Journal of Infrastructure, Policy and Development 2024, 8(12), 4360.
https://doi.org/10.24294/jipd.v8i12.4360

Article

Role of innovation culture and post-Soviet mindset as factors determining speed of economic development in a small open economy: Case of Latvia

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CITATION

Ozols A, Avotiņš V. (2024). Role of innovation culture and post-Soviet mindset as factors determining speed of economic development in a small open economy: Case of Latvia. Journal of Infrastructure, Policy and Development. 8(12): 4360. https://doi.org/10.24294/jipd.v8i12.4360

ARTICLE INFO

Received: 23 January 2024
Accepted: 23 May 2024
Available online: 31 October 2024

Abstract: This research seeks to identify the value of a few common factors determining the speed of economic growth in Baltic states and analyzes their impact in detail on Latvia's lagging. Latvia's economic starting point after regaining independence because of the collapse of the Soviet Union was at least comparable to its neighbors. Still, after the implementation of liberal reforms towards a free market' economy and 20 years of operation as an EU full member, Latvia is lagging in growth, prosperity, and innovation. Within the analysis, this scientific paper pays special attention to the three less discussed factors, namely, the impact of post-Soviet mind-set effects as a part of local innovation culture, lasting since regaining independence in 1991; the importance of the availability of talent pull, its density, diversity, and accessibility; and readiness and capability to capture external knowledge and technology adoption. The overall approach is the systemic assessment of the national innovation system and/or innovation ecosystem, trying to understand the differences between these two models. Research is performed by analysis of the performance of the local innovation ecosystem in connection with export- and Foreign Direct Investment (FDI) policies. The authors present a novel method for visually representing economic growth and its application in analyzing process development within transitional economic nations. The study uses an analytical and synthetical literature review. It offers a new GDP data visualization method useful for monitoring economic development and forecasting potential economic crises—the outcomes from aggregative literature analysis in a consolidated concept are provided for required talent policy proposals. The post-Soviet mindset is seen as a heritage and devious underdog that has left incredibly diverse consequences on today's society, power structures, economic growth potential, and the emergence of healthy, well-managed, and sustainable innovation ecosystems. The post-Soviet mindset is a seemingly hidden and, at the same time, an intriguing factor that has a significant impact on the desire to make and implement the right decisions related to innovation, education, and other policies promoting business development. The key outcome of the article is that sociocultural aspects and differences in innovation culture led to a slow-down of Latvia's economic growth compared to Estonia's and Lithuania's slightly more successful economic reforms.

Keywords: economic policy; innovation; innovation system; innovation ecosystem; intrapreneurship; talent; post-Soviet mind-set

1. Introduction

The collapse of the former centralized planned economy system followed by globalization, agrarian, industrial revolutions, massive use of internet and mobile communication technologies in society and economy, aging of European society, and the digital age have changed the everyday life of society and economic development theories. The rapid development of the European Common market and the emergence

of global economic power in Europe require changes in lifelong learning and socioeconomic attitudes and a focus on creating a vibrant entrepreneurial society.

New economic theories have emerged within the last 50 years, e.g., innovation (Solow, 1956) and endogenous growth theory (Romer, 1986), market network theory (Callon, 1999); industrial cluster theory (Porter, 1996); triple and Quadruple Helix; national and regional Innovation systems; competitive class in urban agglomeration (Florida, 2002); business and innovation ecosystems (Guerrero et al., 2016; Jacobides et al., 2018). They all explain economic processes in the past but are less able to understand today, and much weaker prognosis, what may happen soon. The forecast for Central and Eastern European countries is less satisfactory, especially for such small economies as the Baltic states.

In the 1990s, researchers began to assess the impact of the company's external factors on the innovation processes that are taking place inside the company. Such external factors included partners or other companies, clients, institutions, local culture, the legislative environment, and the available external knowledge sources. In some regions or local urban areas, companies were more motivated to innovate than in others (Florida, 2002). Initially, growth theories were rooted in the performance of the development of new technologies and technology transfer. Still, later knowledge, knowledge institutions, knowledge workers, and knowledge transfer gradually became more critical, thereby highlighting the importance of expertise and intangible knowledge. National and regional science, technology, and innovation policies have been increasingly focusing on expanding the capacity of local companies to absorb knowledge, reducing national bureaucratic and administrative barriers, opening knowledge, and increasing the competitiveness of universities. The concept of innovation has evolved into a systemic approach (Lundvall, 1992), reflected in several growth theories related to innovation processes (Callon, 1999; Etzkowitz and Leydesdorff, 2000; Granstrand and Holgersson, 2020; Lundvall, 1992). In most cases, they exist and develop in parallel, each only partly describing the current situation.

This research aims to identify the value of a few common factors to determine the performance of the innovation ecosystem model in economic growth in the Baltic states concept and to analyze their impact in detail on Latvia's lagging. Latvia's economic starting point after regaining independence because of the collapse of the Soviet Union was at least comparable to its neighbors. Still, after the implementation of liberal reforms towards a free market' economy and 20 years of operation as an EU full member, Latvia is lagging in growth, prosperity, and innovation. Within the analysis, this scientific paper pays special attention to the three less discussed factors, namely, the impact of post-Soviet mind-set effects as a part of local innovation culture, lasting since regaining independence in 1991; importance of availability of talent pulls, its density, diversity, and accessibility; and readiness and capability to capture external knowledge and technology adoption. The overall approach is a systemic assessment of the national innovation system and/or innovation ecosystem, trying to understand the differences between these two models. It is performed by literature analysis of the performance of the local innovation ecosystem together with export and Foreign Direct Investment (FDI) policies. The research was conducted in seven steps:

1) The first part provides some background understanding of the evolution of the main concepts related to entrepreneurship. The section examines the specificity

of a small country, the limitations that the European Commission (EC) policy and common market impose on the companies of a new member state, and the impact of the innovation process and innovation ecosystem (IES) performance in the context of a systemic approach.

2) The second part examines the performance of Latvia's national economy since independence, comparing the Baltic states with each other, and describes the prerequisites for development and the return on the use of the received support. The authors propose looking at GDP growth depending on inflation, a new way of visualizing data. The section concludes that transitioning to higher labor productivity is an economic policy priority.
3) The third section examines the impact of innovation culture on the technological competitiveness of companies in the framework concept of four cultural factors, its role in the context of EU regional innovation policy, and differences in several cases. The influence of the organizational and innovation culture and the possibilities of monitoring the organizational culture are considered.
4) The fourth section examines the concept of talent, describes the necessary talent development policies for Latvia, and explores the impact of talent density and availability on economic growth.
5) the fifth section of the analysis examines the importance of technology transfer, especially the absorption of technologies created outside of Latvia. It is shown how the readiness of technology absorption and adaptation affects the competitiveness of SMEs. It analyses how export and attraction of foreign direct investment can increase the transfer of external knowledge and technology and how external innovations can be transferred to Latvia. Possible policy instruments are outlined to make absorption processes more extensive and faster.
6) The sixth section of the analysis examines the nature of the homo-soviet or soviet mindset value system and its connection with innovation culture and economic growth. Next, the section analyses why the Soviet mentality is so easily and quickly revived in the market economy. The continuation of the chapter evaluates how the Soviet value system affects the culture of innovation and analyses the environment for the transition of these value carriers to the market economy. The chapter provides a deeper insight into the historical causes that explain the broader spread of the homo-Soviet mentality in Latvia and the easier transition from generation to generation. Analysis, synthesis, and combined interpretation of the literature and the author's experience in promoting entrepreneurship allow us to compare countries with a significant impact on the post-Soviet mindset and countries without it. At the end of the chapter, a comparison of the situation in the Baltic States, the impact on the transition reform process, and the society's activities in the context of Hofstede's six socio-cultural dimensions is provided.
7) Finally, the seventh section of the analysis examines national competitiveness in the context of evaluating the innovation system or IES. The section offers a critical review of the interplay and impact of factors hindering the effective operation of IES. The section creates a schematic depiction of the national innovation policy, which shows the growing importance of universities in the socioeconomic IES operation and, as a basis, the increase in talent concentration, knowledge absorption, and adaptation readiness of companies, which is

reinforced by digital technologies, intelligent society activities, and proactive governance. The impact of the post-Soviet mentality factor is analyzed.

8) The article is finalized by the conclusions based on the research conducted and the analysis performed.

2. Methodology

In selecting integrated conceptual approaches to the study, we estimated the practical limitations of collecting the necessary data and followed the methodology developed by Erko Autio (Autio, 2014). We combined:

a) A desk-based analysis of existing evaluation literature and reports examines methods and findings.
b) Existing statistical data on Baltic states' economic growth and inflation.
c) Public reports from international or national organizations, evaluation reports, and original data execution in the form of published case studies.

Public research planning and policy documents, research reports and papers, and available statistics, directly and indirectly, linked to talent policies, innovation management, technology absorption, innovation systems, IES, innovation culture, and soviet mindset have been the primary sources for data related to understanding the way of Latvia's economic growth and state's lagging among other Baltic states. The secondary sources were micro and meso documents based on individual case studies, their collaborative networks, firms' export activities, governmental FDI attraction policy measures, and migration reports, all covering post-Soviet mindset, talent growth strategies, and socio-economic benefits.

The trend towards an evidence-based approach fueled the application of systematic analytical approaches to review selected literature—i.e., the requirement that decisions and conclusions be grounded in and argued by synthesizing research findings on a given topic or research section. Systematic literature reviews have become an increasingly often-used tool to collect, systematize, and analyze the bulk of knowledge in a segment of IES operation through meta-analysis (the frequent use of qualitative descriptions and the case study method). Systematic literature reviews in this domain often involve a qualitative synthesis, such as a critical or thematic synthesis. In the current consolidation, we adopt the thematic synthesis approach (as defined below) and organize our review along central themes currently existing in innovation policy's scientific literature.

The literature review used Google Scholar, Scopus, ScienceDirect, EBSCO, Google Web, and ISI Web of Knowledge full article databases. The keywords used in the search included but were not limited to "innovation systems", "innovation ecosystem", "innovation governance", "national competitiveness", "talent pull", "talent policy", "talent diversity and availability", "technology absorption", "technology absorption readiness", "technology transfer", "innovation culture", "evaluation of IES", "entrepreneurial university", and "performance of economics". References in this literature were verified for relevant subject matter. A further search was carried out as a separate citation screening exercise, where each title was used as a keyword, which often opened further relevant references that might have been missed during the first search stage. It is noteworthy that forward citations were not

focused on our research subject in all cases. Selected institutional websites were also scanned for reports and impact studies on IES and innovative and active society. Additional attention was paid to reports designed by international organizations such as OECD, World Bank, and EU.

Among all documents screened, only those with a genuine innovation system nature were included in this review and synthesis. There were quite many documents using the terms "talent", "IES", "technology absorption", and "innovation performance", which nevertheless were not relevant to the present review. During this exercise, we also developed manual and empirical methods for excluding irrelevant documents. As noted above, our review was not limited to academic papers only, as much of private sector documentation regarding the system of innovation takes the form of open case studies and other such documents, and the literature is generally quite fragmented. A reason for this fragmentation could be that entrepreneurs, not intrapreneurs, instead drive the assessment of national innovation policy. The university's role is limited by three leg model and impact of any format of innovation culture. A workstream also focuses on ICT-supportive technologies, artificial intelligence, big data, and industrial revolution 4.0 models.

Given the fragmented nature of available literature on post-Soviet mindset, talent concentration, absorption of external knowledge, and IES, we chose to apply a thematic synthesis approach. This technique organizes the literature into thematic streams and summarizes received findings and insights.

Unlike aggregative methods (which summarize well-specified data and stable concepts), we used the critical interpretive approach based on induction and interpretation to develop and integrate concepts with theories. Finally, an attempt to consolidate the observations creates a few research questions, leading to the next stage of critical interpretation of post-Soviet value system reemergence phenomena. This method is advantageous in cases where synthesis is attempted in a theme whose literature is sparse, fragmented, non-accumulative, and lacking in theory and rigorous methods. Since the same literature is subject to this process, the initial taxonomy is a simple review, and the rest is a synthesis. Another feature of this method is that the chosen framework highlights research gaps, which can be used to set up a coherent research agenda.

An overview of these and the key factors affecting them also gives an insight into the evolution of innovation systems and the causes of divergences in the development of different countries. The research methods used include literature and global trend analysis, synthesis, and comparative analytics of available data.

3. Entrepreneurial economy paradigm

Socioeconomic attitudes towards the national economy and considerations of entrepreneurship's impact on economic growth today require essential changes. Liberal policy implications versus the practice of state aid and support policy measure's implementation after highly politicized and weakly implemented mass privatization in many Central and Eastern European Countries (CEEC) countries (Megginson and Netter, 2000) have consolidated into the EC aid system for newcomers' economic growth and fast and dynamic reconsideration and

reconfiguration towards efficient exploitation of best nation's resources resulting in commonly defined new or modern entrepreneurship policy (Wach, 2015).

