Lithuania as a Digital Challenger

How can digital economy become the new growth engine for the country and the CEE region?

Report insights presentation – perspective on Lithuania

March 12, 2019
McKinsey & Company has a strong presence across the entire CEE region.

We have the biggest footprint in the region.

- The largest and most experienced strategy consulting firm with extensive local footprint
- Over 1800 people in McKinsey & Company in the region
- 9 local offices with over 270 consultants, coverage of entire CEE
- Recognized and trusted partner in public and social space
- Our people have work experience from projects in CE, but also other regions; covering all relevant sectors
Our research into the potential of the digital economy in Central and Eastern Europe resulted in a publication of a pan-regional report and 10 country deep-dives.
Looking at Europe from an economic perspective, we can distinguish three regions.
Lithuania cannot count on traditional engines of growth any more and should look for the next growth lever.

<table>
<thead>
<tr>
<th>Production (GDP)</th>
<th>Productivity</th>
<th>Labor</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A x K</td>
<td>L x K^β</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Productivity GDP per hour worked, 2017, EUR(^1)</th>
<th>Unemployment, 2017, %</th>
<th>Hours worked per year per employee, 2017</th>
<th>Capital stock per employee, EUR (mln^2), 2016</th>
<th>Capital expenditures for fixed assets, average growth in %, 2012-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>7.1</td>
<td>1844</td>
<td>23</td>
<td>1.1</td>
</tr>
<tr>
<td>64</td>
<td>6.1</td>
<td>1573</td>
<td></td>
<td></td>
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</tbody>
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Northern EU Digital Frontrunners\(^3\)

- **Productivity lags behind Digital Frontrunners**
- **Lithuania has limited work capacity reserves** – a relatively low unemployment rate, with working hours above EU average
- **Economy in Lithuania is under-capitalized and the gap is closing slowly**

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1 EUR current prices and purchasing power parities in current prices
2 Net assets per employee, at prices of 2010
3 Belgium, Denmark, Estonia, Finland, the Netherlands, Ireland, Luxembourg, Norway, Sweden

SOURCE: Eurostat, OECD
Lithuania can build on its strong digital economy growth dynamic to catch up with Digital Frontrunners

- **Share of digital economy**
  - % GDP, 2016
  - Lithuania: 5.1%
  - CEE Digital Challengers: 6.5%
  - EU Big 5: 6.9%
  - Digital Frontrunners – Sweden example: 9.0%

- **Growth of digital economy**
  - %, 2012-16
  - Lithuania: 7.2%
  - CEE Digital Challengers: 6.2%
  - EU Big 5: 3.1%
  - Digital Frontrunners – Sweden example: 9.9%

- **Growth of non-digital economy**
  - %, 2012-16
  - Lithuania: 2.6%
  - CEE Digital Challengers: 2.6%
  - EU Big 5: 1.2%
  - Digital Frontrunners – Sweden example: 2.2%

**Source:** Eurostat; Local institutes of statistics; McKinsey Global Institute

**Note:**
1. Digital economy is calculated as sum of sectors: ICT, e-commerce and consumer spending on digital equipment (e.g., computers, smartphones, smartwatches).
2. Spain, France, Germany, UK, Italy.
The digital economy in 2025 can bring up to 200 billion EUR in GDP in CEE and 9 billion in Lithuania, adding up to 1.5 p.p. to GDP growth per year.

Digital economy growth potential for the CEE Digital Challengers & Lithuania in the aspirational scenario

Eur bn

2025

276

16% GDP

+1 percentage point of GDP growth each year

2016

76

6% GDP

CEE Digital Challengers

+200

10.8

19% GDP

+1.5 percentage point of GDP growth each year

2025

Lithuania

2.0

5% GDP

Capturing digitization potential in business and public sector

Acceleration of e-commerce

1 Productivity growth captured by increase of traditional ICT usage (software, hardware, telecommunications) to the level of Sweden – representation of Digital Frontrunners

SOURCE: Eurostat; Local statistical offices; IHS; McKinsey Global Institute
Lithuania’s digital potential can be achieved by addressing gaps in the digitization level of private and public sectors.

SOURCE: Eurostat; Local institutes of statistics, McKinsey Global Institute
Four strengths supporting Lithuania’s Digital Challenger status

Good overall quality of the primary and secondary education systems
(mathematics, reading and science literacy PISA¹ average of 475, slightly behind Digital Frontrunners’ score of 505)

A favorable structure of economic growth –
Based on the competitiveness of work, openness to the development of new sectors and the implementation of ambitious goals in the area of digitization

A large pool of graduates in scientific and technical faculties (STEM²)
Over 245 graduates per 100,000 inhabitants per year, 7th place in the EU, better than Germany or Sweden

Well developed digital infrastructure
Approx. 98% of the population with 4G access, at the level of Digital Frontrunners

¹ Program for International Student Assessment (PISA)
² STEM – science, technology, engineering, and mathematics

SOURCE: Eurostat, OECD
Lithuania exhibits a relatively bigger STEM graduate talent pool compared to Digital Frontrunners – although with room for improvement in terms of the share of ICT graduates in the student population.

