack of public sector innovations and low efficiency</td>
<td>38,7%</td>
</tr>
<tr>
<td>Low productivity of business, lack of advanced technologies, processes and product innovations</td>
<td>34,5%</td>
</tr>
<tr>
<td>The lack of smart and sustainable urban development</td>
<td>19,4%</td>
</tr>
<tr>
<td>Ineffective prevention, diagnostic and treatment of chronic, work and lifestyle-related diseases</td>
<td>17,9%</td>
</tr>
<tr>
<td>Unsustainable change of ecosystems (waste, eco-innovations, air and water quality, landscape, soil, biodiversity etc.)</td>
<td>15,9%</td>
</tr>
<tr>
<td>Insufficiently healthy and safe food, lack of new food sources and the waste of raw food</td>
<td>15,4%</td>
</tr>
<tr>
<td>Growing technological, cyber and e-security challenges</td>
<td>13,1%</td>
</tr>
<tr>
<td>Insufficient exploitation of international transport links and potential of smart technologies in managing logistics and transport streams</td>
<td>10,3%</td>
</tr>
<tr>
<td>Irrational use of Baltic Sea potential and natural resources</td>
<td>8,1%</td>
</tr>
<tr>
<td>Lack of smart defence systems, management of risks of natural hazards and disasters</td>
<td>1,9%</td>
</tr>
</tbody>
</table>
Competitive advantages/opportunities

**Tradicional sectors:**
Modernisation and strengthening knowledge based growth potential.
- Manufacture of wood and of products of wood and cork;
- Manufacture of articles of straw and plaiting materials;
- Manufacture of furniture;
- Construction;
- Manufacture of paper and paper products.

**Current cornerstones:**
Further technological upgrading.
- Warehousing;
- Land transport and transport via pipelines;
- Water transport;
- Crop and animal production, hunting;
- Forestry and logging;
- Chemicals and chemical products;
- Food products, beverages and tobacco products;
  - Telecommunications;
  - Financial services.

**Natural priorities:**
Further strengthening of competitive advantages.
- Computer, electronic and optical products;
- Pharmaceutical products and pharmaceutical preparations;
  - Machinery and equipment;
  - Computer programming, consultancy, and information services;
  - Basic metals.

**Challenges ahead:**
Restructuring, new markets or products.
- Textiles, wearing apparel, leather and related products;
  - Manufacture of other transport equipment;
  - Other non-metallic mineral products;
  - Fabricated metal products, except machinery and equipment.

**Sectors in transition:**
Shift in factors of production towards high-tech and skilled labour.
- Electricity, gas, steam and air conditioning supply;
  - Wholesale and retail trade;
  - Printing and reproduction of recorded media;
  - Sewerage, waste management, remediation activities;
  - Air transport;
  - Water collection, treatment and supply;
  - Fishing and aquaculture;
  - Postal and courier activities;
  - Publishing activities;
  - Manufacture of rubber and plastic products.

**Emerging / niche knowledge driven sectors:**
From facilitation of radical innovation to support for commercialisation in world markets.
- Motor vehicles, trailers and semi-trailers;
  - Electrical equipment;
  - Advertising and market research;
  - Architectural and engineering activities;
  - Insurance, reinsurance and pension funding.

**Potential for knowledge driven growth**
Competitive advantages/opportunities

Analysis of potential in R&D based on criteria:

1. Research impact
2. International co-publications
3. Highly-cited publications
4. Access to national funding
5. Access to international funding though FP7
6. Doctoral student international activities
7. Post-doc activities
8. Student research activity
9. Marie Curie activities
10. Capacities
11. Local business grants
12. International business grants
13. Public-private co-publications
14. "Innocheque" program