Entrepreneurship is commonly perceived as the fourth main factor of production (in addition to capital, physical infrastructure, and labor in the traditional trichotomic approach). The recent fast global changes in learning, mentoring, and coaching techniques (Harward Business School Press, 2004), socioeconomic attitudes towards business, and innovation culture lead to a vibrant entrepreneurial society. The relevance of availability and ability to adapt and disseminate new knowledge, exploit accessed talent potential, and the capacity to access, select, and transfer the external frontier external knowledge and technologies is significant for a small economy such as Latvia. The specific situation in a small CEEC state could be characterized as follows:

1) Its resources (talent, labor, infrastructure, and funding) are limited. Therefore, specialization and labor division are often suggested, and interactive cross-border collaboration between urban centers and talent pules is promoted but limited by borders of the national legislation environment. It is too difficult for politicians to set clear internationalized economic priorities and to cut further structural fund allocations to specific non-priority sector segments, lose the electorate, and get adverse reactions back in mass media.
2) Local economic policies and foreseeing of matters could be so locally focused and determined by national social partner interests (often based on historical and cultural circumstances) that such "national interest" based barriers cannot be overcome at the cross-governmental level and state opened for the external knowledge, skills, and competence inflow.
3) Thirty years after joining the EU, significant differences in economic development and well-being remain in the new member states. In cooperation with the old member states, closed clubs and the Matthew principle have been formed, limiting knowledge transfer, reducing development, and promoting emigration (Visionary Analytics, 2017).
4) EU policy to concentrate extensive (science and technology) infrastructure facilities in limited locations, usually in large western countries with twinned centers of excellence, is natural, as they are better prepared and have higher political will and cofounding. Catching-up small EU members are not ready to utilize such opportunities and exploit the potential of large centers. This political weakness may become a substantial brain drain (Timofejevs et al., 2019).
5) In a small country, the political and economic elite is small and interconnected; therefore, keeping independent evaluations or avoiding previous contacts and conflicts of interest between experts and institutions is challenging. In a narrow-specialized sector, the number of professionals is limited, and you cannot always involve foreign experts.
6) EU policy is determined by the size and technologically developed members where small, less developed CEEC countries, in general, show too little opposition and too high discipline against their national economic interests, together with weak performance and governance in exploring opportunities offered by being in the EU results in a substantial emigration and brain drain.

Expected breakthrough structural changes in the national economic system have

introduced uncertainty and blurred strategic growth policy. In 1985, Drucker (1985) published his book "Innovation and Entrepreneurship". Audretsch and Thurik (2000) noticed a fundamental difference between the "managed economy" and "entrepreneurial economy" approaches. The departure from the dominance of large corporations in the economy and the contribution of small and medium-sized globally operating firms proves strategic reorientation to a knowledge-based economy with the dominance of small incremental innovations (Tidd, 2021), exploitation of information, and Research and Technological Development (RTD) as economic values. Economic policy in the entrepreneurial economy focuses on deregulation, privatization, creativity, and labor market flexibility (Audretsch, 2001). The concentration of talent results in the emergence of high-growth start-ups and the creation of value-added unicorns (Oxford Research Baltics, 2022). It allows us to formulate the main economic policy question: "how can governments create an environment fostering the success and viability of firms?"

The overall performance depends on the efficiency of the network of institutions in public and private sectors whose activities and interactions initiate, develop, modify, and commercialize new technologies (Wesner, 2004). World Bank (WB) offered a definition for the National Innovation System (NIS): "The NIS is a system in which those who generate new knowledge are efficiently connected to those who can benefit from its use" (Goldberg et al., 2006). As such systems grow and evolve, they have dynamic linkages among members and multiple sub-systems, allowing it easier to adapt to external changes. It is much closer to using the term "innovation ecosystem".

In this paper, we use the definition of "Innovation ecosystem" as "the large and diverse array of participants and resources that contribute to and are necessary for ongoing innovation in a modern economy" (Witte et al., 2018), which is driven by proactive state policies.

The authors performed an analysis of approximately 150 literature sources on innovation ecosystems. Such an exercise allowed us to identify seven main factors that describe the innovation process and the innovation-related system. Among analysis, we can see the intrapreneurial or creative economy as a concept that includes available creativity, talent, and competence in at entrepreneurial society. The main factors of the innovation ecosystem are (Adner,2016; Granstrand and Holgersson, 2020; Tsujimoto et al., 2018; Walrave et al., 2018):

1) Interactive collaboration between networked actors representing knowledge creators and knowledge merchants.
2) Artifacts that describe the technologies, techniques, and methods used in business innovation processes.
3) Institutions with an innovation culture are critical to getting high socioeconomic returns from implemented policy measures.
4) High adoption ability and readiness for new external knowledge and technology to reach disruptive, innovative change.
5) Systemic approach and integration of various policies and policy measures.
6) The role of geo-location. Suppose cluster theory distinguishes geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions central for cluster fields competing but cooperating (Porter, 1990). In that case, urban

agglomeration theory stresses the competencies of a metropolis or city territory (Florida, 2002). Nowadays, three crucial elements are ease of access to talent, density, and diversity. A talent and developed science base with solid technology transfer performance is a critical success factor of the national or regional innovation ecosystem.

7) The role of a strong socio-economic will is to implement "structural change" or economic transformation.
8) High performance of allowed and supported modes of knowledge transfer.

Our previous paper outlined a modified integrated model of several state policies (Ozols and Avotins, 2021). Further analysis of the central policies will help outline what shortages they have and what measures should be taken in a small, open economy to achieve breakthrough economic development and catch up with developed countries.

Generally, it is concluded that the economic growth theories and approaches developed for the catching up countries by the World Bank do typically not respect innovation culture as a growth factor. For example, in cross-national trade, marketing, and cooperation, researchers mostly look at intercultural communication in the context of attracting Foreign Direct Investment (FDI). At the same time, the heritage of the post-Soviet mindset and the need to dispose of and change it are rarely mentioned. Audretsch et al. (2007) postulates an essential shift from classical economic interventionism to the created ability to capture and manage innovation opportunities. In the next chapter, we will look at Latvia's economic development over the last 35 years compared to the two Baltic neighbors - Estonia and Lithuania.

4. Latvia's economic and innovation performance during the last 40 years

Although in the early 1990s, the start of transition economic reforms for all Baltic States was relatively equal until 2000 with a slight advantage of Estonia, when a functioning market economy was in place. Latvia was the main transit route and military center in the Baltics. Estonia had no large manufacturing enterprises; however, Latvia, in the soviet time, was more tightly controlled by Moscow. Mart's Laar decisively implemented the neoliberal roadmap of the Washington Consensus promoted by the WB and the International Money Fund (IMF) (Kattel and Raudla, 2022). It included the introduction of the national currency, strict monetary and fiscal policies, opening the free market, creating a conducive environment, and performing rapid mass privatization. The last brought a large inflow of FDI, encouraged export, and stabilized the macroeconomic situation. Estonia's focus on digital reform and promoting science since 2000, especially after the Baltic States joined the EU, has maintained slight Estonian economic leadership.

Each Baltic country chose its own development path, programs, and specific instruments (with individual exceptions) that were not harmonized. Although it was popular to compare the particular indicators (a politically wrong solution if one of the closest neighbors is better in some areas), it resulted in increasing backwardness at the beginning from Estonia and then from Lithuania. This kind of backwardness could be a systemic cause, so in the paper (Ozols et al., 2023), we analyzed more deeply crucial

causes and factors outlining economic and innovation growth over the 40 years for three Baltic States.

Historically, Estonia and Latvia received a large mass of Russian-speaking or Russified immigrants, who brought in Soviet culture, which was layered on top of the pre-war local Baltic German business culture. Command economy governors forced Russian to be an official language and heated anything different from their transferred peripheral colonial administrative model. In the Baltics, which were Soviet republics dependent on Moscow, this influence was more significant than in the CEEC countries and Latvia, the greatest of the Baltic republics.

Since the 19th century, when mass privatization started, Latvia was an industrially developed republic with more desirable properties to be transferred to limited circle elite hands. After regaining independence in the 1990s in Latvia, the nomenklatura, retired military, Komitet Gosudarstvennoy Bezopasnosti (KGB) employees, and apparatchiks merged with the political leaders of the Latvian National Awakening (revival) and representatives of the diaspora who came to Latvia from the west. Lawyers, post-Soviet bankers, politically aligned circles of advisers, and experts loyal to the theft of resources were absorbed by the new consolidated elite, who were thinking about where to steal, appropriate, privatize, and grab property and resources (Ronis, 2017). They subordinated the business environment to their interests by distorting the market and preventing the development of new competitive companies. Inevitably, redistribution of available resources favoring the new consolidated political elite became primary in Latvia rather than creating new globally competitive companies. The creation of market legislation took 3–4 years, which allowed a rapid, legal, and politically lobbied redistribution of resources. During the transition period, more properties were domestically redistributed in Latvia than in Estonia and Lithuania (Vasks, 2022).

Since regaining independence, Latvia had two major economic priority sectors: the transit of goods and banking service development (Vasks, 2022). Strategies to launder the money of the Russian elite and apparatchiks and to obtain a substantial flow of energy resources, cargo, and transit must be recognized as erroneous today. The strategy of allowing money laundering and profiting on a growing stream of energy, cargo trade, and transit was a mistake. Strategies to develop other sectors, e.g., ICT, were suppressed. Science was deliberately starved as apparatchik classes don't need science. Russia retained too large a share in economic cooperation as a natural resource export-based, autoritare, and corrupt country that does not represent a functioning market economy.

The redistribution of Soviet-era resources and efforts to redistribute EU structural funds or, in the worst case, lessons from easily obtainable and write-off credit resources (let's remember G24 loans, European Bank for Reconstruction and Development (EBRD) to small and medium-sized enterprises (SMEs) loans, World Bank rural development program credits) are still significant (Kudela and Avotins, 1999; Monck et al., 2000). It is still a powerful magnet, with 15 billion euros available by 2027. Successful political intervention can earn more with grants than business in a competitive environment. But the country isn't getting richer by redistributing the resources available. Since the 1990s, state funds and EU structural funds have mainly been invested in the construction industry, where it is traditionally more

straightforward to avoid paying taxes, split off part of the funding as a corruption payment, so-called kickback payment (There is a special term in Russian "откат"), list the tons of soil, sand or snow transported, e.g., stolen directly.

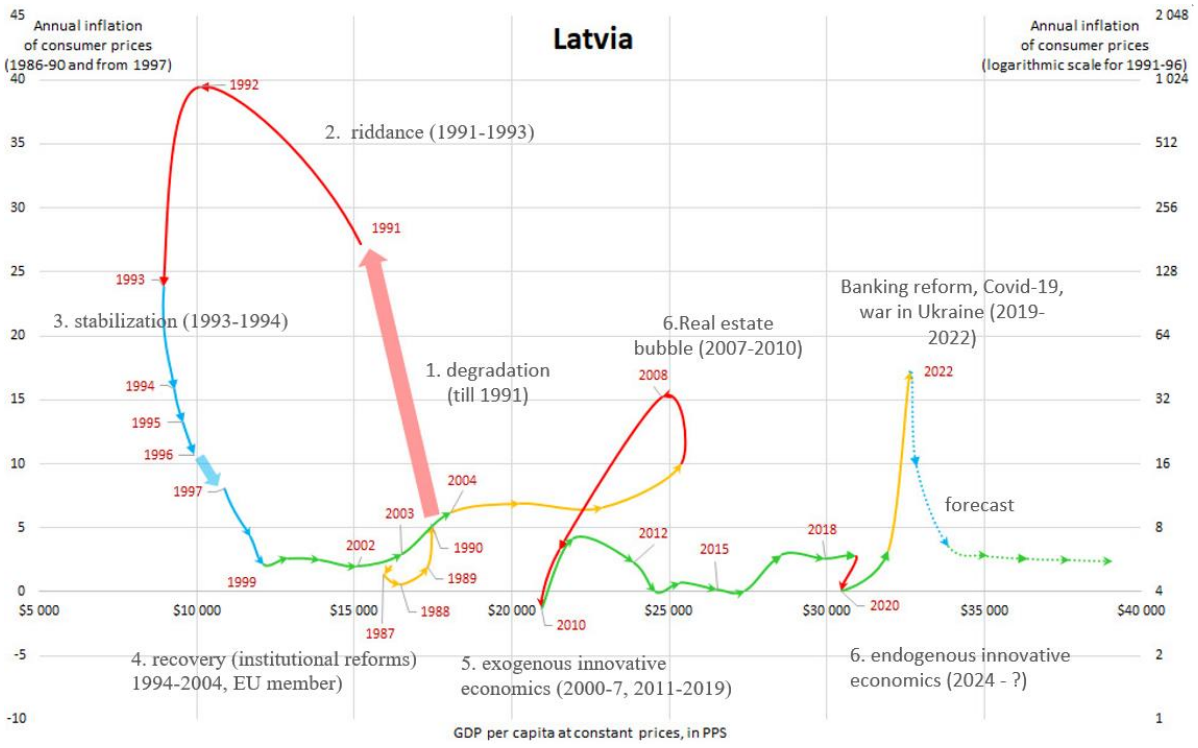
As an EU member, Latvia has received solid structural fund allocations in pre-accession and four following planning periods (e.g., 2004–2006, 2007–2013, 2014–2020, and 2021–2027). During the COVID-19 pandemic, much recovery fund financing was invested in the Latvian economy, based on consumption rather than investments in development and science.

