Upgrading in the Global Value Chains: the CEE case

Agnė Paliokaitė
Visionary Analytics, Lithuania
19-09-2019

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'Global value chains and middle income trap in the CEE'
Project funded by Research Council of Lithuania (grant No. S-MIP-17-116)

Purpose

- **Question: How can policies facilitate GVC as levers for upgrading and knowledge-based growth?**
- **Findings:**
  - Productivity of the manufacturing sector's participation in GVCs
  - Relationships between GVC participation, skills and innovations
  - Policy toolbox for GVC upgrading
  - Scope: CEE region (esp. Baltic countries), in 2000 – 2014
  - Data: WIOD database / UIBE GVC index covering 43 countries (for global ranking) and 56 sectors, CIS, Eurostat data, case studies of successful upgrading (Lithuania)

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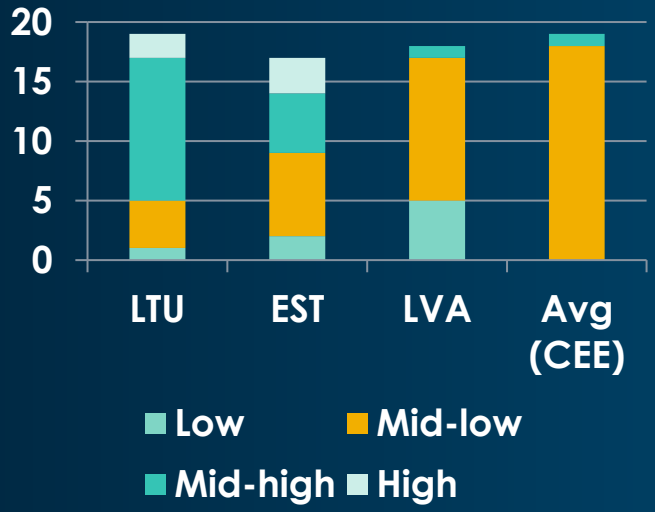
Global GVC productivity ranking

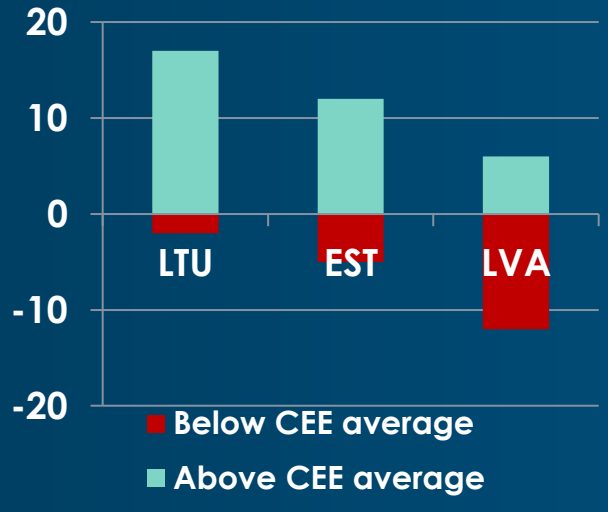
- **Forward GVCs participation productivity indicator:**
  - The ratio between domestic VA in intermediary products in a country-sector and the number of persons engaged in the sector, giving VA in intermediary products per person engaged

- **Scope:**
  - Analysis based on WIOD data, which covers 43 countries (for global ranking) and 56 sectors (19 manufacturing sectors were included)

- **Measuring global position:**
  - Country-sectors are ranked based on the VA in intermediary products per person engaged in the sector, assigning them a number
  - Based on country-sector ranking, position index bounded between 0 (lowest VA in intermediary products per person engaged) and 1 (highest VA in intermediary products per person engaged) for each studied country, obtaining their relative global positions

GVC productivity ranking 2014





- Ranking indicates how efficient is GVC participation of the manufacturing sector in terms of global context.
- Productivity = VA in intermediary products per person employed in sector.

