

Upgrading in the Global Value Chains: the CEE case

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GVCs

**Challenge: Low-costs vs. productivity-based growth +
Regional innovation paradox → middle income trap**

**Solution: Participation and upgrading in the GVCs to
enable leverage and learning mechanisms for growth**

... due to enabled knowledge and technology transfers

... due to the potential for upgrading and increased value added

... due to need for better skilled employees

Increased competition, demand for higher quality inputs, foreign
assistance to local firms

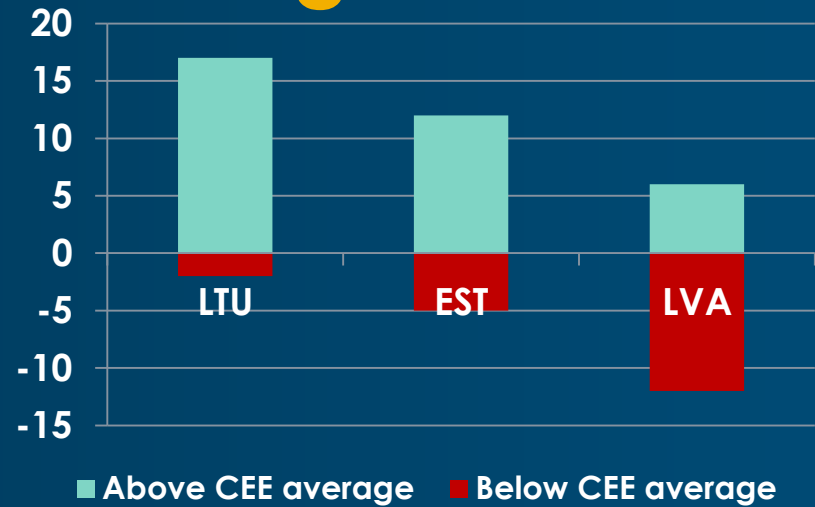
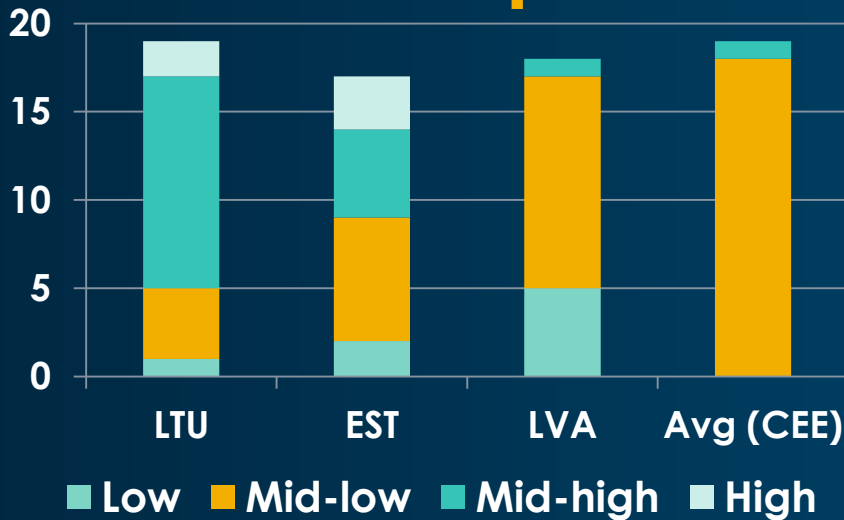
Purpose

