COUNTRY BRIEFING LATVIA

Vienna Institute for International Economic Studies

Toward Innovation-driven Growth

Innovation Systems and Policies in EU Member States of Central Eastern Europe

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EXECUTIVE SUMMARY

The EU member states of Central Eastern Europe (EU-CEE) – Poland, Czechia, Slovakia, Hungary, Slovenia, Croatia, Romania, Bulgaria, Estonia, Lithuania and Latvia – have undergone an impressive economic catch-up process since the early 2000s. However, the previously successful model of adopting labour-intensive production steps as an 'extended workbench' for Western corporations is increasingly reaching its limits, as we demonstrated in a previous study (Grieveson et al., 2021). The fundamental problem is that the key technological competencies and the segments of production with the highest added value are situated in the 'headquarter economies' of Western Europe. In contrast, the EU-CEE countries continue to specialise in labour-intensive production. Coupled with major structural changes such as decarbonisation and digitalisation, this growth model must therefore be replaced by a new one, more strongly driven by innovation. Only then will these countries be able to catch up with Western Europe in terms of productivity and living standards.

In a follow-up study (Zavarská et al., 2023), we investigated how a customised industrial policy could help EU-CEE countries to escape their 'middle-income trap'. The main finding: industrial policy needs to be stepped up in the region, all the more so at a time when countries around the world are rediscovering its significance. In this necessary effort to climb the technological ladder, there is much for EU-CEE to learn from the East Asian tiger states. They share a similar starting-point, namely the dominance of multinational corporations and a highly export-oriented nature, which the East Asian tigers have successfully leveraged to their advantage. With a highly successful industrial policy, these countries have managed to take the technological lead in some areas and create world-class companies, for instance in electronics or semiconductors.

Having established the need for a new growth model and made the case for industrial policy, we turn to innovation, the other 'missing piece' that will be required to achieve the next stage of convergence in EU-CEE. We explore how these countries could establish innovation systems at the national level, enabling them to catch up technologically and economically with the front-runners in Western Europe.

In this endeavour, EU-CEE countries face several challenges. For one, they do not spend enough on research and development (R&D), which undermines their innovation activities. R&D expenditure is, however, slowly rising, particularly in Poland, Czechia and Croatia. Nevertheless, all countries in the region fall far short of the official EU target of 3% of GDP for R&D. Only Slovenia and Czechia record R&D expenditure of 2% of GDP, while Slovakia, Bulgaria, Latvia and Romania are below 1%. Although some countries excel in exporting medium and high-tech products, in many cases this is driven by foreign direct investment (FDI) and historical industrial strengths, rather than contemporary domestic innovation. As a result, high-level technological expertise mainly resides within large multinational companies that maintain extensive production sites in these countries, while R&D is carried out primarily in their Western European headquarters. This means that cutting-edge expertise and technology are only available on the 'islands' of the production plants of these companies in the EU-CEE countries. Because of this isolated existence, local companies, especially small and medium-sized ones, struggle to benefit from cutting-edge technology. Exports of innovative services are currently very limited.

Although the region has quite a high share of graduates in science, technology, engineering and maths (STEM subjects), the education system struggles to achieve quality and universities are underfunded. The region has a long way to go in green innovation, hampering its competitiveness in this crucial area of the EU's envisaged 'twin' (digital and green) transformation. By contrast, the region appears better positioned for the digital transformation. In particular, there are a number of emerging innovative enterprises in EU-CEE countries in digital technologies. However, many of them lack strong connections to the broader innovation system and tend to operate as isolated success stories.

Reflecting these challenges, the innovation performance of the region is not particularly promising, although there are some positive developments. With the exception of Estonia, all EU member states in Central Eastern Europe are below the EU average and outside the global top 30. However, the innovation performance is generally in line with the economic development of each country, albeit with some exceptions. Estonia clearly outperforms, while Poland, Slovakia and Romania underperform.

From the policy side, despite recent progress, an overarching problem is the lack of co-ordination and financial

support for innovation and R&D activities by national governments. The disconnect between FDI policies and innovation policies further complicates the implementation of strategies to enhance industrial innovation and upgrade EU-CEE's position in value chains. Although EU membership provides opportunities for collaboration and learning, the current innovation policy approach of the EU, which is focused more heavily on the needs of advanced countries, hinders active participation by EU-CEE countries. Only a few EU-CEE countries utilise their national policy space to engage more actively in EU initiatives.