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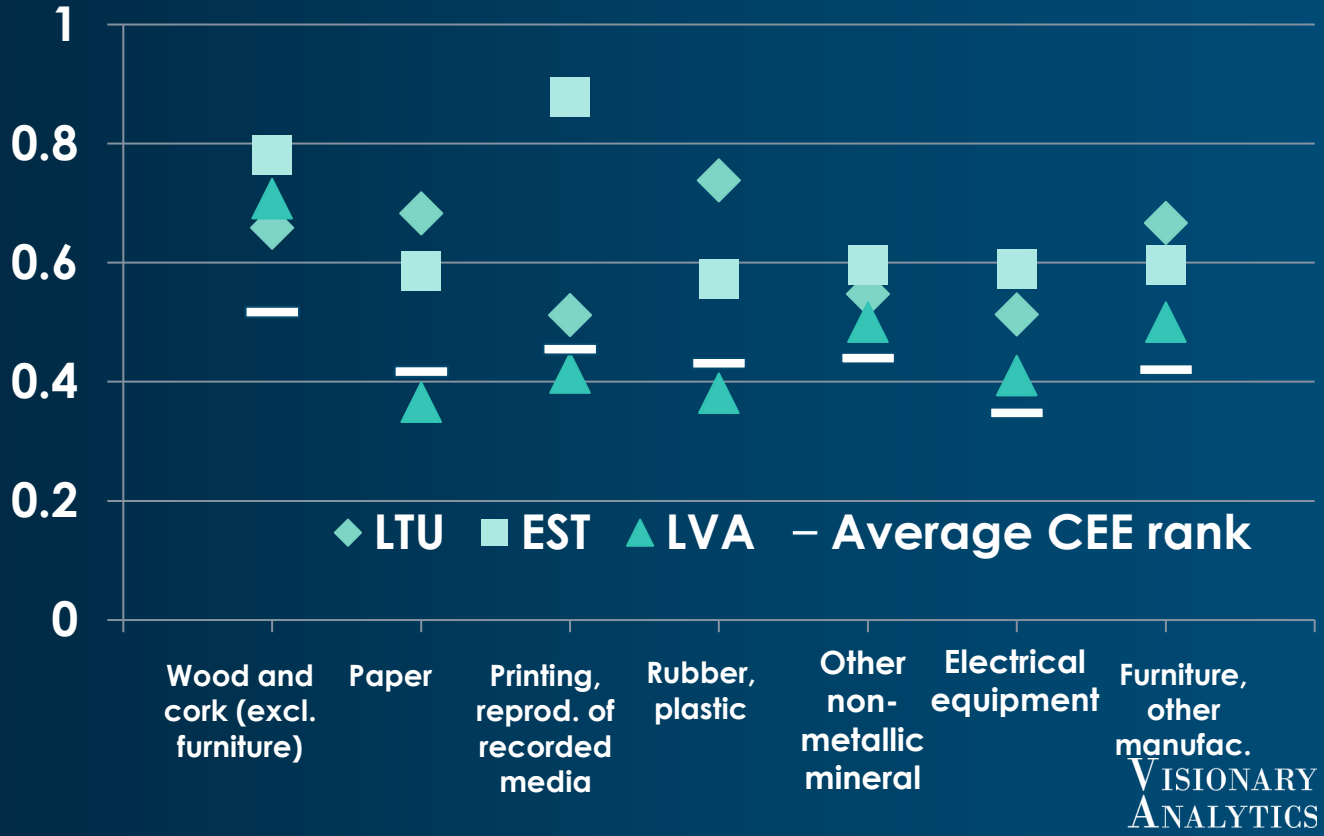
Global ranking 2014 (strongest sectors)