Information and Communication technology graduates, % of all graduates

- Lithuania: 2.0
- Germany: 4.5
- France: 3.0
- United Kingdom: 3.6
- Italy: 1.0
- Spain: 3.9
- Average: 3.7

Digital Frontrunners Average: 3.6
Digital Challengers Average: Lithuanian STEM graduates per 100,000 inhabitants, 2016

SOURCE: Eurostat, Unesco Institute for Statistics

1 Digital Frontrunners: Belgium, Denmark, Estonia, Finland, Holland (data for 2015 assumed); Ireland, Norway, Luxemburg, Sweden
Lithuania stands out in terms of access to ultrafast broadband in comparison to Digital Challengers countries and Digital Frontrunners.

<table>
<thead>
<tr>
<th>Category</th>
<th>Value Avg. Digital Challengers</th>
<th>Value Avg. Digital Frontrunners</th>
<th>Gap to Digital Frontrunners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of populated areas coverage by 4G – measured as the average coverage of telecom, % of the country</td>
<td>98</td>
<td>87</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Household covered by the standard fixed broadband (availability) % of the households</td>
<td>96</td>
<td>94</td>
<td>-1.8%</td>
</tr>
<tr>
<td>Share of ultra fast broadband subscriptions &gt;= 100Mbps % of the households</td>
<td>27</td>
<td>20</td>
<td>+4.2%</td>
</tr>
<tr>
<td>Price index of broadband price (synthetic score)</td>
<td>94</td>
<td>83</td>
<td>+8.8%</td>
</tr>
</tbody>
</table>

SOURCE: DESI 2018, World Economic Forum
Nevertheless, additional work needs to be done in three major areas:

1. Support innovation and entrepreneurship developments and further ease of running a digital business.
2. Development of digital and soft skills among the general population.
3. The adoption of digital tools in public and private sectors.
Across all age groups in Lithuania, the percentage of people with advanced digital skills is below Northern European benchmarks.

1. Advanced digital skills - analysis and data collection using digital tools, the use of online tools such as banking or e-commerce, use of online communication
2. Belgium, Denmark, Estonia, Finland, the Netherlands, Ireland, Luxembourg, Norway, Sweden

SOURCE: Eurostat, McKinsey & Company analysis
Participation rate in education and training and ICT skills development among enterprises’ personnel in Lithuania is lower than in Digital Frontrunners.

Participation rate in education and training in the last 12 months
% of 25-64 years old, 2016

- Lithuania: 28%
- Avg. Digital Frontrunners: 54%
- Gap to Digital Frontrunners: -48%

Enterprises that provided training to develop/upgrade ICT skills of their personnel
% of enterprises, 2017

- Lithuania: 11%
- Avg. Digital Challengers: 15%
- Avg. Digital Frontrunners: 29%
- Gap to Avg. Digital Frontrunners: -62%

SOURCE: Eurostat, World Economic Forum
The private sector in Lithuania is less advanced in the use of digital tools than the countries of Northern Europe despite their performance above Digital Challengers averages.

<table>
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<th>Selected digital tools</th>
<th>% of enterprises using the tool, 2016</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Analyzing big data</td>
</tr>
<tr>
<td>SME</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>12</td>
</tr>
<tr>
<td>Digital Challengers</td>
<td>9</td>
</tr>
<tr>
<td>Digital Frontrunners¹</td>
<td>13</td>
</tr>
<tr>
<td>Large</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>20</td>
</tr>
<tr>
<td>Digital Challengers</td>
<td>22</td>
</tr>
<tr>
<td>Digital Frontrunners¹</td>
<td>37</td>
</tr>
</tbody>
</table>

¹ Belgium, Denmark, Estonia, Finland, Netherlands, Ireland, Luxembourg, Norway, Sweden

SOURCE: Eurostat
ICT employment gap in Lithuania is mostly driven by significant under-representation of ICT specialists in the older age groups.

**Share of ICT specialists in employment**

- **% of the employed population, 2016**
  - Avg. Digital Frontrunners: 4.84
  - Avg. Digital Challengers: 2.53
  - Gap to Digital Frontrunners: -48%

- **% of the employed population aged 15-34, 2016**
  - Avg. Digital Frontrunners: 5.01
  - Avg. Digital Challengers: 4.15
  - Gap to Digital Frontrunners: -17%

- **% of the employed population aged 35-74, 2016**
  - Avg. Digital Frontrunners: 4.76
  - Avg. Digital Challengers: 1.82
  - Gap to Digital Frontrunners: -62%

**SOURCE:** Eurostat, Unesco Institute for Statistics
Brain drain is a common issue for CEE markets, with Lithuania exhibiting a 4 times larger emigration rate for highly skilled individuals compared to most Digital Frontrunners.

