Economic Development and Innovation in Lithuania: What Challenges Ahead?

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Some facts

Lithuanian economy is dominated by industries requiring medium and low level qualifications (50.6%)* and only 3.5% requires high level qualifications.

Lithuanian economical structure is dominated by sales oriented businesses (food, tobacco, leather, publishing, etc.), capital intensive (oil refinery, basic chemicals) and also by labour intensive industries. R&D oriented industry (pharmaceuticals, computers, electronics, automotive) comprises 5.9% only.

73% of all Lithuanian industrial production is created by mid and low tech industries. And just 4.4% - by high tech.

Structure of Lithuanian economy is not favourable to demonstrate high absorptive capacity of innovations.
### The value-added across sectors in 2005, bln. Litas

<table>
<thead>
<tr>
<th>Sector</th>
<th>Value-Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and forestry</td>
<td>3.6</td>
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<tr>
<td>Mining</td>
<td>0.3</td>
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<tr>
<td>Manufacturing</td>
<td>13.8</td>
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<tr>
<td>Electricity, gas and water supply</td>
<td>2.6</td>
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<tr>
<td>Construction</td>
<td>4.8</td>
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<tr>
<td>Internal trade</td>
<td>11.4</td>
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<tr>
<td>Hotels and restaurants</td>
<td>6.2</td>
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<tr>
<td>Transport and storage</td>
<td>2.1</td>
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<tr>
<td>Post and communication</td>
<td>1.7</td>
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<tr>
<td>Financial intermediaries</td>
<td>3.2</td>
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<tr>
<td>Real estate</td>
<td>3.2</td>
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<tr>
<td>Public administration and defense</td>
<td>1.9</td>
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<tr>
<td>Education</td>
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<tr>
<td>Health care and social work</td>
<td></td>
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</tbody>
</table>

Values are in bln. Litas.
The change in value-added across sectors in 2004, 2005 (percentage)

- Agriculture and forestry: 11.9% (2004), 6.4% (2005)
- Mining: 10.8% (2004), 10.4% (2005)
- Manufacturing: -0.1% (2004), 9.4% (2005)
- Construction: 8.6% (2004), 6% (2005)
- Internal trade: 6.4% (2004), 5.2% (2005)
- Post and communication: 7.8% (2004), 7.2% (2005)
- Financial intermediaries: 12.5% (2004), 8.3% (2005)
- Real estate: 6.8% (2004), 7.1% (2005)
- Public administration and defense: 4.2% (2004), 3.8% (2005)
- Education: 4.4% (2004), 4.8% (2005)
- Health care and social work: 2.7% (2004), 1.8% (2005)
Export structure by product groups (2005)

- Mineral products
- Agricultural and food industry products
- Machinery and Equipment
- Textile industry products
- Vehicles
- Chemical products
- Wood industry
- Furniture
- Metal products
- Plastic, rubber products
- Other

Šaltinis: SEB Vilniaus bankas, 2005
Change in Employment and Average Wage (2005, 1 half, percentage)

Source: Nord/LB, 2006)
The role of manufacturing sector in the economic structure is more significant than its real share in the total value-added. The main reasons:

- Manufacturing sector is closely linked with the service sector. The successful development of service sector is hardly possible without direct contact with production processes;

- Manufacturing is the main area of economy which contributes to the transfer of scientific knowledge into innovations and technologies.
Lithuanian competitiveness

- **Short-term perspective** – cloudless sky

- **Long-term perspective** –
  danger of not staying on the sideway

- **Medium-term perspective** - lack of labour force, China factor, decrease in export volumes
List of countries in each stage of development

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Transition from 1 to 2</th>
<th>Stage 2</th>
<th>Transition from 2 to 3</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor-driven</td>
<td></td>
<td>Efficiency-driven</td>
<td></td>
<td>Innovation-driven</td>
</tr>
<tr>
<td>Income of less than US$2,000</td>
<td>Income US$2,000-US$3,000</td>
<td>Income US$3,000-US$9,000</td>
<td>Income US$2,000-US$17,000</td>
<td>Income more than US$17,000</td>
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<td>Armenia</td>
<td>Albania</td>
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<td>Czech Republic</td>
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<td>Bolivia</td>
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<td>Bosnia and Herzegovina</td>
<td>Tunisia</td>
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<td>Korea</td>
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<td>China</td>
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<td>Croatia</td>
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<td>Indonesia</td>
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<td>Latvia</td>
<td>Taiwan</td>
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<td>Mali</td>
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<td>Pakistan</td>
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<td>Luxembourg</td>
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<td>United Kingdom</td>
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<td></td>
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<td>United States</td>
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</tbody>
</table>

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Innovators

Early Majority

Late Majority

Laggards

Challenge for “latecomers”
Strategic goal for Lithuania is to create conditions for developing the national competitiveness based on innovations.
From low cost towards exclusivity?