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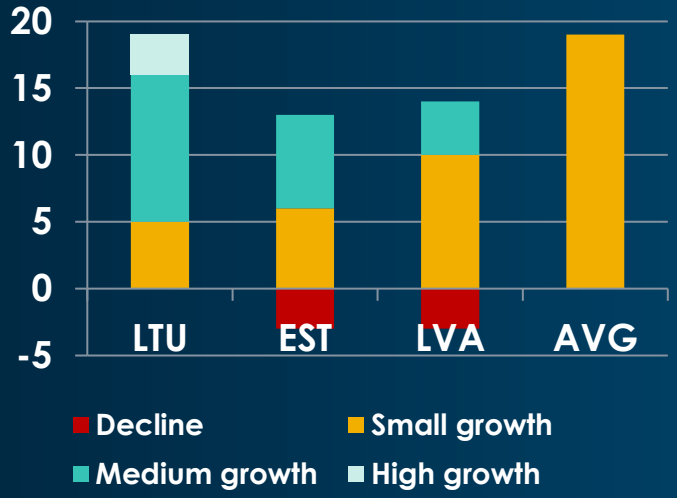
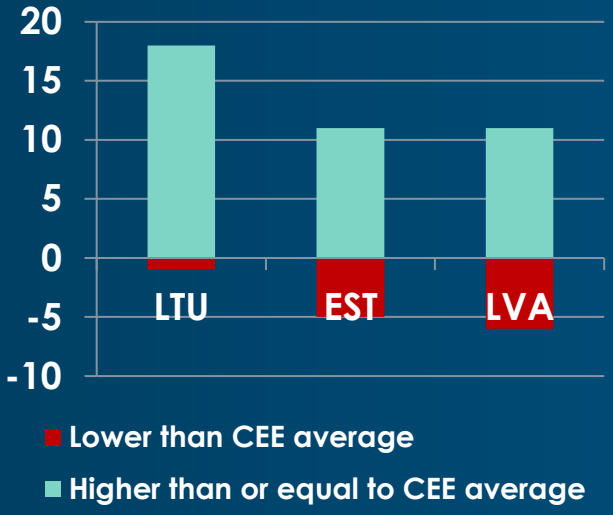
GVC productivity ranking change 2000-2014





The majority of the Baltic manufacturing sectors increased their ranking and many (esp. Lithuania) outperformed average change in CEE.

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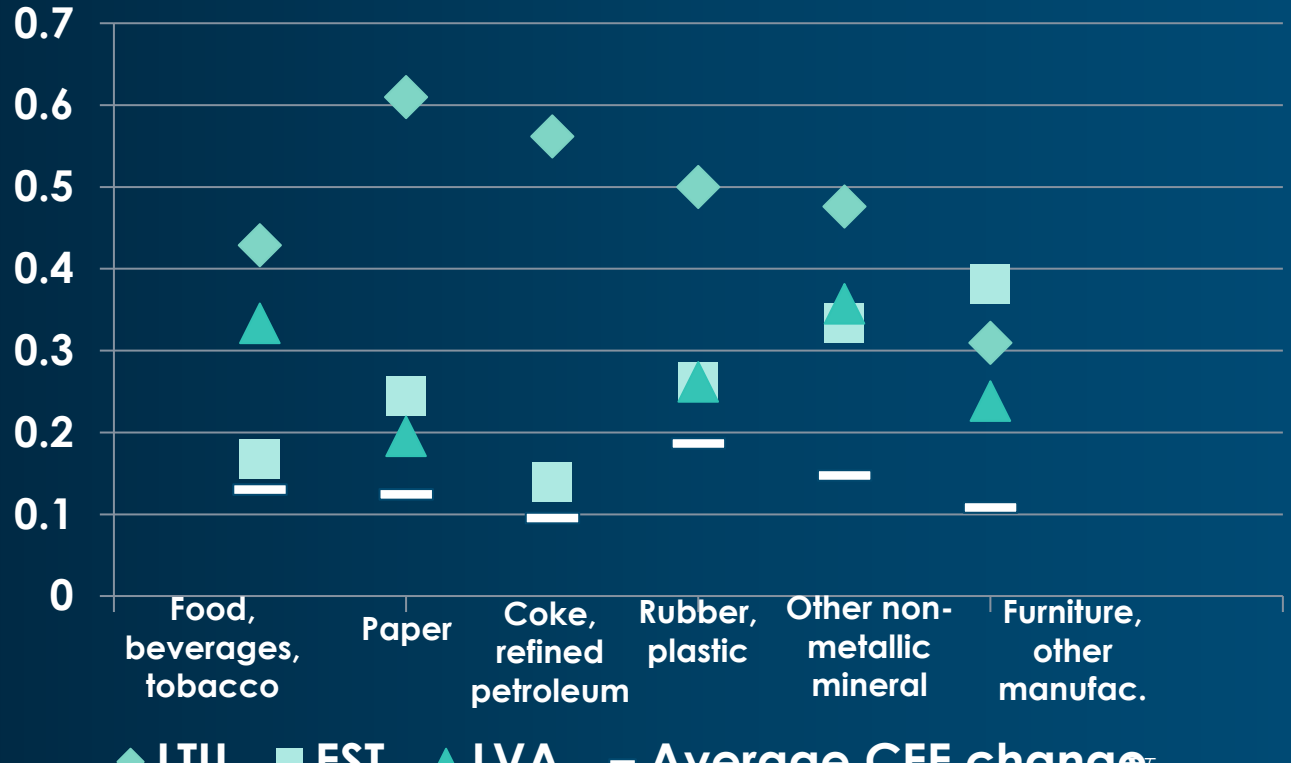
Change in global rank 2000-2014