Highly skilled emigration rate
% of tertiary educated population living abroad (in EU), size of bubble – ‘000 people, 2017

Emigration rate, % of population living abroad (in EU)

1 Migration rates includes only citizens of the reporting country. For Croatia, Bulgaria, Romania, Latvia and Slovakia some of the values are missing. In those years migration rates are calculated as average rate for the rest of CEE region.

SOURCE: OECD
10 recommendations to digitize Lithuania

**Public sector**

1. **Build skillset for the future** by developing a wide-ranging reskilling strategy, updating youth education for the future and actively counteracting brain drain.

2. **Support technology adoption in the public sector** (e.g., speeding up the development of online public services and its adoption).

3. **Support technology adoption among businesses** (e.g., promote digitization benefits and digital transformation).

4. **Strengthen regional cross-border digital collaboration** (e.g., create a strong digital pillar within regional collaboration platforms).

5. **Improve startup eco-system** through e.g., improving entrepreneurial talent pool and increasing access to capital.

**Private sector**

6. **Actively adopt technology and innovation** (e.g., adapt your business model to meet the demands of the digital economy).

7. **Embrace a pro-digital organizational culture**.

8. **Invest in human capital** (e.g., prepare your talent strategy for the digital economy).

**Individuals**


10. **Take advantage of digital tools** in all aspects of your life.
1. Example: Multiple examples seen of measures undertaken by policy-makers across Europe to build skillsets for the future

- **Digiboost initiative in Finland**
  - Digiboost was a funding campaign launched by the Finnish Funding Agency for Innovation, targeting Finnish SMEs and mid-caps in any industry sector
  - The main purpose was to support companies in taking first steps in digital by employing digitization experts – the agency covered half of the digital experts’ salary for one year

- **Skills Norway**
  - Skills Norway is a national agency focusing on (among others) improving basic skills in the adult population in the areas of literacy, numeracy, oral communication, and the use of ICT
  - As part of its Digidel 2017 program, it supported groups that do not use ICT as part of their everyday life, and help them acquire the skills needed to master these technologies

- **Czechitas in Czech Republic**
  - The Digital Academy is a project that educates and inspires women and girls to pursue opportunities in tech and computing fields. It is a requalification course and a mentoring program for future data analysts with no requirements on previous experience/knowledge
  - The goal is to find jobs for the participants in cooperation with local companies
4. Close cooperation with the countries of Central and Eastern Europe can help accelerate the development of the digital economy in Lithuania.

As the CEE region, Digital Challengers represent €1.4 trillion in GDP. Enabling Lithuanian enterprises to seamlessly tap into this potential can reap significant benefits.

Lithuania faces the same challenges as many other CEE markets, importantly the "brain drain" and need to reskill the workforce in the long term. Joint efforts across the region can help in finding and implementing the most effective solutions.

Lithuania has developed different strengths related to the digital economy than other CEE markets. Sharing best practices can accelerate digitization.

The CEE region in numbers

- €1.4 trillion GDP
- 101 million citizens
- 12th economy in the world
6. Example: Following in the footsteps of technology companies, Kärcher offers a digital platform for fleet management of cleaning machines.

**Solutions**
Kärcher machines are equipped with sensors that collect and transmit location and technical data.

**Freemium monetization model**
Kärcher collects anonymous fleet data that can be used in the future to further expand the business model.

SOURCE: Press search, company statements
8. Example: Open communication and a set of dedicated support tools help AT&T to re-skill its employees.

**Challenge**
Implementation of technologies requiring new skills in the field of data processing and cloud analytics, programming, management, etc.

**Solutions**
Partnerships with universities such as Georgia Tech and Udacity, with a scholarship program at 32 other universities.

Internal recruitment platform, showing the demand for positions and abilities, combined with a system of certified training to improve skills for employees.

**Impact**
Re-skilled employees filled half of all positions related to the management of the new technology.

The company has shortened the product development cycle by 40%, accelerating revenue generation time by 32%.

SOURCE: Press search, company statements
Adoption of digital tools in public and private sectors and development of digital skills among the general population are essential to fully realize the potential of the digital economy in Lithuania.

Digital economy annual growth in Sweden – Digital Challengers countries and Lithuania may aspire to such a growth dynamic in the future.

Faster growth of the Digital Economy compared to the Non-Digital economy.

Additional GDP potential can be achieved by digital economy in Lithuania by 2025.

The digital opportunity in Lithuania – summary.
Thank you

Available at: digitalchallengers.mckinsey.com