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

Global GVC productivity ranking

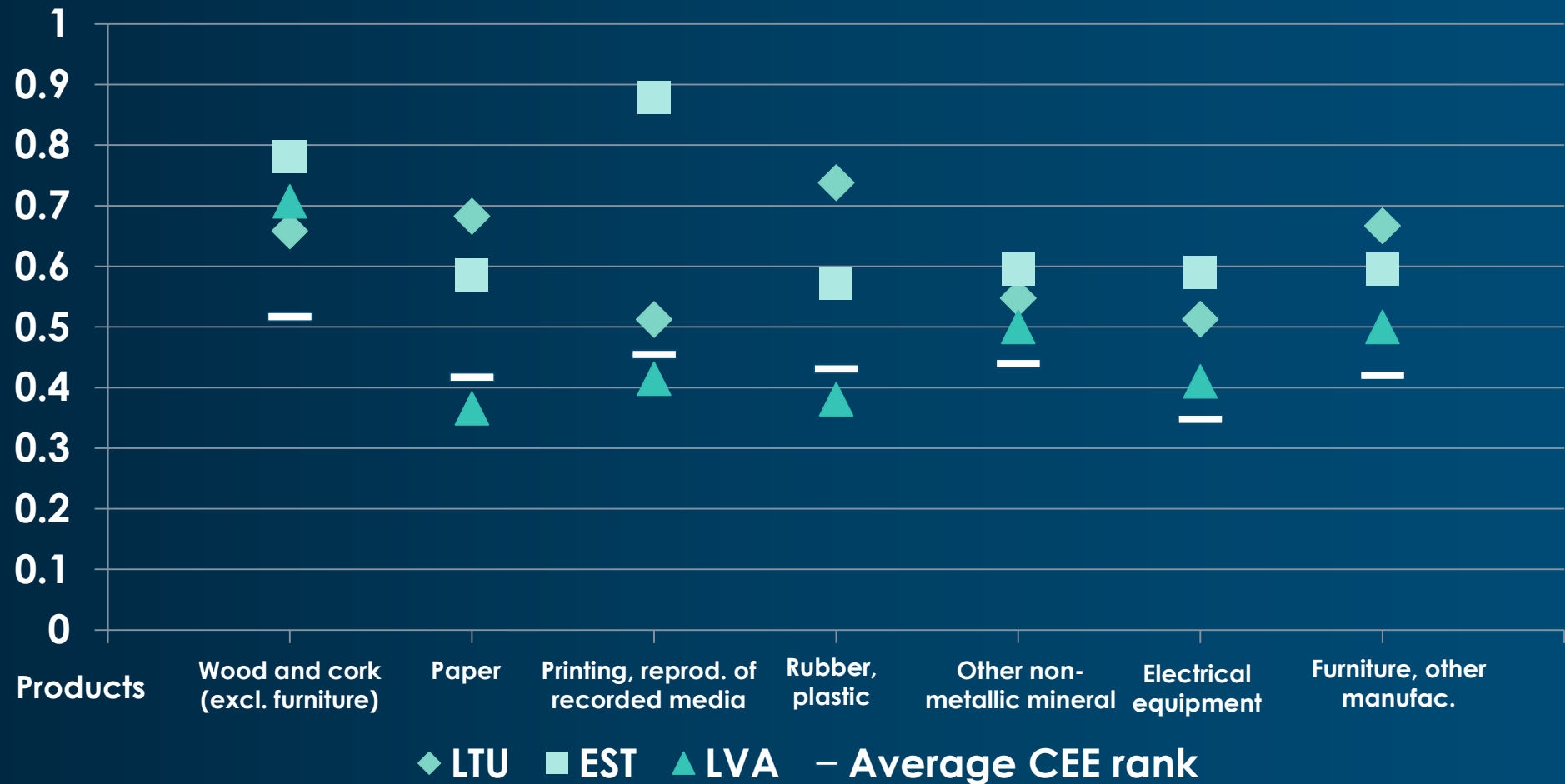
- **Forward GVCs participation productivity indicator:**
 - The ratio between domestic VA in intermediary products in a country-sector and the number of persons engaged in the sector, giving VA in intermediary products per person engaged
- **Scope:**
 - Analysis based on WIOD data, which covers 43 countries (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