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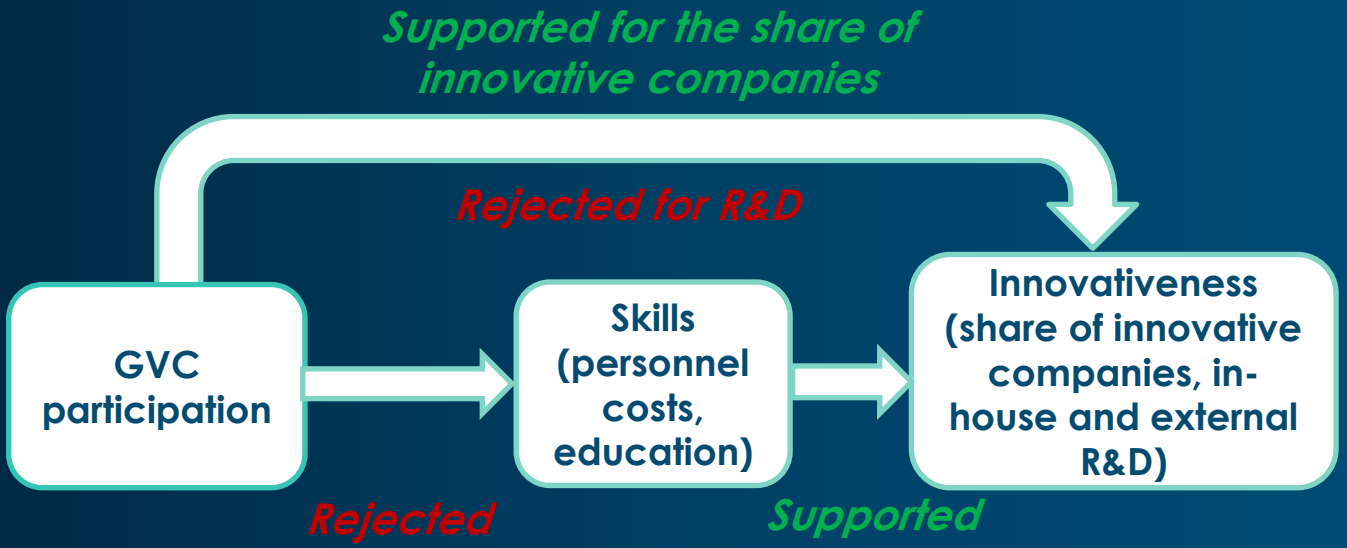
Variables (SEM model)