IRELAND AND SINGAPORE AS ROLE MODELS

In this context, Ireland and Singapore can serve as an inspiration for EU-CEE, as they each successfully transitioned from an FDI-dominated to a more balanced innovation system, in which domestic firms actively contribute to the generation of innovations. Like the EU-CEE countries, their early economic growth was mainly driven by large multinational enterprises (MNEs) – similar to the 'extended workbench' model in EU-CEE. Later in their development stage, however, Ireland and Singapore changed their growth strategies. One notable element was the focus on a highly selective investment promotion approach (called 'innovation by invitation' in Ireland), which involved specifically attracting investments that corresponded to the country's own industrial strengths and potential. Additionally, a systematic and highly focused approach was taken to connect foreign companies with local firms and suppliers to establish industrial clusters in promising niches. Incentives were also created to encourage foreign companies already operating in the country to carry out more R&D locally, thus bringing in more added value.

A critical factor here was well-trained skilled labour. Both Ireland and Singapore have made great efforts to orient vocational training and, above all, university education in STEM subjects as closely as possible to the needs of their own economies. Other success factors included significant government funding of R&D through grants and tax breaks, the strengthening of scientific research at universities, the creation of government research funding agencies, the networking of university and commercial research, good framework conditions for start-ups, and easier immigration of highly qualified people from abroad.

POLICY RECOMMENDATIONS

Considering the specific innovation landscape of EU-CEE countries and building on the success stories from other parts of the world, this study articulates a series of recommendations aimed at guiding the EU-CEE region's next growth phase, advocating for a transition from imitation to innovation.

1. FACILITATE EFFECTIVE CO-ORDINATION OF THE INNOVATION SYSTEM

- Encourage the establishment of a long-term innovation strategy that provides stability and planning security and is not subject to the electoral cycle. This is linked to the creation of a central innovation agency to co-ordinate the various elements of a coherent innovation policy at the national level.

- Improve the utilisation of EU funds and provide more money at the national level for the promotion of innovation. From a converging country's perspective, the reality that EU-CEE can lean on EU finances is a substantial advantage, which needs to be leveraged more strongly.

- Improve the public administration and its institutions. In addition to expanding the pool of innovation policy experts within the public sector, this includes a shift towards a culture of evidence-based policy making, establishing and strengthening in-house capacities to analyse different policies and their interactions.

2. ENABLE COMPANIES TO CLIMB UP THE TECHNOLOGICAL LADDER

- Strengthen the innovative potential of domestic companies, helping them to upgrade and grow. Key strategies in this direction involve fostering local supplier development, offering targeted R&D incentives, as well as promoting clusters. Avoiding an arbitrary over-emphasis on high-tech sectors is also crucial, ensuring that innovation policies are locally relevant for realistic and effective outcomes in the region.

- Select FDI in a targeted way and focus on areas that align with the country's traditional industrial strengths in order to build upon them. Create incentives for foreign MNEs operating in the country to conduct more R&D locally, thereby bringing additional value.

- Connect MNEs operating in the country with local companies so that the latter can benefit from their technological expertise and know-how. Eventually, industrial clusters should emerge that reflect the country's strengths and specialisations.

- Identify and develop promising industrial niches. Facilitate a targeted specialisation of the economy in the most promising areas that offer the greatest comparative advantage. The EU-wide approach, known as 'smart specialisation', can be especially useful, as it seeks to achieve intelligent, inclusive and sustainable growth within the given economic conditions.

- Move away from tax incentives as the main instrument to stimulate R&D spending by companies towards more direct grants, especially in EU-CEE countries with fewer fiscal constraints.

3. STRENGTHEN UNIVERSITIES AND RESEARCH INSTITUTIONS

– Increase the exchange and improve networking between science and business. This includes making collaboration between universities and industry a prerequisite for certain types of funding, reviewing the regulatory frameworks governing publicly funded institutions, and establishing and actively using technology transfer offices, as well as participating in EU-wide initiatives that encourage the commercial application of research.

– Promote international partnerships and create opportunities for the cross-border mobility of researchers. There are various means of stimulating such partnerships, such as making research collaboration grants more widely available, negotiating various fellowship programmes (also within the EU-CEE region), and simplifying work permits and visa procedures for international researchers.

– Stimulate internationally outstanding scientific excellence. This should, however, be relevant to the local economy and its industrial base and take their needs into account.

4. DEVELOP HUMAN CAPITAL

– In order to have enough well-trained specialists available for an innovation-based growth model, vocational training and university education need to be expanded, especially in the STEM subjects of science, technology, engineering and mathematics.