Lithuanian “diamond”
Lithuanian competitiveness in the World

Context for Firm Strategy and Rivalry

Relative weakness:
+ Flexibility of wage determination
- Low technological readiness of enterprises
- Weak intellectual property protection
- Low value-added production
- There are no international offices or technological development centers
- Inadequate corporate culture
- Weak local competition

Demand Conditions

Mix of strengths and weaknesses:
+ Favorable geographic location
+ Easy access to loans
+ Low inflation
+ High level of primary enrollment
- Ineffective judicial system
- Low technological level of local producers
- Ineffective and expensive agricultural industry
- High extent of bureaucratic red tape
- Lack of motivation of FDI and technology transfer

Related and Supporting Industries

Mix of strengths and weaknesses:
+ Integration into international clusters
- Lack of enterprise specialisation
- Fragmented industry structure

Relative strength:
- Low and not sophisticated local demand
- Low country's investments in the development of high-technology products
Lithuania's Competitiveness in Europe

**Context for Firm Strategy and Rivalry**

**Mix of strengths and weaknesses:**
- Flexibility of wage determination
- Low technological readiness of enterprises
- Low extent of staff training and innovation creation
- Poor collaboration culture

**Demand Conditions**

**Mix of strengths and weaknesses:**
- Easy access to loans
- Low inflation
- High level of tertiary enrollment
- Little time required to start a business
- Low tax burden
- Low technological readiness of enterprises
- The new knowledge economy environment inadequate economy and science structure
- The big brain drain
- Low efficiency of legal framework and police service
- High business costs of corruption

**Weaknesses:**
- Low buyer sophistication
- Low purchasing power

**Related and Supporting Industries**

**Weaknesses:**
- Low dominance in international markets
## Lithuania`s economy competitive advantages (VRIO matrix)

<table>
<thead>
<tr>
<th>Advantages</th>
<th>V</th>
<th>R</th>
<th>I</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability of macro economy</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Low inflation</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Functioning market economy</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Competitive high growth of economy</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Local market demand as one of the main driving forces of economy growth</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Capital market quality</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Well functioning bank and financial mediation sector</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Substantial and growing export</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transit friendly geographic location; non freezing port in Klaipėda</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Proximity to the most competitive region in the world</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>A good mix of big cities and small towns</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sufficient electricity supply</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sufficient transport and communication infrastructure network</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Magnetic nature and landscape; wealthy history and culture</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Favourable for business political and judicial system</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EU membership</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A rather big network of education and research institutions</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Infrastructure of public business services</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Strong R&amp;D potential</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High level of primary and tertiary enrollment</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High employment, especially between seniors</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rapid growth of information technology and communication network</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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From low cost towards exclusivity

**Lithuanian Industry:**
*between survival and growth*
New rules of the game

- Changes in the philosophy of manufacturing companies – the organizational boundaries between manufacturing and services are eroding.

- Changes in the understanding of competitive advantage factors - the pursuit of both differentiation and cost reduction strategies simultaneously.

- An emphasis on innovation in products, processes and business systems.

- The increasing importance of alliances, clusters, partnership networks and other forms of cooperation.
New Needs

• Networking and collaborative skills for closing linkages between partners;
• New infrastructures to support value systems;
• New rules for the government;
• New organisational models;
• Modern production systems aligned to regional core competences and to global best practices;
• New strategic thinking practices, needed to be competent with the new hyper competitive environments.
The Perspectives of Clusters Development in Lithuania: strengths and weaknesses

**Firm Strategy:**
(+) growing interest to cooperate  
(+) creating trademarks  
(+) integration into international value chains  
(-) lack of motivation to innovate  
(-) lack of confidence among partners  
(-) lack of specialisation  
(-) lack of management skills  
(-) low value-added  
(-) lack of motivation to take advantages of region’s potential

**Demand Conditions:**
(+) growing Russian and Central European markets  
(+) growing domestic market  
(+) the need to rationalize the value chains in neighbouring countries  
(+) large regional market  
(-) low and not sophisticated local demand  
(-) low consumers purchasing power

**Factor (Input) Conditions:**
(+) rapid growth of the economy  
(+) favourable geographic position  
(+) long traditions in engineering  
(+) supply of high skilled labour  
(+) competitive labour force  
(+) developed network of training institutions  
(-) scientific laboratories, education programmes are inadequate to growing requirements  
(-) inadequate training systems (on all levels)  
(-) ineffective innovation system  
(-) low company spending on R&D  
(-) lack of clear economy development policy  
(-) lack of strategy to attract foreign investments and “know-how”  
(-) poorly developed business infrastructure

**Clusterisation Processes:**
(+) growing understanding of the importance of clusters  
(+) some mikro clusters are already in place  
(+ long) strong lobbying by Lithuanian Confederation of Industrialists  
(-) poor but growing cooperation  
(-) lack of efficient business information systems  
(-) poor links between industries  
(-) poor links between companies, educational and research institutions  
(-) lack of motivation to cooperate  
(-) lack of network and cluster development experts

Industry and Business
The Propeller for Value Creation in Clusters

Know what?  
Know why?  
Know how?  
Know who?