- **GVC participation (PART):** the ratio between domestic VA in intermediary products and total domestic VA for a country-sector (UIBE GVC, WIOD)
- **Innovation/INNO:** share of innovative enterprises
- **Innovation/INHOUSE:** in-house R&D as share in total turnover
- **Innovation/EXTERNAL:** external R&D as share in total turnover of a country-sector
- **Innovation/Cooperation:** % of enterprises in any type of innovation co-operation with a partner in EU, EFTA or EU candidates (including national partners) out of product/process innovative enterprises
- **Skills/PERSCOST:** Average personnel cost per employee at country-sector
- **Skills/EDUC:** Enterprises with more than 75% of employees with university education out of innovative enterprises in a country-sector

GVCs, skills, and innovation



Key hypothesis: Participation in GVCs positively affects skills and innovation at the sector level.

Implications

- Results indicate that enterprises are likely to enter GVCs in mid-section of chains, where neither R&D activities, nor highly skilled employees are required.
- The relationship between GVCs and the *share of innovative companies* - higher participation in GVCs helps sectors to adopt more (process) innovations.
- Higher *skills* are positively related to innovation at the sector level.
  - Furthermore, participation in GVCs also seems to have a negative link with innovation cooperation, but *the relationship can become positive with a higher level of skills.*

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Policy toolbox for GVC upgrading

Routes	Strategies	MNEs motivations	Policy options
1. FDI based: Entering existing GVCs	Facilitating domestic firm's entry into GVCs	Market and cost-seeking	Creating world-class climate for foreign tangible and intangible assets: improving drivers of investment, infrastructure, etc
2. Upgrading GVC participation to higher-value activities	Attracting high-value FDI	Knowledge and technology-seeking: talents, strong RIs and clusters, public incentives	Creating world-class linkages: • Attracting the 'right' FDI • Strengthening GVC-local economy linkages • Improving connectivity to international markets
	Promoting (functional and intersectoral) upgrading and diversification		
3. Build own value chains and own MNEs	Strategic 'decoupling and reqoupling'	Efficiency and productivity seeking: streamlining the supply base	Building world-class RIS: • Talent production • Smart specialisation / RDI • Clusters • Technology bridges • Workforce skills
	Facilitate innovation and born globals		

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FDI-based: Thermofisher Scientific

1995 ***Fermentas*** is established as a separate entity from the Institute of Biotechnology

2009 Expands to China and opens a distribution office **Fermentas China**

Receives 2 m EUR from the ERDF and invests another 2 m EUR from its own budget for R&D infrastructure upgrade

Receives 830 000 EUR from the ERDF to increase export and upgrade the manufacturing process

2010 ISO 13485 certificate for medical devices

2009-2014 Receives 2 m EUR from the ERDF and invests another 4 m EUR from its own budget for R&D projects to expand product range

Fermentas is sold to *Thermo Fisher Scientific*

Thermo Fisher Scientific Baltics established

Recognized as the **Competence Centre of Molecular Biology of Thermo Fisher Scientific**