– Talented workers from abroad should be recruited in a targeted manner, and skilled citizens who have emigrated should be enticed with special incentives to return home. It is well known that the EU-CEE countries are grappling with a pronounced 'brain drain' and, consequently, a significant shortage of skilled labour. This situation is often linked to challenging living conditions, ranging from expensive housing to a lack of childcare and inadequate healthcare. This also necessitates a new social policy to improve living conditions.

– Vocational training and apprenticeships should be made more attractive so that young, talented people follow these pathways, especially in technical and scientific fields. EU-CEE countries can build on the presence of MNEs to advance apprenticeship and internship programmes, career exploration programmes, and mentorship initiatives to ensure that students get hands-on experience from a relatively early age. The aim is to also ensure a more balanced talent distribution, so that high-achieving students are more drawn to, and can excel in, vocational pathways.

5. IMPROVE ACCESS TO FUNDING FOR INNOVATIVE COMPANIES

– In order to offer innovative companies better access to suitable financing from the outset, a legal framework and market conditions that reward innovation and risk-taking need to be cultivated. In particular, simplifying regulations, encouraging new fund creation, and promoting regional funds for smaller markets can be useful. Governments should cautiously explore co-investment mechanisms, avoiding disruption to private funding.

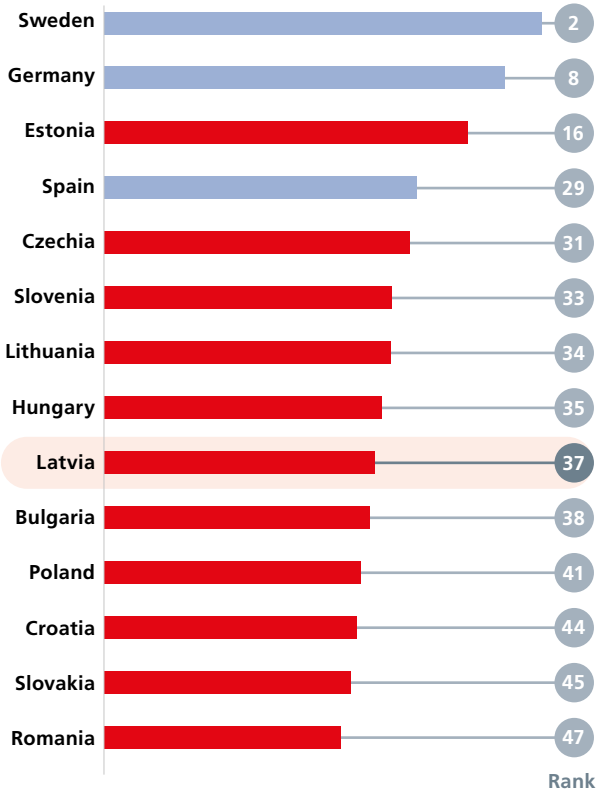
COUNTRY BRIEFING LATVIA

INNOVATION LANDSCAPE

With a performance below the EU average, Latvia is still classified as an emerging innovator by the European Innovation Scoreboard. In global comparison, Latvia is positioned as the 41st most innovative economy, with a ranking that is generally in line with its level of development.[1] However, catching up towards the EU average has not taken place, particularly in recent years. An increasingly vibrant start-up scene, sustained investments in digitalisation within firms and across the population, and an emergent deeptech hub are encouraging signs of Latvia's enhanced innovation efforts. But a number of challenges persist. Latvia is currently lacking STEM graduates and PhD graduates, which would provide a more solid basis for its innovation-based growth model. Extremely low research and development (R&D) expenditures, together with a business sector that engages in R&D only to a very limited extent, have left Latvia unable to produce enough patents and exports of medium and high-tech manufactures. Non-R&D innovation expenditures are also below the EU average and have been on a downward trend in recent years.

The production structure of Latvia remains concentrated on low and medium-tech sectors, which in past years saw limited productivity growth. Some progress is registered in a handful of sectors. For example, in wood processing, biomedicine and pharma, and in services (particularly in the IT sector), there is evidence of some higher value-added product development, in co-operation with external partners and the research sector. Beyond established firms, Latvia's start-ups are increasing in number and expanding in various sectors, owing to strong collaborations with technical universities as well as new policies and initiatives. The most promising firms are found in deeptech (in areas such as quantum physics, smart materials, biomedicine and space technologies), fintech and the drone sector. In deeptech, the most successful start-up is Eventech, a spin-out of Latvia's Institute of Electronics and Computer Science, which is developing and commercialising satellite laser applications. In fintech, TWINO is one of Europe's leading peer-to-peer (P2P) lending platforms.