Intelligence

Productive knowledge creating

Decision making

Shared knowledge and meanings

New knowledge

Competence

Value creation

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The principles of cluster policy

1. Policy has to combine both general and specific means
2. The process of clusterisation, although self-evolving, has to be effectively governed
3. The “bottom-up” and “top-down” approaches in policy have to be balanced
4. Clusterisation has to be linked with the scientific and business infrastructures
5. Policy should rely on national history, culture, traditions
6. Local clusters must be a part of international business systems
7. Clusters are the tool for innovations in business
8. Most essential – the establishment of mechanisms for continuous development and improvement, not “high-tech myopia”
9. Overemphasis on clusterisation may have undesirable side effects
In the “Club” or outdoors?
| 1. Finland                        | 23. Chile     |
| 2. United States                 | 24. Malaysia  |
| 3. Sweden                        | 25. Luxembourg|
| 4. Denmark                       | 26. Ireland   |
| 5. Taiwan                        | 27. Israel    |
| 6. Singapore                     | 28. Hong Kong SAR |
| 7. Iceland                       | 29. Spain     |
| 8. Switzerland                   | 30. France    |
| 10. Australia                    | 32. Slovenia  |
| 11. Netherlands                  | 33. Kuwait    |
| 12. Japan                        | 34. Cyprus    |
| 13. United Kingdom               | 35. Malta     |
| 14. Canada                       | 36. Thailand  |
| 15. Germany                      | 37. Bahrain   |
| 16. New Zealand                  | 38. Czech Republic |
| 18. United Arab Emirates         | 40. Tunisia   |
| 19. Qatar                        | 41. Slovak Republic |
| 20. Estonia                      | 42. South Africa |
| 21. Austria                      | 43. Lithuania |
| 22. Portugal                     | 44. Latvia    |
Prosperity drivers, selected countries and regions

GDP per Capita (PPP)
- USA
- Norway
- Iceland
- Canada
- Austria
- Sweden
- Denmark
- Singapore
- Australia
- Finland
- Germany
  - Japan
  - Taiwan
  - New Zealand
  - Hungary
  - Korea
  - Slovak Rep.
  - Czech Rep.
  - Slovenia
  - Estonia
  - Lithuania
  - Poland
  - Latvia
  - Russia

Purchasing Power-Factor
- Lithuania
- Slovenia
- Latvia
- Russia
- Estonia
  - Czech Rep.
  - Slovak Rep.
  - Poland
  - Taiwan
  - Hungary
  - Korea
  - Canada
  - New Zealand
  - USA

Employment-Factor
- Korea
- Singapore
- Latvia
- Russia
- Iceland
- Taiwan
- Estonia
- Lithuania
- Japan
  - Slovak Rep.
  - New Zealand
  - USA
  - Canada
  - Australia

Productivity-Factor
- Norway
- Denmark
- Germany
- Sweden
- Austria
- Japan
- Finland
- USA
- Iceland
- Korea
- New Zealand
- Taiwan
- Hungary
- Sweden
- Finland
- Germany
- Norway
- Poland
- Slovakia
- Latvia
- Estonia
- Lithuania
- Russia

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R&D Investment and Growth

Source: Eurostat (2006), DG Research (2006), World Bank KAM, authors’ calculations
* Data for China, Japan, Iceland and EU-25 from 2002
** Annual growth rates in China have exceeded 10%; total R&D expenditures, in real terms, have grown by almost one-fifth each year.
Government efficiency, selected countries
Prosperity, selected countries and regions

Source: EU (2005), authors’ calculations
The 2005 Baltic Sea Region “diamond”

**Relative weakness:**
- Companies competing globally on innovation and differentiation
- Overall high market openness but strong concerns in some countries about trade barriers
- Low rivalry on many local markets

**Mix of strengths and weaknesses:**
- Strong physical infrastructure
- Well developed science system, including business links
- Solid financial system
- High skill base but concerns about future skill supply
- Low level of corruption but significant level of bureaucracy

**Relative strength:**
- Demanding regulatory standards

**Related and Supporting Industries**

**Demand Conditions**

**Context for Firm Strategy and Rivalry**

**Factor (Input) Conditions**
Baltic Sea Region World Export Market Share by Cluster

Source: WTO (2005), Institute for Strategy and Competitiveness, author's analysis.
Importance of Baltic Sea Region trade by country

Note: Assumes trade patterns for sub-national regions follow exactly the respective national averages; bubble size proportional to export value.
World export market shares, selected European regions

Source: WTO (2005), author's analysis.
The strategic priority for Lithuanian economy – rapid and effective integration into the Nordic business system
LET IT HAPPEN!