Excellence in research

Collaboration with business
## Competitive advantages/opportunities

<table>
<thead>
<tr>
<th>RESEARCH AREAS</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>14</td>
</tr>
<tr>
<td>Materials engineering</td>
<td>14</td>
</tr>
<tr>
<td>Chemistry</td>
<td>13</td>
</tr>
<tr>
<td>Biological sciences-Life Sciences</td>
<td>12</td>
</tr>
<tr>
<td>Earth and related Environmental sciences</td>
<td>10</td>
</tr>
<tr>
<td>Clinical medicine</td>
<td>10</td>
</tr>
<tr>
<td>Electrical, Electronic and Information engineering</td>
<td>7</td>
</tr>
<tr>
<td>Economics and Business incl Management</td>
<td>7</td>
</tr>
<tr>
<td>Civil engineering</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>Environmental engineering</td>
<td>5</td>
</tr>
<tr>
<td>Agriculture, Forestry, and Fisheries</td>
<td>5</td>
</tr>
<tr>
<td>Basic medicine</td>
<td>5</td>
</tr>
<tr>
<td>Biological sciences-Natural sciences</td>
<td>4</td>
</tr>
<tr>
<td>Health sciences</td>
<td>4</td>
</tr>
<tr>
<td>Food and beverages</td>
<td>3</td>
</tr>
<tr>
<td>Sociology</td>
<td>3</td>
</tr>
<tr>
<td>History and Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>Arts (arts, history of arts, performing arts, music)</td>
<td>3</td>
</tr>
<tr>
<td>Social and economic geography</td>
<td>2</td>
</tr>
<tr>
<td>Languages and Literature</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>1</td>
</tr>
<tr>
<td>Medical engineering</td>
<td>1</td>
</tr>
<tr>
<td>Nanotechnology</td>
<td>1</td>
</tr>
<tr>
<td>Animal and Dairy science</td>
<td>1</td>
</tr>
<tr>
<td>Psychology</td>
<td>1</td>
</tr>
<tr>
<td>Law</td>
<td>1</td>
</tr>
<tr>
<td>Political science</td>
<td>1</td>
</tr>
<tr>
<td>Philosophy, Ethics and Religion</td>
<td>1</td>
</tr>
<tr>
<td>Other humanities</td>
<td>1</td>
</tr>
<tr>
<td>Computer sciences</td>
<td>1</td>
</tr>
</tbody>
</table>
A regional point of view

- Analysis of international (regional) challenges
- Analysis of R&D and economy potential in the context of international competition
- Dialog with Baltic countries - Latvia and Estonia (Memorandum)
- Baltic region strategy – potential to become regional platform
- Participation in RIS3 platform
- Consultations with RIS3 representatives
- Case analysis of peer-reviewed/other countries

Baltic States: Different approach to the RIS3 and sectors:

### Latvia

- **Energy and environment**
  - Energy and environment (including transport and engineering science)
  - Sustainable use of local resources (forests, water, food)
- **Innovative materials and technologies and ITC**
  - Nanostructured and multifunctional materials, constructions and technologies
  - IC and technologies of signal processing
- **Health of the society**
  - Health of society and clinical medicine
  - Social economics and societal management
- **National identity**
  - Latvian language, cultural-historical heritage and creative technologies

### Estonia

#### Sectors with greatest R&D potential

- **ICT (horizontally through other sectors)**
  - Biotechnology
  - E-medicine
- **Resources**
  - Materials science
  - “Innovative construction”
  - Functional food
  - Chemical industry

EESTI ARENGUFOND
Entrepreneurial dynamics

- We believe that Smart Specialization can be only achieved based on mutual stakeholder “agreement“
- Stakeholder involvement in every level from the very beginning of the process
- 7 panels with more than 100 experts involved
- More than 50 awareness raising events

- We facilitate the process of entrepreneurial discovery in three stages of different scale:
  - Agreement on broad priorities
  - Agreement on specific priorities
  - Joint science-business projects
- Every stage is based on the actual stakeholders‘ dialogue to solve mutual socioeconomic problems

Problems:
- Hard to involve all planned representatives
- Not equal participation of the business sector
- Different understanding of the RIS3
- Inertia
- „Excellence everywhere“
- Diversity (everything in small scale)
- Different maturity of dialogue with research
- “Political correctness”
Governance

**Government**

- Approval and adoption of legal acts

**Strategic R&D and Innovation Council led by Prime Minister**

- Approval of proposed priority areas and priorities

**Coordination group:**
- Ministries & implementing agencies
  - Proposals for priority areas and priorities

**Stakeholder involvement**

- International independent expert group
- Expert groups (academia, business, decision makers)
Preliminary priority fields

Delivered on criteria:

1. High potential to increase global market share of Lithuanian ventures and commercialize available knowledge
2. High R&D potential in private sector
3. High R&D potential in public sector
4. Priority field is an important and appropriate answer to the national and global challenges
## Preliminary priority fields