Global Innovation Index – Rank 37 out of 132 countries



Source: GII 2023.

The Competence Centres programme is considered the most successful public initiative linking research and industry. It covers the five key sectors in which Latvian enterprises are considered to have competitive advantages and which became the priority areas of the smart specialisation strategy: knowledge-intensive bioeconomy; biomedicine, medical technologies and pharmacy; smart energy & mobility; ICT and smart cities; photonics, smart materials, technologies and engineering.

Concerning the 'megatrends' of the twin transition, Latvia has, in addition to the above-mentioned positive features, a considerable share of population with at least basic digital skills. As for the green transition, Latvia is lagging behind in many fields (e. g. low circular material use rates, rising greenhouse gas emissions per capita and deteriorating performance in environment-related technologies).

1 According to GII's expected vs. observed innovation performance.

National Innovation System Indicators

Priority areas	Indicator	Latvia	EU	EU-CEE
Education system	Tertiary education graduates in STEM, share in % (UNESCO)	**19.4**	24	24.2
	Spending on tertiary education per student, in EUR at PPP (Eurostat)	**4,360**	7,990	6,600
	PISA scales in reading, maths and science (GII)	**487**	484	480
Technological capacities of enterprises	R&D (GERD) financed by business, share in % (Eurostat)	**33.5**	57.7	43.5
	R&D expenditures (GERD) in % of GDP (Eurostat)	**0.7**	2.3	1.3
	SMEs with product innovations, share in % (EIS)	**13.7**	27.0	22.8
	SMEs with business process innovations, share in % (EIS)	**24.9**	41.6	32.4
	Finance for start-ups and scale-ups, average perception scores from 0 to 10 (GII)	**5.0**	4.3	4.5
Collaborations and linkages	Innovative SMEs collaborating with others, share in % (EIS)	**6.1**	11.7	10.1
	University-industry R&D collaborations, average perception scores from 0 to 7 (GII)	**3.7**	4.2	3.8
Innovation outcomes	Granted patents per million inhabitants (WIPO)	**76**	586	86
	Exports of medium and high-technology products, in % of total product exports (EIS)	**30.2**	61.2	49.5
	Knowledge-intensive services exports, in % of total services exports (EIS)	**55.6**	63.6	48.6

Sources: EIS 2023; Eurostat; GII 2023; UNESCO; WIPO; World Bank, WDI.
Note: data for EU and EU-CEE are simple averages, except for EIS and Eurostat, with original data for EU.
Data for 2021 or the most recent available year; more details on the methodology and data availability to be found in the Annex.

Mapping innovation policy initiatives

	Yes/No	Name of the initiative/ programme	Comments
Innovation agency	No		LIAA, the Investment and Development Agency of Latvia, has a mandate that encompasses a wide range of areas, starting with export and competitiveness, foreign investments, tourism, and branching out to innovation, technology transfer and start-ups.
Programmes for human capital development	Yes		LIAA provides grants for skill training programmes to promote the adoption of new technologies and increase labour productivity, particularly in manufacturing, ICT, accommodation and catering services.
Programmes for human capital attraction and retention (e.g. reverse brain drain)	Yes	Start-up visas	Start-up visas are available for non-EU entrepreneurs who want to start a business in Latvia.
Start-up programmes (incubators, dedicated financing, etc.)	Yes	Startup Law Benefit Four Acceleration Programmes Magnetic Latvia Business Incubators Loans	Under the Startup Law Benefit, start-ups are given a number of tax reductions (low flat social tax, no individual tax for start-up employees, and 45% co-financing for highly qualified specialists). Four acceleration programmes are active, focusing on different sectors and issues. The Magnetic Latvia Business Incubators programme involves 13 incubators spread across the country. The incubators provide training, mentor support and grants as well as organising events covering general business issues. Loans for start-ups are also provided through Altum, Latvia's state-owned development finance institution.