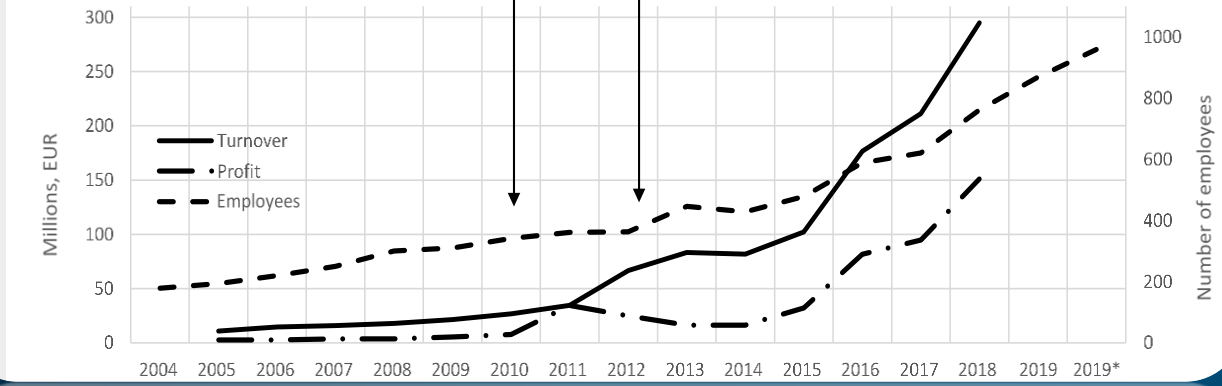
2011-2012 13 m EUR investment to build additional facilities for R&D, manufacturing, warehousing

2014-2015 Expands product range to include molecular biology products for life sciences and diagnostics

Invests 7 m EUR from its own budget in sterile A and B class manufacturing labs

2017 Shingo Prize for Operational Excellence

2019 Three new subsidiary companies established



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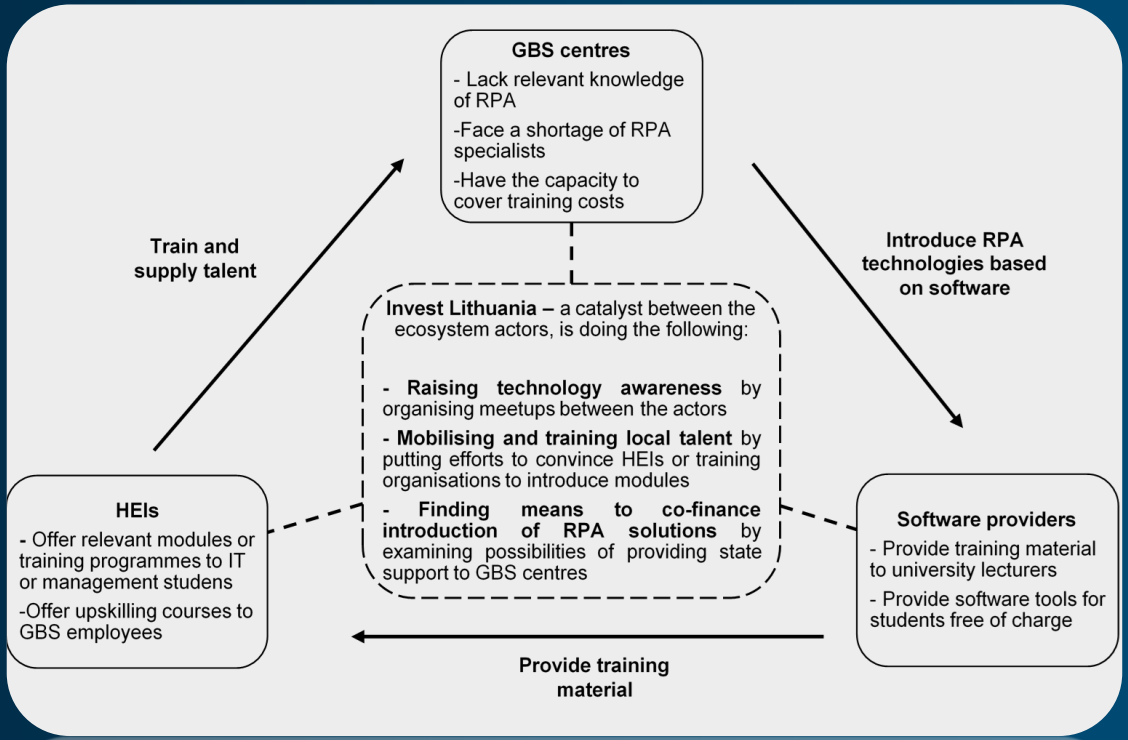
Functional upgrading: Robotic Process Automation initiative