As the previous analysis shows, all the processes and the transition to a market economy in the CEEC countries might be presented in one picture. The first attempt to visualize such changes was made by the Latvian economist Prof. Uldis Osis in the mid-1990s, who divided economic change in Latvia into six main stages (We are thankful to prof. Uldis Osis, former Minister of Finance in 1993–1994, for personal communication and fruitful discussions we have had occasionally during almost 30 years):

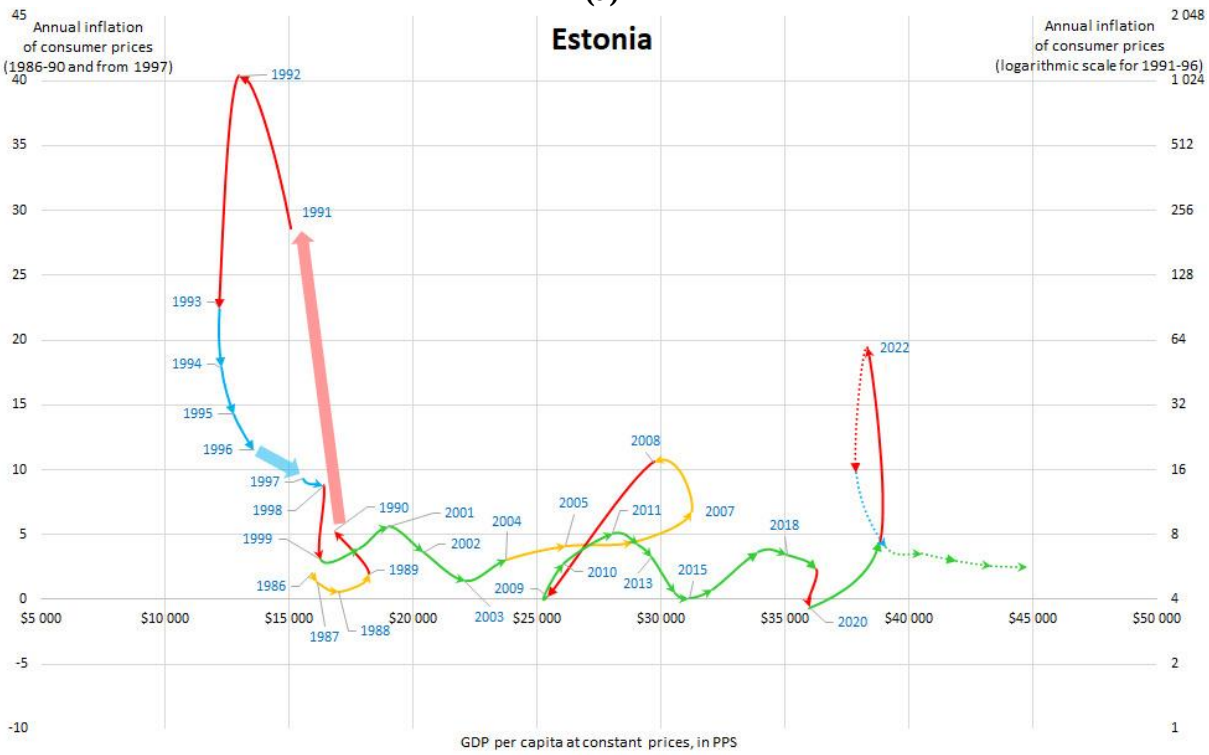
1) Degradation (till 1991).
2) Riddance, where we are pleased to leave the soviet power system and dependence on it as a harmful and unwanted issue (1991–1993).
3) Stabilization (1993–1994).
4) Recovery (institutional reforms till entering the EU; 1994–2004, including the influence of the Russian financial crisis in 1998).
5) Exogeneous innovative economics (so-called "fat years" development—2004–2008, followed by deep financial crisis, GDP drop by 25%, and slow recovery).
6) Endogenous innovative economics (we may fix 2005 as a turnover point in Estonia. In Lithuania, appr.2010, Latvia is still on its way to introducing solid knowledge economy-based innovative structural breakthrough policies with adequate funding).

We propose a graph with the X-axis for GDP per capita because GDP growth is massive and associated with a significant period. The inflation rates for the period 1990–1993 are presented as a variable value from a function Lg2(X) on a logarithmic scale, as inflation reached almost 1000% per annum in 1992 (Aslund and Dombrovskis, 2011). This approach allows us to see better annual inflation changes from minus a few percentage points to around 20%–25%. GDP and inflation data were obtained from the IMF World Economic Outlook Database (IMF, 2023).

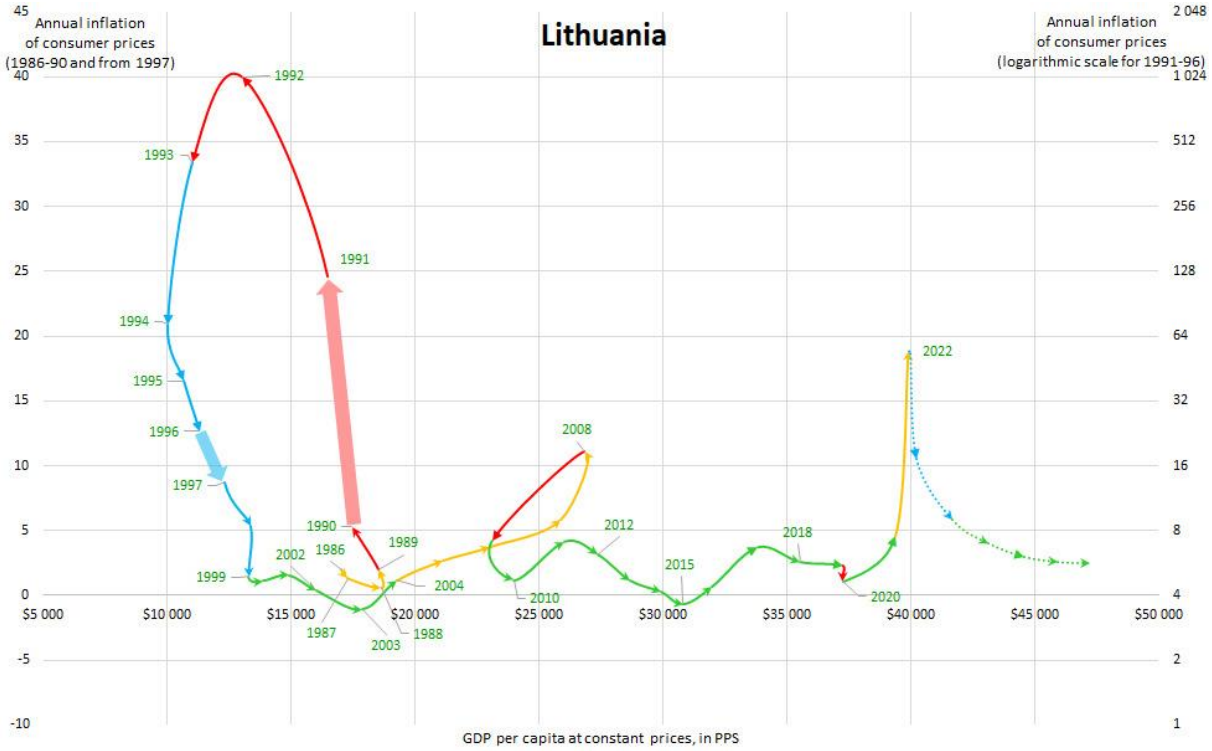
The resulting graphs are shown in **Figure 1**, which shows the curves separately for **Figure 1a–c**. "A loop" periods 1987–2003 marked well for Latvia and Lithuania, while Estonia gained a narrower loop thanks to bolder reforms and a better exit state. In addition, Estonia, already in 2000, had reached 1990's approximate GDP per capita level and could start faster economic growth and achieve more rapid increases in welfare levels.


Latvia
Annual inflation of consumer prices (1986-90 and from 1997)
Annual inflation of consumer prices (logarithmic scale for 1991-96)
2. riddance (1991-1993)
3. stabilization (1993-1994)
1. degradation (till 1991)
6.Real estate bubble (2007-2010)
Banking reform, Covid-19, war in Ukraine (2019-2022)
forecast
4. recovery (institutional reforms) 1994-2004, EU member)
5. exogenous innovative economics (2000-7, 2011-2019)
6. endogenous innovative economics (2024 - ?)
GDP per capita at constant prices, in PPS

(a)


Estonia
Annual inflation of consumer prices (1986-90 and from 1997)
Annual inflation of consumer prices (logarithmic scale for 1991-96)
GDP per capita at constant prices, in PPS

(b)



(c)

Figure 1. (a) Latvia; **(b)** Estonia; **(c)** Lithuania. Crisis, stabilization, reforms, and further development.

Designed by the authors, the initial idea came from Prof. Uldis Osis, 2004 (Professor Uldis Osis, personal discussions since 2004, unpublished results).
Note. Explanation of color curves: Blue—recovery from shocks, macroeconomic stabilization, inflation stabilization, and slight GDP growth. Green—gradual, balanced economic development with little controlled inflation and welfare growth. Yellow—overheating economy, inflation hikes. Red—crisis or minor correction caused by data quality.

Latvia escaped the Russian financial crisis in 1998 with a limited economic downturn and is less dependent on the Russian market. The banking crisis in 1995 only had a minor influence too. Since 2000, the Latvian economy has shown extraordinary growth but an unbalanced budget. "The Fat Years" is widely used in Latvia to refer to the first planning period after accession to the EU of rapid economic growth (+33% GDP growth) and relative prosperity in the mid-2000s, particularly from 2004 to 2007. This term is often used ironically because while it was a period of apparent affluence, it ultimately led to significant economic and financial challenges for Latvia. The rapid economic growth was fueled by unsustainable borrowing and speculative real estate investment, leading to an economic imbalance. This credit boom led to overheated housing and real estate markets, contributing to a housing bubble that would eventually burst during the crisis. These challenges became evident when the global financial recession hit GDP by 25% in 2008. When the crisis struck, Latvia faced severe economic and social difficulties. Latvia performed rapid public expenditure cuts (mainly salaries and benefits by about one-tenth of GDP in one year) (Most of Latvia's fiscal adjustment—15 percent of GDP was concentrated in the first eight month of 2009). In 5–6 quarters, stabilizing the economic downturn and financial system. Latvia received international assistance of €7.5 billion from the IMF, the EC, and several bilateral donors in several tranches, which was appropriate and successful

(Aslund and Dombrovskis, 2011). Rational and social agreement on central austerity policies helped the anti-crisis government win parliamentary elections in 2010 over populists and former soviet apparatchik's supported parties. Few sectors were much harder hit than others. Salaries of higher education and science employees reached the average pre-crisis level only in 2019. After the initial shock, Lithuania and Estonia rebounded more quickly. They experienced milder economic contractions, and their ability to adjust their exchange rates and adopt more moderate fiscal policies contributed to their swifter recoveries.

The 2008 financial crisis had a significant impact on the Baltic States. While all three countries faced economic challenges, Estonia managed to fare relatively better than its Baltic neighbors. Estonia's economic fundamentals, prudent policies, and early response to the crisis played a crucial role in its relatively more successful outcome than Latvia and Lithuania. Estonia had already implemented several economic reforms in the early 2000s, including a flat tax system and fiscal discipline. As a result, its economy was more competitive and better prepared for external shocks. Until the crisis, Latvia and Lithuania had less stable economic foundations, including higher current account deficits and greater reliance on foreign borrowing. Both faced challenges in controlling their budget deficits and had higher levels of public debt, limiting their ability to respond to the crisis effectively. Additionally, Estonia had begun increasing spending on science, dedicating 1.5 percent of its GDP to research and development as early as 2005. Lithuania lagged in terms of investment in science, only significantly increasing such spending in 2010.

Since 2010, Latvia enjoyed a period of uninterrupted growth till 2019, when banking reforms, the COVID-19 pandemic, and the war in Ukraine influenced almost all economies but significantly reduced transit and financial sectors in Latvia. Although the country's economy showed gradual growth, the society became increasingly stratified, and a growing part fell into the poor category.

Graph (**Figure 1**) shows the correlation between the cycles of the loop, crises, and recovery. It leads to the conclusion that this method allows us to make specific predictions or forecasts about the state of an economy based on the observed patterns of the loops, crises, and recoveries. When GDP per capita growth begins to slow while the inflation rate simultaneously starts to rise, it often serves as a warning sign that an impending or existing economic crisis may be on the horizon.

Furthermore, the EU Innovation Report 2023[1] shows that Latvia is an Emerging innovator, while Estonia and Lithuania are among the Moderate innovators (next to Slovenia, Czechia, Italy, Spain, Malta, Portugal, Greece, and Hungary). The report states that performance is increasing at a rate lower than that of the EU (8.5%-points), and Latvia's performance gap to the EU is increasing[2]. Lithuania's performance is at 83.8% of the EU average (Estonia scores 98.6%), it is increasing at a rate higher than that of the EU (8.5%-points (same for Estonia)), but Lithuania's and Estonia's performance gap to the EU is becoming smaller. While Estonia and Lithuania have managed to keep their innovation performance steady, Latvia keeps lagging, and the gap is increasing.