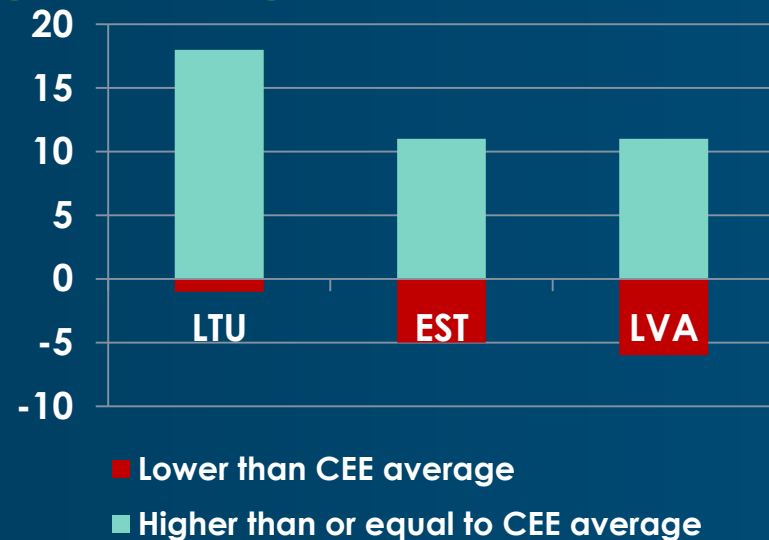
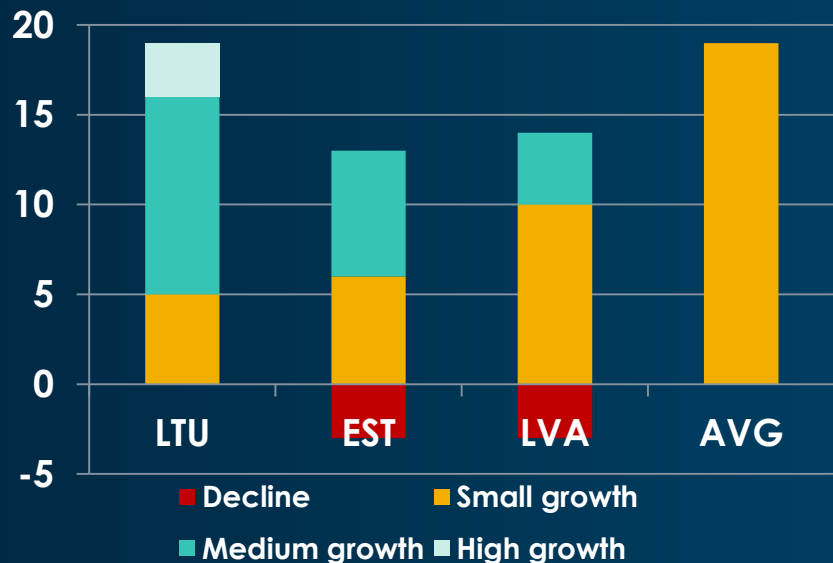


- GVCs participation productivity ranking indicates how efficient is GVC participation of the manufacturing sector in terms of global context.
- Productivity = VA in intermediary products per person employed in sector.
- **Key message:** Baltic countries, especially LT and EE, have specific sectors, where high value added per capita comes from GVCs.

Global ranking 2014 (strongest sectors)