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Intersectoral upgrading: BOD Group

1998 **Garsų studija** is established Later renamed to **Baltic Optical Disc (BOD Group)**

2002 The factory for industrially recorded CDs opens in Vilnius (established as the company **BRD**)

2006 The factory for recorded CDs and DVDs opens in Tallinn

2009-2014 BRD receives approx. 287 000 EUR from the ERDF and invests another 198 000 EUR to increase export and upgrade manufacturing and organisational processes

2009 **Soli Tek Cells** and **Soli Tek R&D** – a photovoltaic cell research lab and a small manufacturing centre are established

2010 **Soli Tek** receives 7 m EUR from the ERDF and invests another 5 m EUR to build and install the manufacturing plant for solar cells

2010-2014 **Soli Tek** receives 5.8 m EUR from the ERDF and invests another for R&D activities

2011 BRD receives 1.2 m EUR from the ERDF and invests another 1.2 m to install the Blu-ray Disc manufacturing line

2013 Solar cell manufacturing plant launched in Vilnius

2013-2014 **BOD Group** investigates possibilities of entering the optical lens industry

2014 The holding company SIA **"Global BOD Group"** is established in Latvia

Since 2015 Established a brand name **Soli Tek Cells** Participates in (national) and international R&D projects.

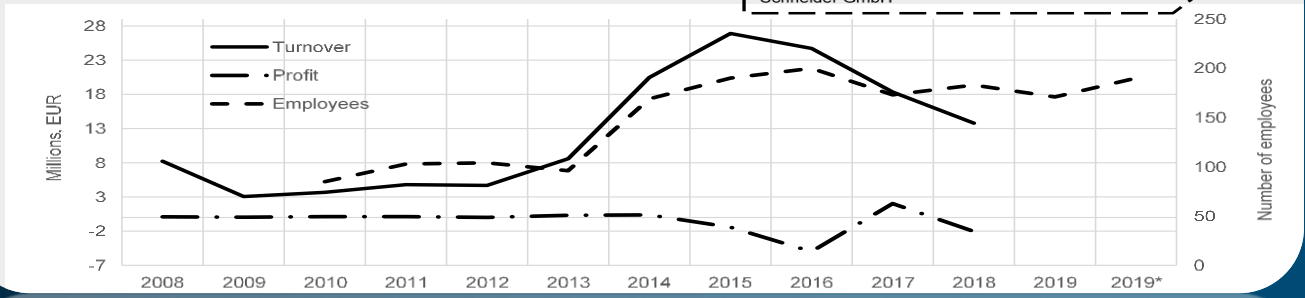
2018 **Soli Tek** receives ERDF support for introducing production certificates and increasing export

BOD Group continues to manufacture recorded CDs, DVSs and Blu-ray discs

2014 **BOD Group** receives 2 m. EUR of support from the ERDF and invests another 2 m EUR from its own budget to purchase a Free Form lens production line from Schneider GmbH

2015 The manufacturing plant launched in Guopstos village (20km from Vilnius)

2017 **BOD Lenses** separates from **BOD Group** and becomes an independent entity



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Key take-aways

1. Coordinated policies promoting co-evolution of GVCs and RIS:
   - FDI-based growth – targeting specialised higher-value niches
   - Facilitate intersectoral and functional GVC upgrading
   - Build own (regional?) value chains + facilitate global linkages!

2. „Link up only when you will be able to benefit - first build endogenous technological capability“ → Specialisation and 'Intelligent piggybacking'

3. Human capital - most critical asset to trigger upgrading. Efforts for linking up combined with cross-cutting policies and systemic measures in the field of education and labour-force training.
   - SS structuring effect on university curricula – process is slow
   - Training of engineers and ICT people, etc.

4. Experimentation and public entrepreneurs, acting in enabling way (national, regional, EU levels)

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Thank You!

Agnė Paliokaitė,
Visionary Analytics

Agne@visionary.lt