<table>
<thead>
<tr>
<th>Priority field</th>
<th>R&amp;D pot.</th>
<th>Economy pot.</th>
<th>Challenges</th>
<th>Valleys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient energetics and sustainable environment</td>
<td>High or prospective</td>
<td>„Consumers“ (excl. IT)</td>
<td>Important (with high impact)</td>
<td>Saulėtekis, Santara, Santaka, Nemunas</td>
</tr>
<tr>
<td>New processes, materials and technologies for manufacturing</td>
<td>High</td>
<td>„Creators“ and „Consumers“</td>
<td>Important</td>
<td>Saulėtekis, Santaka, Santara</td>
</tr>
<tr>
<td>Health, health technologies and biopharmacy</td>
<td>High</td>
<td>„Creators“ and „Consumers“</td>
<td>Important (with high impact)</td>
<td>Santara, Santaka</td>
</tr>
<tr>
<td>Food technologies and agro-innovation</td>
<td>Prospective</td>
<td>„Consumers“</td>
<td>Significant</td>
<td>Nemunas</td>
</tr>
<tr>
<td>Transportation, logistics and e-systems</td>
<td>Prospective</td>
<td>„Consumers“ (excl. IT)</td>
<td>Significant</td>
<td>Saulėtekis, Santaka, Santara, Marine valley</td>
</tr>
<tr>
<td>Inclusive and learning society</td>
<td>Prospective</td>
<td>„Consumers“ (excl. IT)</td>
<td>Important</td>
<td></td>
</tr>
<tr>
<td><strong>ICT as a horizontal priority empowering all fields</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Implementation and Budget

National level
• Implementation structure under development
• Budget: OP + National allocations + EU
• Covered by Ministry of Education and Science and Ministry of Economy measures and programs
• + possible measures from related ministries
• Implemented by stakeholders with private R&D+I investments
• Implementation coordinated:
  – on strategic level by the Strategic R&D and Innovation Council
  – on operational level by Ministry of Science and Education and Ministry of Economy

Regional level (Baltic states)
• Aim to map and coordinate the development of R&D infrastructure
• Horizon2020
• Possible thematic joint projects
• Joint study programs
Integration into National strategic documents

- **RIS3**
  - **Lithuania2030**
    - **NRP**
    - **OP**
  - **Innovation strategy**
  - **Studies and R&D programme**
  - **Valleys strategy**
  - **Priority areas**
    - **Priority implementation program**

**Statuses:**
- Approved
- In progress/To be updated
Measuring the progress

- Monitoring and evaluation mechanisms are planned as integral part of RIS3 strategy
- At the moment the implementation model is not finalized
- Dialogue with main stakeholder ministries for coordination of monitoring and evaluation systems
- Review of existing KPIs
Self-assessment

Driving economic change through smart specialisation/RIS3

Lithuania 2012.06.25
Summary and next steps

- Further facilitation of dialogue between stakeholders
- Broader involvement of relevant thematic ministries
- Constant communication
- Supporting measures for deeper involvement of the private sector
- Believe that RIS3 is an instrument for development of a smart country
Our questions to the critical peer friends (1):

How the priorities should be implemented taking into account the different maturity of the participating sectors?

Following the RIS3 guide we designed a bottom up process for Smart Specialization priorities identification. Different sectors talk together and try to identify the possible collaborative priorities that they want to and can implement. We supervise the process in order that these bottom-up priorities would be achievable and significant for the socioeconomic wellbeing of the country. But the collaborating sectors might be at a very different maturity level in terms of knowledge usage, size, experience of working together with researchers and etc. This situation might be an obstacle for a successful implementation of the priorities and further dialogue until 2020.
Our questions to the critical peer friends (2):

How the implementation of the selected priorities should be measured?

We aim to deliver the priorities that are not oriented to one specific sector of economic activity or one specific field of research. Rather they should be cross-sectorial and multidisciplinary. We would like to hear any relevant experience how the process of RIS3 implementation, outcomes and impacts could be measured?
Our questions to the critical peer friends (3):

How RIS3 implementation should be coordinated with other R&I policy measures?

What policy mix guidelines could be applied to coordinate financing from different sources (in our case the main source is SF) to achieve the best result in Smart Specialization implementation?