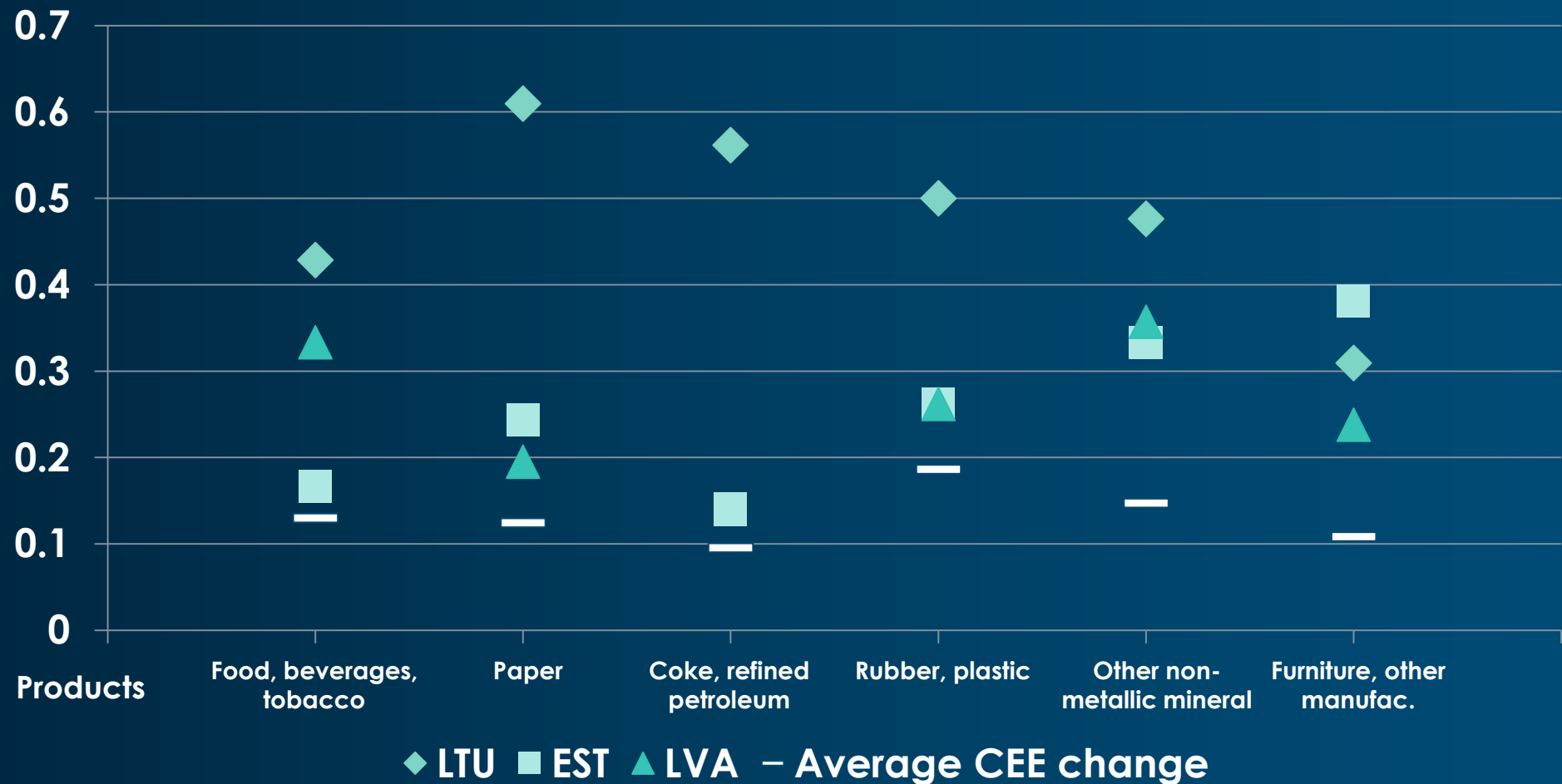


GVC productivity ranking change 2000-2014



- GVCs participation productivity change (shown by indexed productivity rank position values) indicate the ranking of country-sectors changed from 2000 to 2014.
- **Key message:**
 - The majority of the Baltic manufacturing sectors increased their ranking and many (esp. LT) outperformed average change in CEE.