The period after 2018 until today is characterized by a "stagnation" dance (two steps forward and two steps back), the "desperate" coalitions of five parties until the elections in 2022 and the unexpected victory of New Unity in the parliamentary

elections, gaining 26 votes in the parliament (an increase from 8 votes) and efforts to gain oppressive power in the government and the city of Riga in coalitions of unprincipled obedient vassals. The expectations of the society, which lost its savings in the post-crisis period due to increased energy price inflation by almost 50% and banking interest rates, increased public debt, reorientation from the Russian market, and increased inequality and poverty caused significant changes (Economic Development of Latvia, 2023): at elections for 13th Parliament in 2018 approximately 70% of elected parliament members were newcomers in 3 new parties. In the next elections, in 2022, 3 new parties were elected to the parliament again. While elected in the 13th Parliament, the three new parties split into small components or even dissolved. For the past five years, the coalition government led by the New Unity party has not succeeded in putting the interests of citizens and entrepreneurs at the forefront of the agenda, such as the quality of education and health care, reduced administrative burden, quality of life approaching the EU average level, etc., as political priorities with appropriate distribution of resources. During the dance of stagnation, people's loyalty to the political elite and the state was bought dearly by subsidies and donations, increasing further budget deficits, living on debt, and rapidly increasing public borrowing. In the public sector, civil servants and the political elite received "breakthrough" wage increases, generous social benefits (for the wealthiest part of the population), pandemic bonuses, and compensation (EC Country, 2023). The absence of an energy policy, several government mistakes, and delayed reforms made energy resources and services more expensive. As inflation grew rapidly, the small benefits did not allow for the maintenance of people's trust: first, part of the previous political elite was thrown out in the elections in 2022; secondly, a part voted with their emigration. Many felt and still feel duped, cheated, and losers. Each of the last three consecutive elections has gradually increased this sense of insecurity and doubts regarding economic growth, alienating people from the country.

4.1. Shift to new entrepreneurial policy and productivity

So far, in the literature and business practice, the understanding of policy to support entrepreneurship generally was on new technological start-ups (seed funds, mentoring, voucher schemes, support to budding entrepreneurs), medium-size manufacturing firms able to provide collateral and demonstrate at least two-year balance sheet to commercial bank analysts, as well as to large companies (more than 250 employees) absorbing the leading share of available to enterprises European structural fund financing.

It took approximately 30 years to build up a start-up and spin-off support system in Latvia, including competition of new business ideas, counseling, training, consulting, and mentoring schemes, integration of student entrepreneurship into study programs, design of university business incubators and technology transfer system, and linking applied research with industry. Promoting high-growth new start-ups resulted in a few unicorns established in the Baltic states, placing the Baltic region among leaders in Europe (European Commission, 2018; Timofejevs et al., 2019).

The analysis of the literature shows three topics that are less studied in Latvia:

1) Insufficient support for growth companies (with annual sales growth of 1 million EUR over three years), high-growth firms (companies growing by 20% per annum for three or more years), and companies of scale grown during the last 30 years (firms with over 100 million EUR turnover) (Reid, 2012), while we see large base of small businesses and the self-employed, part of them are e.g., "zombie" firms, uncompetitive without getting regular donations.
2) Bringing entrepreneurial skills and environment to life in universities and higher education institutions.
3) Latvia is behind its Baltic neighbors in IT sector development (IMD, 2015–2022) in all Institute for Management Development (IMD) World Digital Competitiveness Ranking categories, including backwardness in digital literacy of society and the ability to grasp new opportunities (Ozols et al., 2023).

Globalization, an aging society, the emergence of IT and mobile communication-based innovations, and industrial 4.0. revolution, entrance in a digital age, shift to a knowledge economy, and 'war on talent' resulting in a substantial brain drain require high-quality graduates with an entrepreneurial spirit from regional world-class universities. Local leading universities in Latvia still do not show the strategic will to introduce strategic elements of the 4th generation university policies or "Entrepreneurial universities" see more in (Jarohnovicz and Avotins, 2013).

Joining the EU brought the comparatively poor and unprepared Baltic countries back to the Western value system, which had undergone significant market transition reforms. However, the lack of mental and material readiness to compete in the saturated EU market paid a heavy price. First, the low price became the main factor of competitiveness. Secondly, people could freely migrate to an EU Common Market to a living environment with approximately 5–6 times higher minimum wage and a developed social protection system. Thirdly, the low birth rate for a long-term and low average salary and the deterioration of quality in the Latvian education system also contributed to the departure of educated people (Ozols et al., 2023). Fourthly, the continuous and not consistently successful reforms, the political will to redistribute property instead of increasing it, and the saturation of the historically fragmented society with the speculative values of Homo Sovieticus, which will be reborn in the next generations, make us look deeper into the influence of the society's social value system on the development of the national economy.

The availability of EU structural funds and credits in Latvia enables faster infrastructure development and ensures the availability of financial resources for the private and public sectors. However, the desire to redistribute non-refundable (donated) funding, to spend uncritically, and to grab as much as possible has created unproductive, even destructive business (Sauka, 2007), manifesting the worst categories of the Soviet time value system.

Next, we will consider innovation culture as an essential factor and the connection with the Soviet mindset value system.

4.2. Introduction of appropriate innovation culture

The main bottleneck in society and policy is the lack of innovation culture.

The concept of organizational culture was elaborated in the early 1980s when its

assessment shifted from a natural, organically emergent phenomenon to a manipulable and manageable competitive asset (Cooke and Clayton, 2016). Strategists promoted establishing an adaptive knowledge and learning culture in which value-added improvement not only cascades down but is bottom-up driven, self-organized, and motivated, strengthened by employee creative engagement and retention, co-operative and inhouse innovations become the company's driving force (Angel, 2006). Usually, culture is understood as "a cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving" (EU RIS, 2002). Another popular definition states that culture is "the collective programming of the mind that distinguishes the members of one group or category of people from another" (Hofstede, 2001). Culture fulfills the role of society's social memory and provides a connection between centuries and the continuity of generations' values (Cooke and Clayton, 2016). Schein, in 1985, defined organizational culture as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1985). Culture is meaningful for efficient internal organizational change; to maximize the value of human capital, culture obtains the status of critical management competency (Baker, 2002). Schein proposes that organizational alias innovation culture becomes more important for strategic, product, and process innovations (Schein, 1985; Tureac, 2005).

Further debate on the relationship between technology and culture lead to the new concept of "innovation culture" as a socioeconomic value in innovation systems. Innovation culture as a concept emerged to foster and cultivate unorthodox thinking and its application (Pisano, 2019).

Hofstede sees culture as mental programming, "patterns of thinking, feeling and potential action which (are) learned throughout (one's) lifetime" (Hofstede, 1991). Innovation culture is bound up with values that are at play in the workplace. Still, corporate culture is the organizational context that develops an innovation culture and the interface for many planned interventions (EU RIS, 2002).

"An innovation culture means an environment that supports creative thinking and advances efforts to extract economic and social value from knowledge, and, in doing so, generates new or improved products, services or processes" (Ontario, 2013). The management of innovation culture is defined by elaborating on the company's innovation strategy and providing access to all the necessary analytical information.

At the end of the 20th century, the EU, in a massive way, supported the design of regional innovation strategies (RIS) where many innovation policy planners identified a "culture of innovation" as the central strategic requirement for domestic enterprises e.g., Canada (Angel, 2006), Scotland, (Roper et al., 2005) Catalonia (EU, 2002), Ireland (EU RIS, 2002), Tartu region in Estonia (Technopolis, 2005).

Using Hofstede's four dimensions of cultural patterns, it is possible to understand industrial relationships inside a collective economic subject (company) and identify an ideal national culture for innovative performance. The low value of power distance,

uncertainty avoidance, and high importance of individualism places Anglo-Saxonian and Germanic countries as best for innovation, allocating up to 30%–50% of a society's innovative capacity to national culture (EU RIS, 2002). The success of Japanese high-tech firms is embedded in a group culture that includes interactive knowledge diffusion based on tacit/implicit learning rather than explicit learning. An awareness of cultural patterns deeply rooted in society, like Soviet mentality-based culture in the case of post-Soviet bloc countries, partly explains the poor outcomes of implemented mass-privatization campaigns.

Individuals may act differently in identical situations if they have different expectations of the future, stimulus, and traditions because of the various experiences so far (Lachmann, 1970). The task of the innovation culture at the firm level is to create a capture environment for internal and external interactions and new incremental innovations, further leading to value proposition. The shock therapy policy realized in CEEC countries after the collapse of the soviet planned economy requires people to change all acquired knowledge at once. Actors should stop doing things learned in old times and learn and switch to new things in a very short period. People should abandon all communist teaching in a revolutionary way and accept and transfer to relatively new, unknown capitalist ways of doing things. It created a shock in the mental process, as saturating individuals' former soviet mindset was incapable of solving their daily problems. Shared expectations vanished. In Commonwealth of Independent States countries, no living memory of a market economy is left in the generation's memories (Allen and Haas, 2001). It explains the sharp decline of the economy in Commonwealth of Independent States (CIS) countries. Old interpretation asks for resistance to new reforms. Therefore, it is crucial to accompany reforms with additional explanatory and consulting materials to help change a mindset (Stein, 1997). The influence of the Soviet heritage cannot be denied because it was still present immediately after the shock reforms. This legacy was uniform and is a common cultural factor among all CIS countries (Nissinen, 2002). In the next 30 years of independence, the Soviet legacy will be not only confirmed itself in its artistic and psychological values but also in the societal structures and economic situation in which the new EU member states are behind the old ones.

Your organization's culture either promotes or limits innovation (Cooke and Clayton, 2016). Schein noted that "if you do not manage culture, it manages you, and you may not even be aware of the extent to which this is happening" (Schein, 1985). Innovation culture in firms could be characterized by the existence of the following (Cooke and Clayton, 2016; Nissinen, 2002):

- Approved and widely shared to personnel mission, vision, and strategy towards novel products and processes.
- Managers are open and ready to support the ideas developed by employees.
- Employees are involved in the decision-making process.
- Developed learning and training culture in an organization with a focus on creativity.
- Empower employees to take an active role in the development of enterprises.
- Availability of an environment for creating and developing new ideas, sometimes it could be spin-in incubators, idea labs, or just internal in-house competition of novel ideas.

- Define creativity as part of work and work duties.
- Establish a relevant system of innovation motivation and "bonuses" introduce motivation, and promote the best practices & champions.
- Allow risk and creativity as a part of daily work.
- Increased investment in Research and Development (R&D).
- Evaluation of the effectiveness of work results.
- Empower employees to take the initiative.

Cook has developed a model "how culture works" (Cooke and Clayton, 2016, Ozols et al., 2023) (see also **Figure 2**). This model outlines the organizational attributes that cause culture and the outcomes of culture. We may restructure the model by introducing cause—Effect line and post-Soviet heritage factors. With more post-Soviet heritage, we have less internal freedom and focus on innovative products we will get.

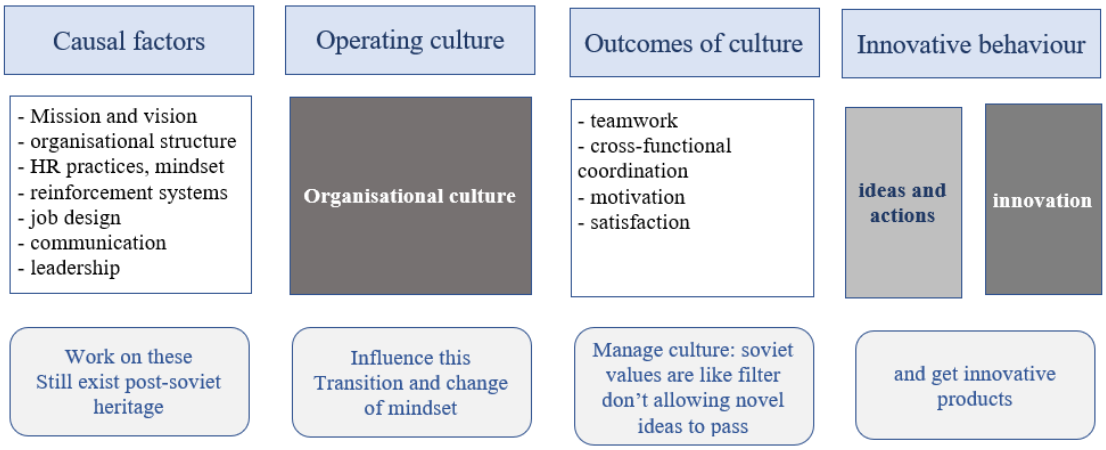


Figure 2. Influence and impact of organizational and innovation culture in the organization (Cooke and Clayton, 2016; Ozols et al., 2023).

The precondition for high performance in an organization is a developed innovation culture. Simple reduction of this process leads to an error management culture, which means 'action—made errors—consequences', e.g., learning process (van Dyck et al., 2005). An error management culture allows exploration and experimentation, increases learning, and increases a firm's innovativeness and performance (Frese et al., 2010). As a result, future error risk is reduced, followed by shared open communication about errors. On the other hand, if failed projects end with executing who was guilty and punished, then employees blame colleagues for satisfying upper-level executive wishes (Keith and Frese, 2011). Such a concept has now become popular in the business acceleration process to reduce the learning curve of nascent entrepreneurs up to two months (e.g., "fail fast" concept), and in the case of failure, a business idea to move to another one (Pisano, 2019).

More detailed analysis analyzed factors associated with innovation culture. The findings confirmed that the most frequently interrelated classifications across variables were openness, collaboration, and experimentation for innovative mindset, respectively, leadership, openness, and assets for organizational resources to support innovation. Similarly, for organizational structure most interrelated were openness, collaboration, leadership, and experimentation, and for organizational support—

Openness, leadership, collaboration, motivation, and communication, respectively (Zemmer et al., 2018). Mindsets from variables' lists, openness, cross-discipline collaboration, and leadership (governance) play crucial roles in innovation culture and the innovation ecosystem (Timofejevs et al., 2019). Surprisingly, we may also confirm that motivation and satisfaction are outcomes of organizational culture to innovate as critical variables and part of culture itself (see **Figure 1**).