Venture capital programmes	Yes		To create a venture capital market, the Latvian government is investing funds from both the European Regional Development Fund and the national budget into venture capital funds via its financial arm, Altum.
Cluster programmes	Yes	Competence Centres programme	The Competence Centres programme was launched in 2010. It aims to promote applied research and frontier innovation in sectors aligned with the Smart Specialisation strategy, namely: knowledge-intensive bioeconomy; biomedicine, medical technologies and pharmacy; smart energy and mobility; ICT & smart cities; photonics, smart materials, technologies and engineering. The programme helps to develop new products through strengthened collaborations between the research and business sectors. At least a quarter of their funding must be devoted to experimental development. The centres are based at universities and provide high-end research infrastructure. By the end of 2018, support had been given to almost 150 firms to develop 174 products.
Technology-specific policies	Yes	Deeptech	The newly emerging deeptech industry has attracted government attention. A conference in May 2024 will bring together entrepreneurs, students, companies and all other stakeholders. Its main focus will be quantum, optical fibres and sensors. Additional initiatives can be expected in the near future.
Tax incentive schemes	No		R&D expenditures are treated as any tangible capital investment. R&D tax incentives were abolished in 2018.
Innovation vouchers	Yes		Vouchers for up to EUR 25,000 are available for companies to cover various R&D expenditures (including services from scientific institutes) or to co-finance highly qualified employees.
Initiatives to support commercialisation efforts of scientists	Yes		LIAA organises training and networking workshops to promote commercialisation efforts by scientists, covering topics such as management of intellectual property, technology transfer, and development of new products and technologies.

COUNTRY-SPECIFIC POLICY PRIORITIES AND RECOMMENDATIONS

- **Give more emphasis and allocate more funding to innovation policies.** Latvia is currently lacking an innovation agency focused on the co-ordination and implementation of science, research, technology and innovation policies in the country. By creating a dedicated agency, or by putting innovation policies more firmly at the centre of LIAA's mandate, Latvia could make the first step towards a stronger commitment to innovation policy. This would need to be followed up by specific measures to improve the enabling environment for innovation and also by a coherent innovation policy strategy with a policy mix that addresses all the bottlenecks currently faced by the innovation system. Examples of these measures and policy priorities are provided in the bullet points below. To implement this more coherent policy, higher funding would be necessary. At present, government funding of innovation is insufficient; it should be increased for all firm sizes and in all stages of the innovation process.
- **Provide stronger incentives to students to engage in STEM education and undertake doctoral studies, particularly in relation to ICT.** The expanding high-tech industries such as those around ICT, deeptech and drones require an increasing number of high-quality STEM graduates and PhDs. Scholarships, grants and other incentives to higher education organisations are necessary to promote these studies, make them more attractive and improve their quality. Information campaigns to inform students about the career prospects in these fields might also be an effective way of attracting students and motivating them to complete their studies.
- **Support the nascent start-up ecosystem, while supporting the upgrading of established firms in traditional sectors.** Latvia's current innovation policy mix seems very much skewed towards start-ups, following the trend in the other Baltic countries. All these initiatives should be maintained and developed, for instance by expanding the offer of financial instruments (following the example of neighbouring Lithuania).

However, innovation policies cannot be blind to existing firms in more traditional sectors. These firms are responsible for a large part of Latvia's GDP and still employ large shares of the workforce. Many of these firms face important challenges and opportunities as the EU accelerates its transition towards a greener and more digital economy. Although LIIA already provides a number of services to these firms (such as for expert analysis of products and factories, certification costs, adaptation of products/services to foreign markets, and digitalisation of processes), the provision could be expanded to include services to improve business practices, spur the adoption of certain digital technologies such as AI, make products more sustainable, and provide consultancies to help firms identify promising market niches.

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Toward Innovation-driven Growth: Innovation Systems and Policies in EU Member States of Central Eastern Europe

This country briefing contains a short summary of a much broader study that deals with the perspectives of innovation policies in Central Eastern and Southern Eastern Europe.

Twenty years after EU enlargement, the economies of Central and South Eastern Europe have become important components of Europe's industrial production system. Now, these countries are faced with the task of taking a new step towards a more sustainable and productive growth model.

This step can only be taken if the countries succeed in becoming innovating economies with national companies that are strong in research, development and innovation. To succeed, the countries have to develop not only strong industrial policies, but also policies that aim at creating solid national innovation systems. The study analyses the region's potential and uses the examples of Ireland and Singapore to describe successful innovation strategies. It is authored by a team from the Vienna Institute for International Economic Studies.

It is part of a series of FES studies on the growth model in EU-CEE and its prospects which have been published in recent years.

The full study can be found here:
http://library.fes.de/pdf-files/bueros/budapest/21198.pdf

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