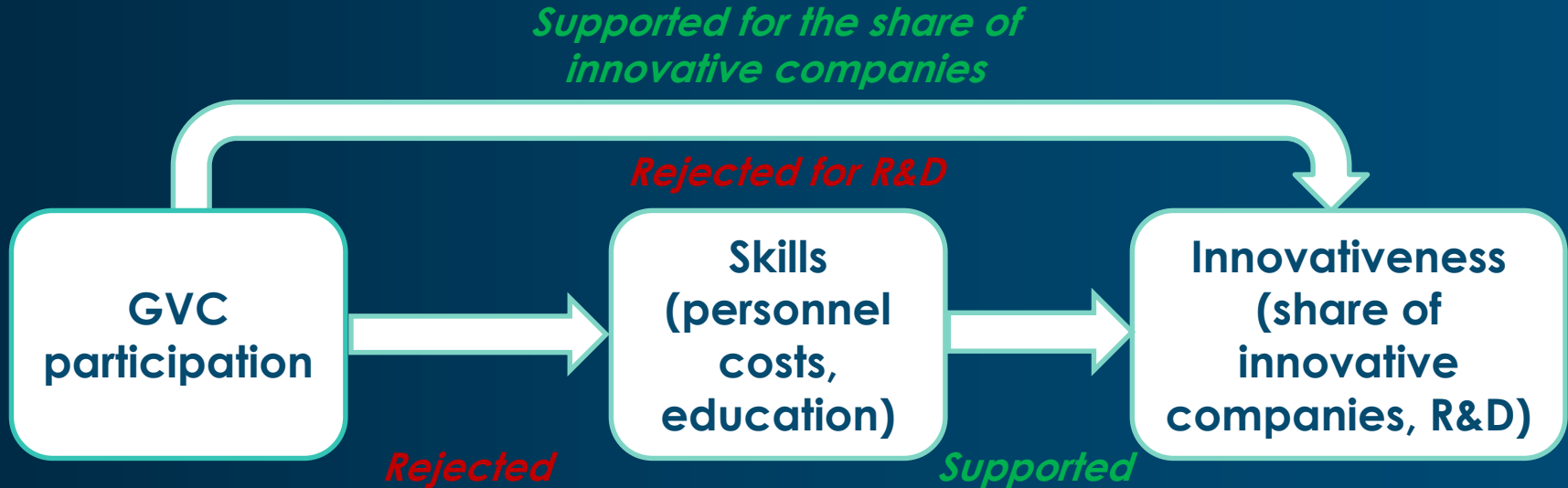
Change in global rank 2000-2014



Variables (SEM model)

- **RCA:** An indicator measuring country-sector's revealed comparative advantage in terms of domestic VA in intermediate products' export.
- **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

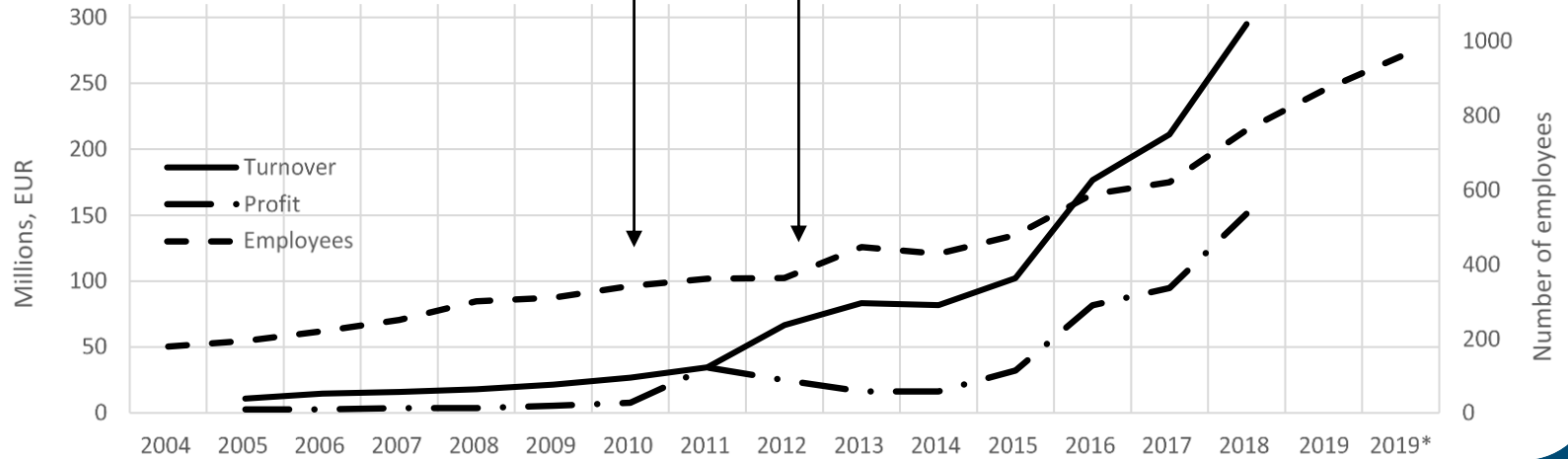
- Results indicate that enterprises are likely to enter GVCs in mid-section of chains, where neither R&D activities, nor highly skilled employees are required.
- The relationship between GVCs and the *share of innovative companies* - higher participation in GVCs helps sectors to adopt more (process) 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.*