The analysis carried out in this chapter shows that the concentration and density of talent are critical success factors for meso- and macro-level breakthrough development, which all transition countries, large and small, are fighting for. Let's look further at the policies that would allow the Baltic States to approach talent density, diversity, and availability, three factors characterizing the main urban centers and metropolitans of developed countries at the national or regional level.

4.3. Talent policies and impact on an IES

Various authors emphasize the growing role of talent as a factor determining national competitiveness and precondition for the structural shift to a high-value knowledge economy and its rapid growth. We have already outlined that in Latvia, the national and regional level talent strategy as a system should be based on three main policy measures (Avotins and Sloka et al., 2016).

1) Local talent development. The critical processes of domestic talent development are primary, secondary, and vocational education systems, life-long training, and career development. Learners should be committed to results and see their further career development at world-class Higher Education Institutions (HEIs). Today, we see weaknesses in Science, Technology, Engineering, and Mathematics (STEM) disciplines already, weaknesses in STEM disciplines already, and weaknesses in STEM disciplines at Latvia's school level. Low budget allocations to all levels of education system, decreasing societal status of teachers and professorship, poor compensation, fragmented higher education and research sector, poor school-leaver knowledge of maths and physics, weak internationalization, and decreasing yearly number of pupils and students have led to a drop in quality. More focus should be paid to adopting and absorbing new external competence, mobility, and diaspora potential. Universities operate as global talent development centers, providing an interactive environment for internal learning. Today, Latvia cannot keep the at-home talent it produces; therefore, improving the education system's quality is the primary priority.
2) Talent retention (recovery) or back-return of emigrated talent. Latvia, so far, was competing globally with low-cost factors. The equalization of minimum wage with developed countries (~1500 EUR) will almost cut the motivation of employees with low salaries to emigrate to developed countries from Latvia's countryside and small cities. Creating new jobs in regions' medium- and high-tech industries and providing adequate social and living environments reduce the difference in welfare between Latvia and Western countries. Another factor is the quality of higher education. Today, elite school leavers plan to move to the EU or North America to study at prestigious universities. There are plenty of local schemes to integrate international students into community life; returning

emigrated talent is much more challenging than holding it. The reverse brain drain is also known as "brain circulation." The free movement of people, the green card offers to IT specialists, and still existing work compensation levels are strong motives to leave Latvia and move to a more developed state. Diaspora and foreign student involvement in local economic activities require policy measures for integration, assimilation, and trust building (Enderwick, 2011).

3) Attracting and acquiring external talent. The Triple Helix approach attracts brains from outside, and talent location decisions are influenced by public support, satisfaction at HEIs, ties with family, and motivation to send children to primary school in Latvia. At a micro level, the critical points in this process are building an organization's HR reputation, organizational attractiveness, international careers, and family attachment, reinforcing joining family (going back home or staying in the host country) (Avotins and Sloka et al., 2016). Many Latvian students and emigrants show high willingness to remain in the developed country after graduation, temporarily and forever.

During the last twenty years (since the beginning of 2000, CSB), the population in the country has diminished by 506 thousand people, respectively, and at the beginning of 2022, it comprised 1 million 876 thousand[3]. The number of economically active persons of working age since 2008 has dropped by 212 thousand to 937 thousand in 2022[4]. It means that the working-age population will be smaller in the future, and the demographic burden will increase.

The economic downturn since 2008 stepped back Latvia's economic development for four years[5]. Since 2021, we see this continuing—COVID-19 pandemic, the war in Ukraine, reorientation from the Russian market, energy price inflation, and conservative banking sector activities determine a slight downturn since 2023 (European Commission, 2023). Gradually, temporary intentions of emigres to work abroad are replaced by "will stay for long term" with obtaining socialization and even foreign citizenship (Muiznieks, 2009). The fundamental differences lie in the weak education system, post-Soviet cultural heritage, regional disbalances, and two community states influencing individuals' behavior and distrust (Avotins et al., 2016).

4) Talent concentration impact on an innovation ecosystem. Literature analysis concludes that education and talent concentration will be vital in managing post-Soviet heritage (see **Figure 3**). Talented and competent people will make up 10% of the staff, driving the development of medium and large enterprises and creating new, innovative, fast-growing start-ups. The higher and more relevant to real-world conditions will be the level of skills and knowledge acquired in the learning process, the more suitable for high-tech companies will be the graduate. The higher the concentration of such creative talents in a specific area, the more competitive this urban area will be (Florida, 2002).

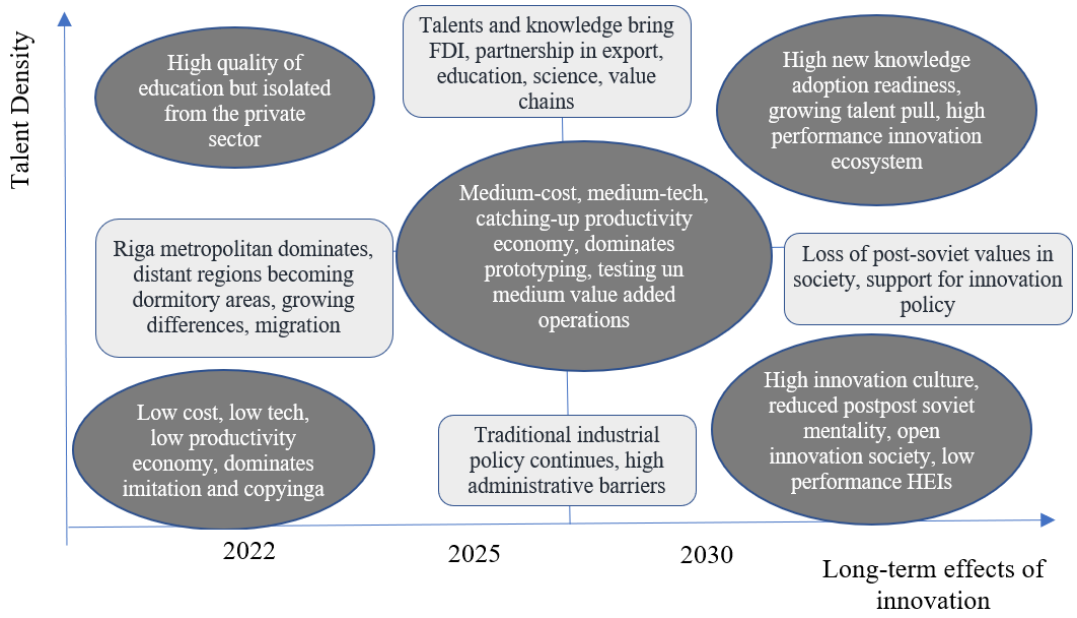


Figure 3. The long-term impact of talent concentration on Latvia's sustainability of innovation, designed by authors.

On the other hand, the CEEC command economy environment produced creative intrapreneurs[6]. The quality of life in a concrete city urban area of a CEE country will determine talent retention. The established concentration of talents, an open society, the ability to absorb external knowledge, inventions, innovation, and technology, in general—any innovation that can bring economic benefits to the organization through a supportive innovation culture and governance can give the region and country a breakthrough in development. Let us look further at the readiness of society and businesses to adapt to external technologies.

4.4. Technology adoption readiness

The concept of "Absorption capacity" was first introduced in 1990 by Cohen and Levintals (Cohen et al., 2000). The global innovation process goes beyond the particular company, cluster, ecosystem, and national and regional boundaries. Usually, these are interrelations between the "creator of innovation" and the "innovation absorber." The learning from novelties developed elsewhere brings new economic benefits (The World Bank, 2008).

Technology absorption is the function of various variables (access to finance, employment, the openness of the firm to international trade and knowledge from abroad, ownership of intellectual property (patents and know-how), the performance of inhouse R&D, human capital, investment climate, public support for technology absorption) (The World Bank, 2008).

The absorption of external knowledge from leading countries in technology is a serious challenge to many developing or catching-up regions and territories. All Baltic states are innovation "absorbers" not "creators". The ability to "absorb" (knowledge) represents knowledge transfer at various potential modes. The primitive ones are imitation and copying, which are characteristics of low-tech developing countries. More advanced is the transfer and implementation of new technology, but most value-added bring the ability to identify, adjust, adopt, and exploit knowledge generated in

technology leader countries. More compelling is transferring and adopting a massive flow of small incremental innovations rather than concentrating investments and efforts on a few breakthroughs' radical innovations. Effectively receiving and learning to copy, repeat, and apply the knowledge from advanced states, low-tech countries can achieve more rapid technological progress and convergence or even catch up to leaders in technological development (Lankhuizen, 1998). Only after these steps are mastered can low-tech countries improve their knowledge and create their own (Watkins, 2005). The country's absorption capacity depends on the number of highly qualified R&D specialists and engineers employed in industry, industrially focused academics in public research organizations, and innovation culture (Arogyaswamy and Elmer, 2005; Lankhuizen, 1998).

SMEs are often unable to carry out R&D activities. Therefore, naturally, high-tech SMEs should be more open to external innovation and exploitation of the research output - better absorption capacity and developed innovation culture are critical factors for SMEs to compete successfully with international companies (Roy and Sikdar, 2003; Shapira and Stuart, 1996).

To assess technology absorption capacity, the authors used the World Bank methodology ("Innovation capacity staircase" methodology), which was first applied to evaluate the factors affecting the innovation capacity of Korean companies (Agapitova and Watkins, 2004). It allows grouping all firms in a staircase consisting of 4 steps or groups. A business group represents the lowest level of innovation capacity. This group has only basic operating skills and capabilities for technology use and operation (Watkins, 2005). Group B sometimes demonstrates strong technical skills, although technical skills often are absent or weak. Firms of Group B are ready for technology acquisition and assimilation. The firms of group C rarely demonstrate design and engineering capabilities, but they are prepared for technology upgrading and reverse engineering. Companies in Group D are global innovation and R&D leaders (Tovstulaks et al., 2011). The innovation policy challenge is to move all operating domestic firms to the next technological capability level. We combined the results of three surveys in 2003, 2007, and 2012, using the same questionnaire and methodology (see **Figure 4**) (Tovstulaks et al., 2011).

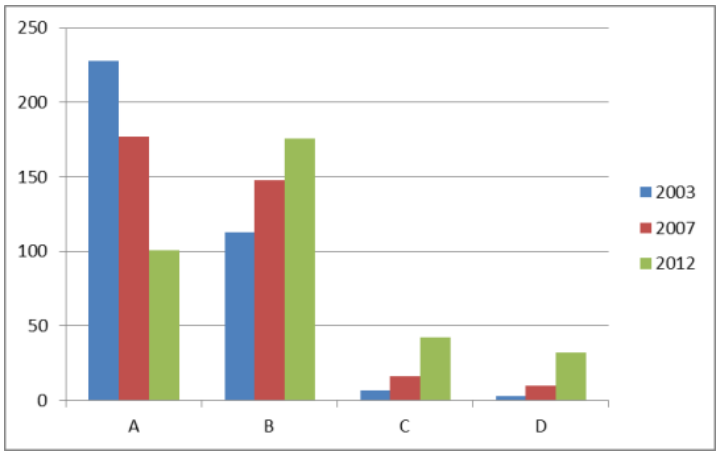


Figure 4. A relative number of firms representing one of four technology levels performed three surveys (2003, 2007, and 2012).
Source: (Tovstulaks et al., 2011)

Figure 4 proves that the implementation of Latvia's first National Innovation Program since 2003 (RIS Latvia, 2004) shows that the innovativeness and technology absorption readiness of Latvia's firms increases. The number of firms in group A decreased from 2003 to 2007, but the number of firms in group B exceeded the respective number in group A in 2012. Such change happened despite the economic downturn, which started in 2008 and can be explained by the targeted national innovation policy in 2004–2012, supported by significant EU structural funds' grant intervention. In the meantime, it illustrates that the economic downturn in 2008 provided a positive impact on increasing technology absorption readiness among firms as we see a further drop of low-tech firms in group A and essential growth in other three groups B, C, and D. Higher competitiveness (productivity, value-added) is attributable to improvements in the process of innovation and shift to medium tech from low tech, rather than in product innovation.

The readiness to select and adopt incremental innovations born in external markets and provided to domestic firms as a part of new knowledge transfer is one of the most efficient ways of public support to local enterprises. The potential sources of new knowledge could be demanding export buyers, foreign investors, trade exhibitions or visits to a potential client, interfirm interactions in the cluster, industrial association, or innovation ecosystem. The higher the group is in the technological hierarchy, the more advanced the required technology and involvement of scientists and experimental engineers (Tovstulaks et al., 2011).

Supporting the export of locally designed by domestic researchers and engineers high-tech products for new trade markets as a priority of the export policy, we promote structural changes in the national economy in favor of high value-added, high productivity, and high share of made-in-Latvia innovative products. It can be achieved in the medium- and long term, creating a conducive innovation culture and high technology adoption readiness.

The other factor is an inflow of FDI, which brings new technologies, production techniques, marketing, and management methods to Latvia. Does Latvia need any form of FDI? Are all FDI businesses efficient and productive, bringing long-term impact and high value-added to local economics? What kind of FDI benefits do we need to generate an inflow of new knowledge, and does Latvia have an adequate FDI policy implemented by Latvia's Investment and Development Agency to stimulate the creation of new R&D industrial labs, encourage collaboration with Public Research Organizations (PROs) and spillovers of innovations to domestic supplier base in a cost-efficient way?