Policy toolbox for GVC upgrading

Routes	Strategies	MNEs motivations	Policy options
<p>1. FDI based: Entering existing GVCs</p> <p>2. Upgrading existing GVC participation to higher-value activities</p> <p>3. Build own value chains and own MNEs</p>	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
	Attracting high-value FDI	Knowledge and technology-seeking: Access to large pool of SET talents, strong RIs and clusters, availability of public incentives	Creating world-class GVC linkages: <ul style="list-style-type: none"> • Attracting the 'right' FDI • Strengthening GVC-local economy linkages • Improving connectivity to international markets
	Promoting (functional and intersectoral) upgrading and diversification		Strengthening absorptive capacity and building world-class RIS: <ul style="list-style-type: none"> • World-class talent production • Industrial and innovation (SS) policies • Clusterisation policies • Access to markets (technology bridges) • Developing workforce skills and incentives for lifelong learning
	Strategic 'decoupling and re耦pling'	Efficiency and productivity seeking:	
Facilitate innovation and born globals	Streamlining the supply base/'cascade effect', regulatory SS support		

FDI-based: Thermofisher Scientific

<p>1995 <i>Fermentas</i> is established as a separate entity from the Institute of Biotechnology</p>	<p>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</p>	<p>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</p> <p><i>Fermentas</i> is sold to <i>Thermo Fisher Scientific</i> Thermo Fisher Scientific Baltics established</p> <p>Recognized as the Competence Centre of Molecular Biology of Thermo Fisher Scientific</p>	<p>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</p>	<p>2017 Shingo Prize for Operational Excellence 2019 Three new subsidiary companies established</p>
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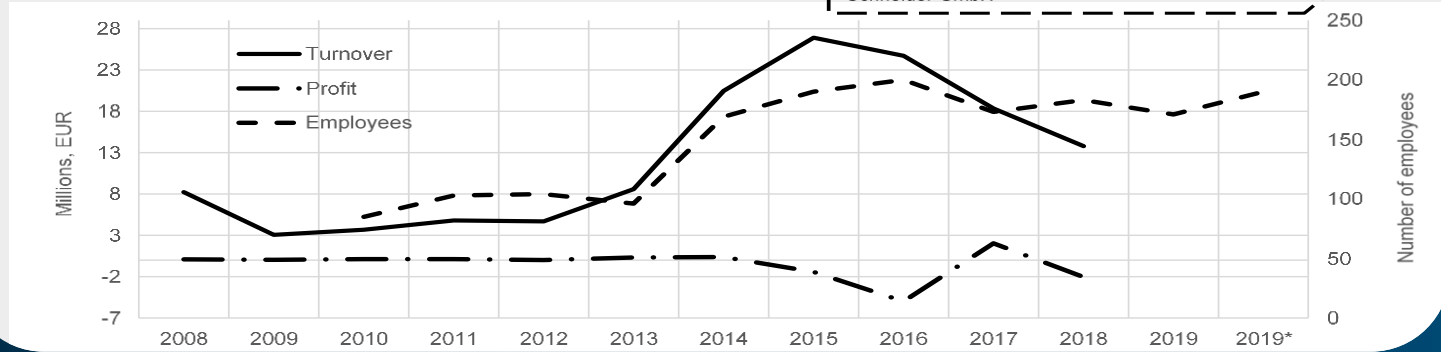


Intersectoral upgrading: BOD Group

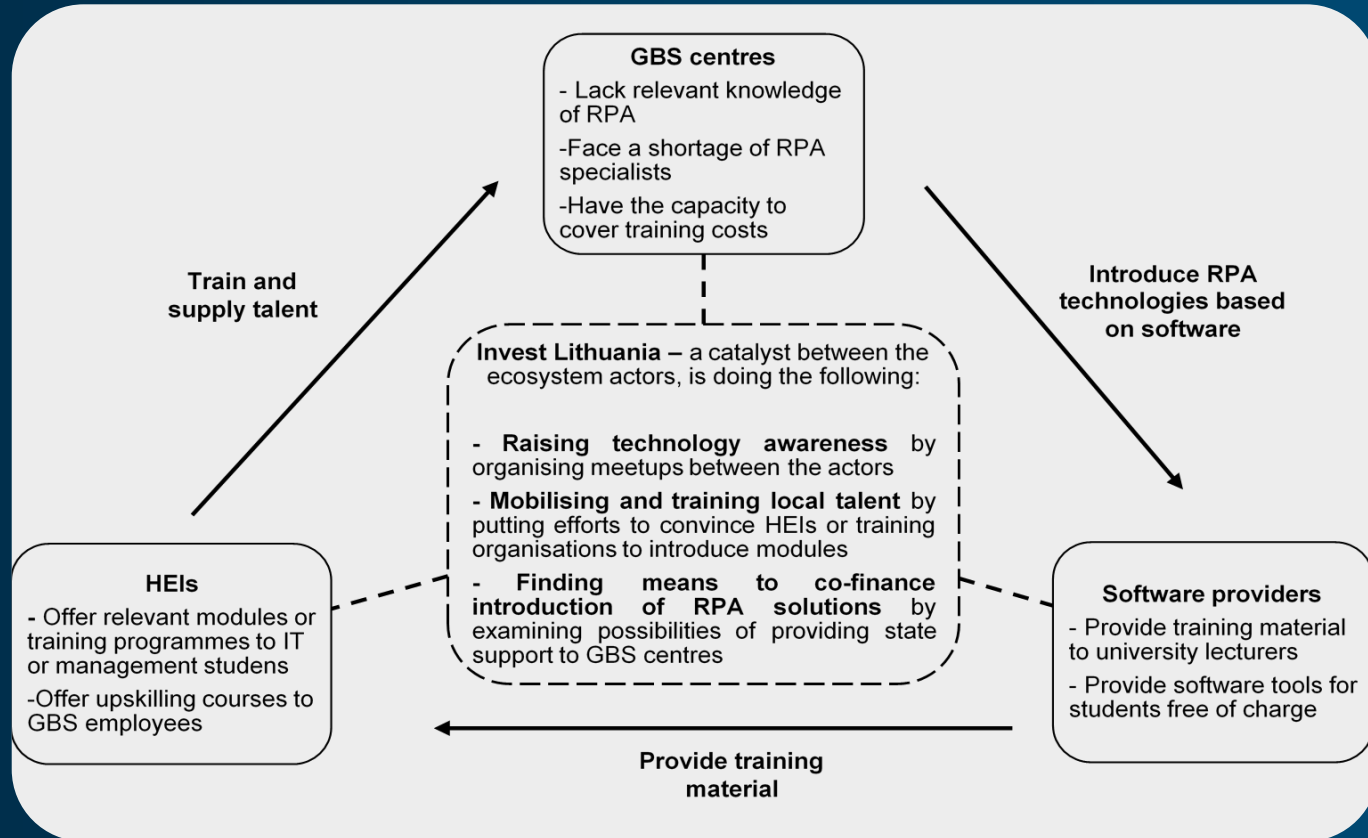
2009 **Soli Tek Cells and Soli Tek R&D** – a photovoltaic cell research lab and a small manufacturing centre established
2010 **Soli Tek** receives 7 m EUR from the ERDF and invests another 5 m EUR to build the manufacturing plant for solar cells
2010-2014 **Soli Tek** receives 5.8 m EUR from the ERDF and invests another 5 m EUR for plant activities
2013 Solar cell manufacturing plant launched in Vilnius
Since 2015 Established a brand name **Soli Tek Cells**. Participates in national and international projects.
2018 **Soli Tek** receives ERDF support for introducing production certificates and increasing export

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 manufacturing organisational processes
2011 **BRD** receives 1.2 m EUR from the ERDF and invests another 1.2 m to install the Blu-ray Disc manufacturing line
2013-2014 **BOD Group** investigates possibilities of entering the optical lens industry
2014 The holding company **SIA "Global BOD Group"** is established in Latvia
BOD Group continues to manufacture CDs, DVDs 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



Functional upgrading: RPA initiative



Key take-aways

1. Tailored policies able to support and promote the co-evolution of RIS and GVCs strongly needed:
 - FDI-based growth – targeting specialised higher-value niches
 - Facilitate intersectoral and functional GVC upgrading
 - Build own value chains / MNEs (incl born globals), facilitate global linkages!
2. Building endogenous technological capability - investments into clusters, R&D and DEMO capabilities (design, engineering, management and production) - needed before linking up. 'Intelligent piggybacking'?
 - upstream vs downstream policies
3. Human capital is the 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.
4. Experimentation and public entrepreneurs, acting in enabling way.

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Thank You!