There are just a few research analyzing the primary sources of new knowledge and new technologies in CIS countries. WB analysts perform more detailed works (Correa, 2007; Goldberg et al., 2006; Watkins, 2005). The WB pre-crises in 2008 analysis of Central European and Asian countries showed that investments in machinery and equipment in the first decade of the 21st century were the primary source of technology acquisition, e.g., in Latvia—63% from all firms, Lithuania—60%, Estonia—58% respectively. This indicator was 73% in Poland, and in Hungary, it was 78% (Correa, 2007).

CEECs, as middle-income economies, have a mode of innovation based on demand-driven incremental cost-dependent process innovations and adopted

innovations lacking an R&D-driven growth model. More recent Radosevic S. report showed that the structure of innovation expenditures for Estonia, Lithuania, and Latvia are, respectively (Radosevic, 2017):

1) Acquisition of machinery, equipment, and software (55%, 70% and 92%).
2) Expenditure on R&D (41%, 21%, and 6%).
3) Other expenditure (4%, 9%, and 2%).

WB reports outlined that acquiring capital goods and available economic incentives help firms access new knowledge and adopt new technology. Technology diffusion policy measures may help reduce the cost of adopting new technology, and their efficiency depends on firms' capabilities, innovation environment, and talent availability. The higher economic growth is associated with a higher technology transfer and adoption (Arezki et al., 2019). The risk is that the country may be stuck in the middle-income trap where it loses its competitive edge in exports due to rising wages and cannot keep increasing the value added. Only a few countries were able to escape from the middle-income trap. The challenges here are diversification and growth of exports, productivity increase, and innovation supported by a high-quality education system. Aging society, freezing the minimum wage, and the "political trap" from innovation and creativity favor the middle-income trap. The key is strengthening local technology performance in balance with foreign technology imports. Baltic economies are lagging behind the technological frontier, and their technological upgrading relies on the interaction of local R&D with knowledge embodied in imported equipment and inputs (Radosevic, 2017). The critical challenge for Latvia is increasing domestic knowledge generation and simultaneously triggering it with imported external knowledge. Latvia is behind other CEEC and Baltic states. Moreover, the trend is divergent. Shift from resource redistribution policies towards improving imported technology absorptive and adaptive capacity through better management practices, vocational training, and interactions with growing local R&D performance (Radosevic, 2017).

4.5. The emergence and consequences of the post-Soviet mindset

Earlier, we found that innovation culture has one of the most essential roles in the company's competitiveness. Despite different history and development pathways, a common feature of all former Soviet bloc states is the post-Soviet mindset values system. It is, therefore, essential to understand the meaning of this term to find out how it has changed since independence was restored and how innovation performance is affected. Without a more profound understanding, it will not be possible to explore the nature, coverage, viability, and possibilities of reducing the value system that interferes with democracy. Homo Sovieticus carrying soviet mindset values is the prototype of a person born in, educated, and affected by a soviet totalitarian regime. Post-homo Sovieticus is a next-generation person whose operation, ability, will, and value system is heavily affected by the Homo Sovieticus mindset (value system). Let's try to answer three questions:

1) What is Homo Sovieticus mentality or the soviet mindset?
2) Why is such a mentality so easily re-emerged in the next generations, and its value system transferred within society?

3) How does such a mindset affect innovation culture and entrepreneurship in general?

Many authors have analyzed this phenomenon since the 1960s (Sztompka, 1991, 1993a). Soviet Man, or the concept of Homo Sovieticus, appeared in 1968 and was developed by O.Zinovyev in 1991 (Mudrakov et al., 2020). Today, the term has entered the circle of scientific literature. Its expression relates to losing ideas, experience, will, opportunity, and spirit regarding healthy competition, creativity, and citizenship (Mudrakov et al., 2020).

The collapse of the Union of Soviet Socialist Republics (USSR) empire was unexpected. In the first months, Western research institutes could not draw up some proven theories and guidelines on switching from a planned economy and state property to a market economy (Sztompka, 1991, 1993b).

Figure 5 illustrates the transition process, providing a visual representation of the environment for a design of the post-Soviet mentality.

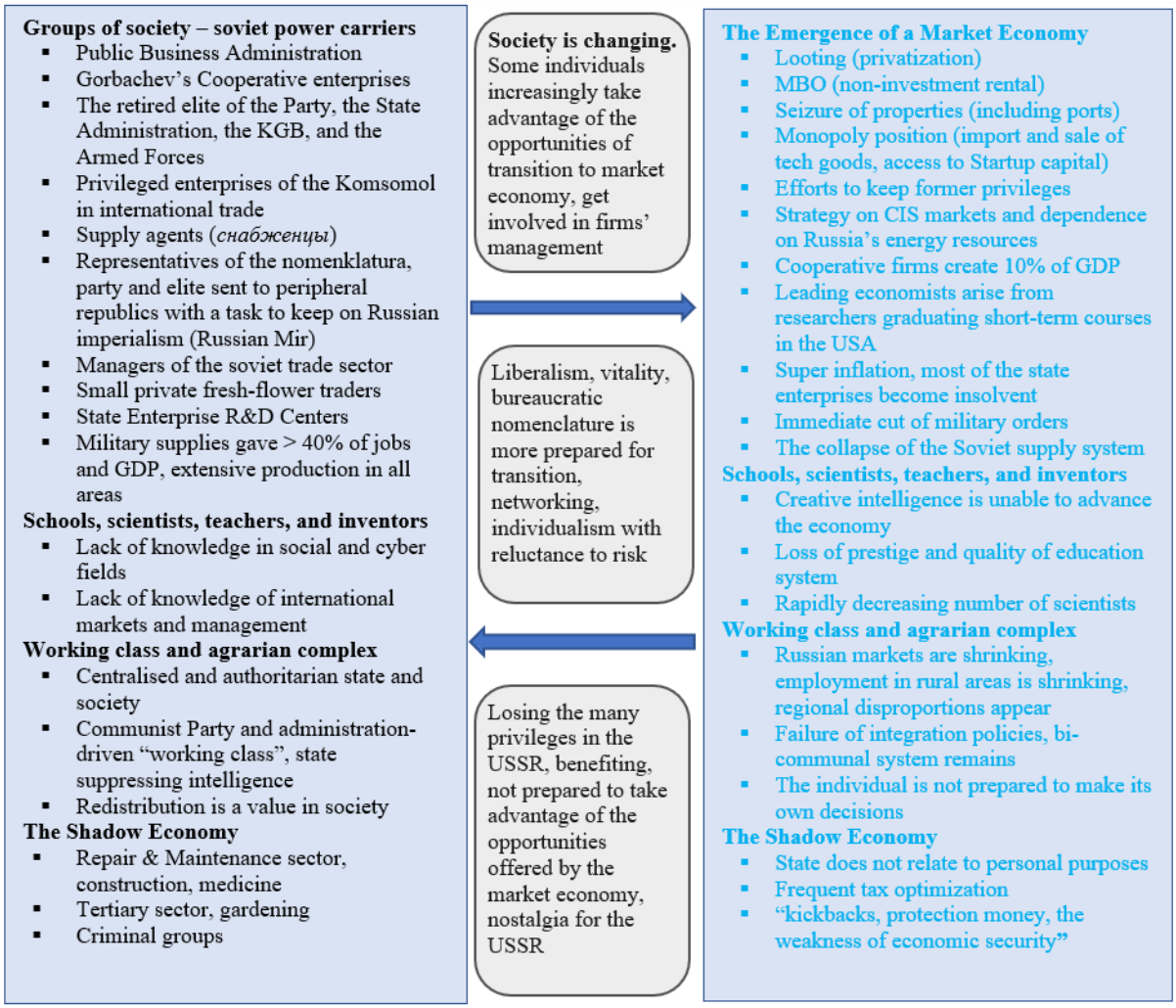


Figure 5. Description of the transition process, outlining environment for a design of the post-Soviet mentality (designed by authors).

The collapse of the centrally planned economy also led to significant changes in the secession of the integrated economy of the USSR, the establishment of an

independent state institution (border guard, national armed forces, customs, public administration apparatus), monetary and fiscal policy, the establishment of a private-property institute, where there was often a lack of knowledge not only of transition difficulties but understanding and knowledge of the subject itself. The Ministries joined the loyal national nomenklatura of apparatchiks, former Soviet figures, dockers, careerists, university graduates, and students taught by the same Soviet-time economic teachings. The reforms came as a massive avalanche, rapidly transforming public and cooperative property in cities and fields to private over the process of restitution (rebuilding of properties for former owners) and mass privatization in industry, ports, and the financial sector, where often the former nomenclature and retired armed forces of the USSR had already entered into various binding agreements, or even to buy different properties. The original entrepreneur in Latvia, too, was a man of middle age 40, authoritarian and having earlier Soviet-time administration employment experience (belonging to the soviet elite) and having a soviet university diploma, based on unconditional obedience and individualistic (around 70% of total) (Avotins et al., 1998).

The Popular Front of Latvia's leadership in 1990 lacked economic, organizational, and change management skills and a real capacity for action. The National Communists loyal to Latvia proved to be better State managers, and the people were prepared to trust them. The power was deliberately formed by integrating the former soviet elite, which converged between the newborn parties, members of the nomenclature, the retired officers of the armed forces, and the privileged representatives of workers united by the emerging economic advantages and the Russian-speaking environment, for which all the non—Russian seemed something strange. Several generations of Soviet times formed a Russian-speaking community that forgot its ethnic origin, its origination of a national non-Russian culture, and for which it was beneficial to join the Russian group representing central power.

However, many Russian social and technical intelligence representatives living in Latvia could critically assess the Russian nomenclature's "liberator, cultural media, colonial and imperial policy administrator and Russification" mission. They became loyal Latvian citizens and accepted Western democratic values (Mudrakov et al., 2020). The failed local integration policy, several economic crises, the public's frustration with poverty, and the self-sustaining preservation of the two-community society allowed some of the cultural elements linked to the system of scientific values to be maintained. All countries of Central and Eastern Europe, for which the collapse of the Cold War and the USSR allowed the transition from the centralized economy to a market economy, regardless of ethnic or national affiliation, contain homo sovieticus cultural elements. Without examining this external impact, it is impossible to understand the significance, viability, and reproduction of the Soviet time value system, mentality, and behavior in the second generation of independence (Merheim-Eyre, 2018).

What is Homo-Sovieticus, mentality, or mindset?

It must be noted that the high objectives of the freedom revolutions have been dissolved into clashes of various groups and interests and internal conflicts, mercantile groups, and people fighting for power, fanaticism, corruption, and the mafia-model environment. The long-awaited return to the European Common House (also entering

NATO) took place smoothly, as most people in the Baltic States knew it was also a matter of security and survival. Consequently, measurable structural changes and reforms were successful and with public awareness. Otherwise, we can describe the unmeasurable social change as a culture of behavior at the European home, characterized by behavior and relationships, a code of values and relationships with residents, loyalty, spiritual and property values, the ability to adapt, find their place, and socialization. Meeting formal requirements and joining the EU was easier than fundamentally altering social culture and mentality. In 2004, Latvia was neither economically nor socially prepared to join the EU on equivalent terms.

Homo Sovieticus occurs when living in an environment where the law does not work, where the law is merely an instrument in the hands of an apparatchik, where the only criterion is the effectiveness of action. Ideological devotion and cooperation create seeming existential security. "Various manners, habits, notions, and opinions among the society constitute its character of mind. This term includes what people do (their conduct), what they think (their mentality), and what they are expected to do and think (their culture and civilization). These three levels of human experience and habits determines their behavior in a new environment of transition economy" (Sztompka, 1995). When applied to post-communist society, this approach resulted in accounts of "socialist mentality" (Koralewicz and Ziolkowski, 1990), of "social subconsciousness" (Marody, 1987), of "captive mind" (Miłosz, 1953), of "Homo Sovieticus" (Tischner, 1992).

The social change can be named a 'sub-proletarianization of the entire population'. Despite major socio-economic transformations since 1991, society has been unable to eliminate previous values and alter its deeper cultural values. From 1988 to 1991, the Eastern Block community discovered that people lived better and differently in the West, yet it was difficult to change their post-Soviet mentality. Globalization and integration in the EU deformed the expected national value of borders. Imperial rule stifled the decision-making capability at the local level. The collective mentality was focused on social security and avoiding risk.

Why does the soviet mentality so quickly re-emerge in the next generations, and its value system is transferred within society?

During the transition economy and "shock treatment", several important factors led to the revival of soviet mindset values:

1) It was the resolution on liberal economic policy, where the country does not interfere in market processes, that allowed the former elite and old nomenklatura to be involved in the power structures and the new political parties. It restored several of its earlier privileges and made it difficult for the young generation to succeed in economic innovation and the development of the national state (Woźniak, 2014).
2) Lack of socially responsible entrepreneurs (Grancelli, 1992). The collectivist ideology had a negative attitude towards individual entrepreneurs—they were compared to speculators or thieves. A failure in business creates a negative personal image (a loser) and limits growth opportunities. The climate for entrepreneurship is influenced by crime and corruption—positive society's attitudes toward corruption limit responsible entrepreneurship.

3) East Europe had almost ¼ of its population employed in the agricultural sector. The lack of support for rural entrepreneurship as an integral part of privatization and the transition to a market economy resulted in growing regional disparities and social uncertainty.
4) The abstract character of economic reform models led to a lack of local savings; over-hasty liberalization of prices led to monopolies and cartels, not to the more cost-efficient access to demanded goods. The mode of privatization favored preserving power structures with soviet nomenclature elements; the liberalization of external trade encouraged a negative massive net trade balance, and internationally uncompetitive industries, management buy-out practices kept property redistribution in the hands of limited social groups. The liberal model failed in East European circumstances (Goldberg et al., 2006; Sachs, 1994)
5) Enormous inter-company debts arose because of high inflation in the 1990ths, while loans were controlled by the previous soviet elite.
6) A similar cultural framework was created over and above distinct national cultures and relatively isolated against Western culture: the unique set of values, rules, norms, codes, and standards that typify the soviet bloc, namely the bloc culture. Life under communism produced an exceptional legacy, having a twofold role. First, it had a blocking effect on real socialism, eventually inducing its collapse. Secondly, it had built a negative, hostile attitude against any power and unpredicted revolution experiments that stayed against democratic reform (Sztompka, 1991; Woźniak, 2014).
7) Many people engage in illicit trading, smuggling, tax, and duty evasion. New, highly organized forms of such behavior appear. It is amazing how many entrepreneurial activities are based on distrust, uncertainty about the future, and traditional 'grab-it-and-run' tactics. In most CEEC countries, there is still widespread support for the relatively egalitarian distribution of the wealth thus created and for a strong welfare value (Ash, 1990). The "ideology of egalitarianism, of redistribution and 'social justice'" led to a general rejection of performance principles and counterproductive incentives (Zaslavsky, 1994).
8) In society, there is still opposition between private (personal) and public (official, formal, collective). The average Latvian citizen lives in two overlapping worlds. The opposition appears in several guises: society versus authorities and state, the people versus rulers, civil servants versus entrepreneurs. The personal sphere is the domain of the good—of virtue, dignity, pride; the public sphere is the domain of the negative—of vice, disdain, shame. The state is held responsible for not providing welfare and blamed for all personal failures.
9) Many individuals lost their soviet time standard of living in the turbulent revolutionary change (large segments of the working class, peasantry, and unemployed—A phenomenon non-existent during the soviet period), and there is growing nostalgia for the former Soviet-time arrangements. Large masses dream of specific Polish, Latvian, or Lithuanian roads to capitalism. These sentiments resemble old ways of thinking and doing. Past was glorified (before World War II in Latvia) (Ashbourne, 1997).

10) The government is seen as an environment of conspiracy, cynicism, greediness, stupidity, and inefficiency. Evading public regulations, rules, and laws is a widely recognized virtue. Attempts to appropriate public assets, 'this is all ours' tactics to safeguard personal well-being are understandable, or at least excused.

How does such a mindset affect innovation culture and entrepreneurship in general?

Let us compare two situations: the main features of an innovation culture in the presence and without a post-Soviet mindset. To achieve this, we will use the main features deriving from the primary classification list affecting innovation culture (see **Table 1** below its analysis)—openness, collaboration, experimentation, leadership, available assets, motivation, and communication—the results we have presented in **Table 1**.

Table 1. Impact of the post-Soviet mindset on the main classifiers of the innovation culture of the organization.

Classification of characteristics	Impact of soviet mindset	Absence of soviet mentality
Openness	Collective responsibility without clear initiative, insufficient attention to the training of workers	Individualism and personal responsibility to achieve set targets, as well as regular training of employees.
Collaboration	Passivity rather than initiative prevails, everything is done at the last moment, superficial planning, failing to meet deadlines, failing to meet what has been promised, the one cannot admit that a mistake has been made, avoiding, hiding, written contract is essential.	Personnel communicates openly with other employees and partners, including an oral agreement, rapidly processing the inquiries collected in line with business ethics and informing the partner immediately about the problems that arise to seek a solution jointly.
Experimentation	The boss's (and usually the owner is the same person) belief is that everyone wants to steal from him, is lazy, understands only the "stick" approach, excludes the opportunity of using working time, rooms, and equipment to experiment, invent, absence of intellectual property policy in the company, any experiments outside the routine are punished.	When recruiting for certain positions, management considers the creative capabilities of inventing (intrapreneur). They can work innovatively to risk while requiring additional accounting, analysis, and evaluation to avoid possible failure. Large companies are developing internal think tanks, paying fixed working time while providing for the right to create intellectual property.
Leadership	The authoritative management style does not delegate rights to a lower level of decision-making hierarchy. The manager as an individual is not responsible (instead - collective boards, working groups, experts), often fails to provide complete information to subordinates, and keeps contacts only for them.	Owner delegates downside the right to handle organizational resources by setting limits, allowing different lower hierarchy leaders to deal with various topics. The leader should be fully aware of his subject as a professional (measurable indicators used), evaluate barriers and risks, and manage and motivate workers by achieving the tasks—a centralized approach in crisis management.
Assets	Decisions on the use of resources are taken by a few representatives of the top hierarchy, listening only to people close to their loyal circle, often using resources driven by their private interests, lying about resource accounting, control, and documentation, and hiding the actual situation, failing to organize efficient resource planning, feels free to hide or exploit resources, attracts relatives, loyal acquaintances, procurements are formal.	While one specific person is responsible until the decision is taken, the lowest-ranking employees can also express their views. Everyone works as a single team interested in maximizing resources. Cooperation with industrial researchers has been established, which is a clear move towards a higher technology absorption group.
Motivation	Risky, creative, and different from the approved practice in the company, no initiative is allowed, discipline and requirements suppress creativity and the opportunity to devote some of the time to experimentation, and there is a large gap between the salary of the top administration and the lower managers and technical staff, personal life is separated from the performance of the company.	Management is highly competent in managing personnel, finance, and technological development. The organization has a development strategy with clear priorities, measurable targets (indicators), and motivational tools for all employees. Openness to innovation, internal incentives for workers if they propose new ideas, innovation, products, and solutions.

Table 1. (*Continued*).

Classification of characteristics	Impact of soviet mindset	Absence of soviet mentality
Communication	The main barriers to business are external, no internal barriers, or they are insignificant. Management knows and has eliminated them, as well as typical criticism of the government, economic policy, high taxes, lack of support for domestic non-competitive companies, high local competition, and open market.	The main factors enabling the company to increase its competitiveness include increasing staff skills competencies, technological competitiveness, and performance, as well as the ability to develop new technological products for the market. It is most important to create internal factors, only then followed by external ones (RIS Latvia, 2004)

Note: The table is created using data from Ashbourne (1997) and Nissinen (1993), as well as the authors' long-term practical experience in dealing with entrepreneurs from different sectors. The table should be specified in the following studies.

Soviet mindset as a critical factor influencing the national innovation system, the national innovation ecosystem, society, policy decision-makers activities, the education system's quality, and the various economic processes need further research. However, the performed analysis confirms that until now, in the economic planning documents, the post-Soviet mindset has been given very little attention and has been insufficiently considered an affecting factor. It has contributed to the ineffectiveness of several national programs and reforms, which we will look at in more detail in the following chapters.

1) Soviet mindset/mentality and its rebirth in a new generation after regaining independence in 1991 is one of the most important cultural features of the business and society, which is maintained and transferred to future generations of Latvia (Nissinen, 1993).
2) Previous studies of CEEC and CIS countries do not sufficiently consider the effects of Homo Sovieticus mentality, which is expressed in society as a whole and all major segments of it, including business, education, and science (Ashbourne, 1997; Nissinen, 1993; Sharafutdinova, 2019; Sztompka, 1991; Zaslavsky, 1994).
3) Even more, it should also be concluded that the soviet mindset as a factor has been ignored in the preparation and implementation of Latvia's business-related government planning documents. They have often lost their initial priorities in drafting and discussing documents with their social partners, they are diffused to satisfy the interests of all groups (just as in the Soviet system, to make everyone feel good and best, especially the elite). In several cases, programs (education, science, health care) received insufficient funds, preventing the program from being implemented as planned. It was dominated by investments, which allowed kickbacks, corruption, a shadow economy, etc. (Putniņš and Sauka, 2015).
4) The post-Soviet mindset is a relatively complex phenomenon that significantly impacts most CEEC countries where no effective means have been found to reduce this factor. Social scientists are still studying the phenomenon. As the primary solution is a new type of education and generations free of Homo Sovieticus mentality, which is difficult to achieve with Soviet time teachers, education policymakers, and control supervisors (Sharafutdinova, 2019; Sztompka, 1991, 1993a, 1993b).

The formation of a new entrepreneurial innovation culture differed between the Baltic states. Estonians in the Soviet era learned about the market economy and

entrepreneurship from Finnish television; Tartu University was among the most democratic and open-thinking in the Soviet era. Lithuania was able to preserve a national society and, within twenty years, not without difficulties, agree on catholic and national values that formed the country's growth policy, replaced the post-Soviet value system, and determined the formation of positions within the EU. Thirty years after the restoration of independence, at least one-third of Latvia's society still lived in the "post-Soviet" information and culture room, which strengthened part of society's nostalgia for Homo Sovieticus and imperial values and the availability for immigrants and local apparatchiks broad spectrum of earlier privileges, thus encouraging the generational inheritance of the post-Soviet mindset. The Russian Federation constantly tried to increase its political and economic influence in the Baltics, developing the doctrines of "near abroad", "soft power", "failed state", "defense of Russian citizens", or "Russian World" ("Russian World" in Russian means Russkij Mir, Русский мир) concept (Laruelle, 2015), trying at least to preserve the Soviet sentiment, value system, maintain the myth of outstanding achievements that were possible in the periphery only by receiving the resources allocated by Moscow as the center of the empire. A separate study should be devoted to disproving these myths. Therefore, many bi-communal societies have limited motivation to accept European values.

Why is Latvia lagging behind the other Baltic states?

Generally, it should be concluded that the inflow of EU structural funds since the 2008 crisis, the Covid recovery funds, and other available financial resources only reinforce and increase divergence trends and Latvia's backwardness from Estonia and Lithuania. The reason for the backwardness is more significant corruption and the shadow economy. Political leaders who came to power in Estonia in the early 1990s were far more people of European civilization, optimistic visionaries. Politically powerful, bluster entrepreneurs acted in Lithuania and Estonia, but their influence was more decisive in Latvia. The inability to alleviate the shadow economy for years is one of the obstacles to growth. Sectors to look for a shadow economy are well known. The actual cause of the problem is the Soviet mindset values system.

The current situation requires a change in cultural values that sets higher ambitions, a shift from the Russian World to global markets, another strategy for entering foreign markets, and the introduction of innovative products or services that are risky and difficult. The neighbors had more aggressive marketing, higher self-confidence, and the ability to take risks were rewarded. Difficulties in Latvia turned into passivity. Stagnating business creates many uncompetitive SMEs—i.e., "pocket and zombie" (zombie companies, which are kept alive only by regular injections of various grants from EU structural funds. Zombie companies can survive only at the expense of state support; they create the economic stagnation of the country and also reduce the competitiveness of productive companies.) companies (Ozols et al., 2023, Sauka, 2007), surviving by regular injections of all kinds of grants from the EU Structural Funds. Zombie companies can only stay at the expense of state aid. They create economic stagnation in the country and reduce the competitiveness of productive businesses (LU, 2020, Šteinbuka, 2021).

The administrative and labor tax burden, which is still too high, does not decrease either. The tax reform part was marred by compromises. Entrepreneurs praise tax

reforms for the fact that profits are no longer taxed if they are invested in the company. It's a model seen by Estonians that local businesses have been asking for more than a decade.

Latvia could be the EU champion in designing excellent planning documents (Vasks, 2022). The worst picture appears when comparing the ability to resource these plans and, even worse, to implement and achieve set strategic targets. However, what is recorded in the plans is rarely implemented in life. Resources are also allocated for a specific year and end with the current election term. The goals of such economic development plans were ambitious. Although none of the set target indicators were achieved, it should be noted that there has been significant progress in the dynamics and productivity of the manufacturing industry. The share of the manufacturing industry in the gross domestic product was supposed to increase to 20% in 2020, but it fell further below the level of 2011 and stopped at 12.2%. The same happened with investments in research and development (Ozols et al., 2023).

Bureaucracy (civil service) functions according to its own "laws", but the state cannot survive without bureaucracy. One of the main "commandments" of bureaucrats is not to show any initiative and not to do anything that cannot be done, so any initiatives from the outside, especially if they require some action, are sunk. Our competitiveness with our neighbors is hindered not by a lack of plans but by wrong decisions, weak political will, and the dominance of immediate asset redistribution over long-term growth. **Table 2** shows differences in transition reforms and their impact on post-Soviet mindset reemergence in Baltic states.

Table 2. Post-Soviet mindset impact on the transition reforms implemented in the Baltic States (created by the authors, should be studied further).

Economic growth factor	Estonia	Latvia	Lithuania
Privatization	Rapid and massive privatization of manufacturing firms since 1992 by Finnish and Swedish investors brought external capital, created the ICT industrial cluster, and decreased the influence of previous nomenclature and apparatchiks (Kattel and Raudla, 2022)	Former nomenklatura and apparatchiks used their political influence to prevail in the management buyout mode (MBO) of privatization. New owners lacked resources for the development, and the assets of many insolvent companies were sold out in auctions much below market price (Ronis, 1995)	Lithuania undertook a slower privatization process, with state aid seeking to maintain the activities of large companies, which later resulted in net FDI and new jobs in the medium and high-tech sectors.
Export promotion, FDI, productivity	Estonia managed to achieve an attractive business environment because of rapid transition reforms. This led to large FDI inflow, export growth, and solid banking emergence. In the 1990s, Elcoteq alone created 4000 new jobs, which was its peak, generating up to 15% of Estonia's high-tech exports[7]. NOKIA 1st first-tier suppliers brought a new governance, innovation, and marketing culture. Skype fostered a boom of new start-ups and unicorns.	The collapse of gigantic manufacturing firms dependent on the Soviet military complex was slowly replaced by MBO and privatized service-providing firms. Many uncompetitive but politically lobbied "zombie" and "pocket" companies "ate" the most significant part of the EU Structural Funds, the dominance of extensive low-tech, low-cost firms, access to resources and carrier growth was determined by "blat," loyalty to management, passivity, and instantaneous gains (Šteinbuka, 2021).	Leaders have more ambitions, compared to Latvia, but less as Estonia; post-Soviet mentality existed at the same level as in Latvia, while gradually national patriotism and catholic values started to suppress it, companies of growth and innovative high growth start-ups appear (CIVITTA, 2022)

Table 2. (*Continued*).

Economic growth factor	Estonia	Latvia	Lithuania
System of education	High school system quality performance, dominance by few international scales open and high-ranking universities (TU, TTU, and Life Science University), stable public financing, ability to return migrated researchers, and new emerging science centers of excellence.	By decades of delayed school and vocational school reforms, too fragmented HEI segment, many low-quality and underfinanced study programs in Latvian, poor internationalization, aging academics, weak management, and excessive administration (LV PEAK, 2022)	Increasing investment in large universities, the transformation of technical schools into colleges, keeping on study policy quality and strengthening the research infrastructure of HEIs (Spurga and Žalėnienė, 2021)
Research policy	Sustainable and continuous public investment >1% of GDP in R&D, with growing high-tech start-up cluster, stable private sector R&D expenditure exceeding that of the public sector, and more entrepreneurial professors (ETAG, 2022).	Priority in planning documents but systematically unfunded institutions since 1990, too many fragmented research areas poorly linked with study processes and industry, but still able to demonstrate research excellence in several segments (LV PEAK, 2022)	Continuing and stable public and private R&D funding growth, significant grant investment into five research valleys exceeding billion EUR, conducive tax incentives for private investment in R&D (Valuzis, 2015)
Administrative barriers, shadow economy, corruption	More rationalism, less corruption, bureaucracy, and shadow economy; culture is characterized by higher honesty and motivation for officials (Sauka and Putnins, 2023).	Bureaucratic administrative management system detached from everyday life, low competence and responsibility of civil servants, short-term approach to budget planning (LV PEAK, 2022; Sauka and Putnins, 2023)	The post-Homo Sovieticus mindset is compared to Latvia. Lithuanians have stronger patriotism and national identity. National values are perceived as one's values.
Governance	Balanced budget. Openness to independent experts and consultants in policy design and evaluation, policies were matched with appropriate funding since entering the EU.	Transit infrastructure created rent-seeking business interests among the previous nomenclature, leading to the emergence of a few big traders (e.g., oligarchs). They distorted the legislative process and controlled economic development. The government first looks for its immediate, resoric, or political benefits, not the ones for the country in the long-term: unduly large and low-efficiency bureaucratic apparatus, inconsistency, and lack of continuity.	Management changed in favor of Western values after 2014, and the negative impacts of mindset are declining but still significant.

Table 2 provides a review and a side-by-side comparison of key processes in the Baltic States in the context of general democratization policy aimed to establish a free market economy, to reintegrate with the West (becoming EU and NATO members), e.g., "return to Europe" and disintegrating from Russia. Commonalities in Baltic state reforms were liberalization of prices and trade, restitution of property, privatization, macroeconomic stabilization, leave of the Ruble zone, and introduction of exchange rate, legal, fiscal, monetary, and banking reforms. **Table 2** shows that as the most strategic region, Latvia was hit more by the post-Soviet Mindset compared to the other two Baltic neighbors.

The general perception of the people of Latvia is that society, and the state, in particular, has not been able to ensure the promised security and prosperity.

Socio-cultural aspects also determine societal behavior during and after crises to a large extent. In a recent article (Ozols et al., 2023), we have already referred to six G. Hofstede dimensions (Hofstede, 2015) arising from accumulated socio-cultural aspects in a country (Barni, 2016). The key conclusions were the following:

1) Higher Power distance (PD) or social inequality in CEECs led to higher corruption. Significant distance of PD means hierarchical order where superiors

provide favor and nepotism to subordinates in return for their loyalty. Performed analysis confirms the importance of individualism as a dominant attitude in all CEECs from 1995 till 2023 (Gruszewska, 2014), (Aslund and Dombrovskis, 2011). In Estonia, citizens' trust in national political institutions is higher, which correlates with faith in government policies, reforms, and economic growth.

2) Attitude towards unknown - uncertainty avoidance (UA). "In cultures ranking high on UA, members are likely to feel uncomfortable unstructured (e.g., novel, unknown, surprising). Such people prefer to minimize uncertainty through strict rules and laws, formal structures, and safety and security measures". They avoid risk-taking (Hofstede, 2015). Vague, non-specific government plans without clear goals and measurable intermediate indicators do not allow tracking the individual responsibility of a political person and do not contribute to the effective use of resources following public interests and needs. Corruption is a stimulating mechanism to reduce uncertainty and obtain more predictable results in line with the interests of a narrow society group.
3) Attitude towards community—individualism versus collectivism (IDV). In a collectivistic society, people are inclined to violate the law to support their group based on unquestioning loyalty. Trompenaar found that the CIS countries were high on individualism and low on collectivism (Luthans et al., 1995). Individual decisions (emigration, corruption, gray economy) prevail over collective solutions (taxation, inclusion, social entrepreneurship). In Latvia, society has lost faith in the political elite and state policy and is emigrating, while Estonians trust their country and live in it. Only Lithuania has had a more intensive emigration of people among the EU member states.
4) Attitude towards—Masculinity versus femininity (MAS). Motivation to become rich is based on male values - high earnings, titles, recognition, advancement, challenges, and other material or status rewards enhance corruption. Masculine society "expects men to be assertive, tough, and focused on material success; women are supposed to be more modest, tender, and concerned with the quality of life" (Hofstede, 1998). Entrepreneurship is perceived to require "traits such as independence, aggressiveness, autonomy, and courage, frequently associated with a man" (Gupta et al., 2009). Latvia is the most masculinized state in the Baltics – index nine against LT 19 and EE-30 (Beno, 2021). These features are essential when looking from a deteriorating business environment context.
5) Attitude towards passage of time—long-term orientation (LTO). Latvia, Hungary, and Estonia exhibited a growth in the importance of traditionalistic (national) values (Gruszewska, 2014; Hofstede, 2001; Hofstede and Minkov, 2010), LT traditions (tribal, family, religious) dominate over rational values (societal, institutional) (Radavičius, 2016). Therefore, resource redistribution follows the timeframe of short maximum medium-term election periods and the combined interests of narrow economic interest groups and political cartels.
6) Attitude towards control of one's desires or indulgence (IND) and restraint. A high indulgence score means society is willing to enjoy life and have fun. This society highly values leisure time and spending a lot of money. In a restrained society, people are restricted by social norms. To break them, they agree to some

illicit private payments (Achim, 2016). Alienation from the people, fulfilling the orders of narrow economic groups, and self-enrichment determine the behavior and action of politicians to maintain their presence in the government without principles and a transparent welfare-focused value system.

The wider loops in **Figure 6** indicate a more significant influence of the neo-soviet mindset in all layers of Latvian society, especially in the political nomenclature.

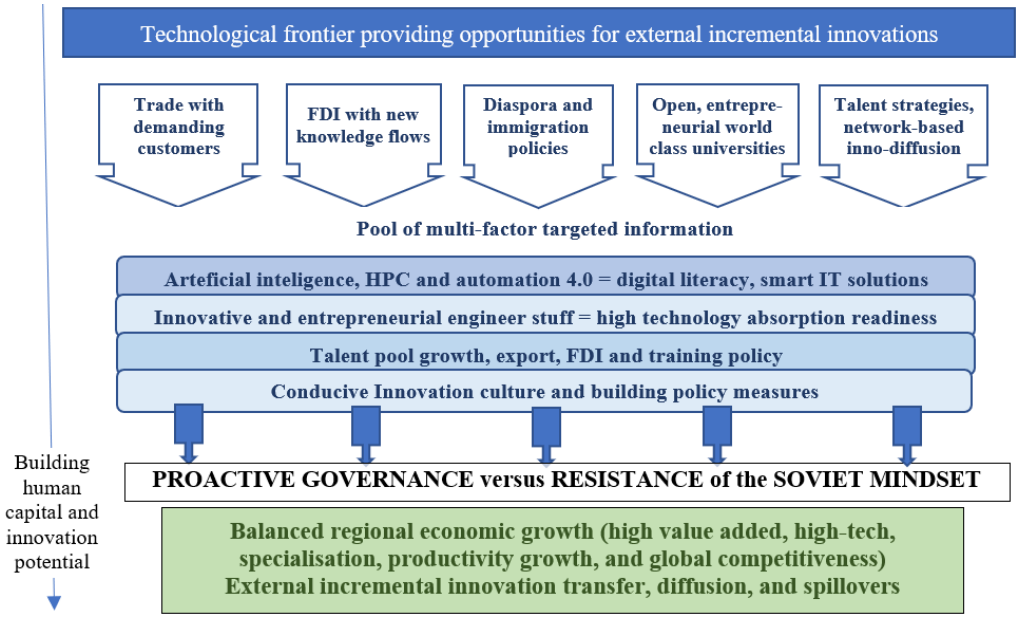


Figure 6. The integrated complex of transforming imported frontier knowledge and technologies into regional economic breakthrough growth based on incremental innovations supported by a solid local research base—Author's modification of the World Bank scheme (Goldberg et al., 2006; Goldberg et al., 2010).

5. Latvia's national competitiveness and systemic way to assess it

At the end of the performed analysis, we will highlight the conclusions that will allow Latvia to gain an acceleration of economic development to approach, catch, and overtake the two Baltic neighboring countries.

1) Porter and Stern defined national innovation capacity as a "country's potential ... to produce a stream of commercially relevant innovations ..." (Porter and Stern, 2002) and (Agapitova and Watkins, 2004). We may conclude that national innovation capacity depends on five broad elements: the number of scientists, industrial or applied scientists, and experimental engineers (intrapreneurs). It is imperative to reach proportion according to knowledge-intensive cluster demand. From four enterprise groups (see also **Figure 4**) according to their technological capability, the first two do not need solid research. Firms compete with low-cost factors and usually have no muscles to concentrate resources for R&D projects with university labs. Firms depend on everyday contract manufacturing and sales performance. Family-based SMEs traditionally lack human capital for international marketing, technological development, and incremental business process improvement. The solution might be state support in the format of vouchers to access the best experimental engineers (there is a shortage in Latvia), advanced testing, and world-class prototyping facilities in Europe, combined

with appropriate internship, apprenticeship, and lifelong learning and specific training programs abroad, mainly in private firms.

2) The openness of innovation and the creation of an innovation-supportive business environment. This includes reduction of red tape (administrative burden), lowering of the labor tax burden (it is higher in Latvia in the Baltics), the introduction of broad policies aimed to increase technology absorption readiness, access to new incremental novel solutions, overall tax incentives, motivation to implement intellectual protection of intellectual property in-house, anti-trust enforcement and openness to global competition. It should be filled by the excellence of basic research and established technology transfer, diffusion, and spillover systems. It looks easy, but this requires a mindset change for managers and employees.
3) The dynamic and productive national innovation ecosystem (NIS). Authors recognize that commercializing new commercial ideas with excellent business potential occurs in geographic concentrations of interconnected companies and institutions in a particular field or industrial clusters (Porter and Stern, 2002) or in urban territories with high talent density, accessibility, and diversity (Florida, 2002). This leads to the new role of entrepreneurial university's labs motivated and competent technology transferring and interacting actor base (applied R&D institutions, business accelerators, Lifelong Learning centers, science parks, technology brokers, and engineering consultants). All this may lead to high value-added commercialization of innovation inflow in this IES.
4) The two-way knowledge exchange flows between actors that keeps and cements all NIS elements together. The country's digital, ICT and artificial intelligence performance and literacy catalyzes this variable.
5) Reduction and overcoming of soviet mindset heritage. This is a powerful filter that resists any new rapid change or reform to boost innovation; grant-dependent firms are demanding more and more external aid and fiscal incentive support and remerges in the form of pocket-entrepreneurs with self-efficient interests in entrepreneurship but not in profit-driven growth of their firm in the international market on fear competition bases.
6) Public research remains systematically underfunded, and inter-ministerial coordination remains weak, significantly impacting outcomes and efficiency of R&D policy implementation. Latvia is embedded in and connected to European research networks; however, these linkages are formal and rarely produce the desired scientific outputs (Visionary Analytics, 2017).
7) Latvia's Smart specialization strategy considers the assets and resources available in Latvia as a small economy and their specific socio-economic challenges. It aims to identify competitive advantages and opportunities for growth (RIS3, 2023). The concept of smart specialization for regions in the EU is still relatively new to the economic development theory. Latvia focuses mainly on Riga metropolia development, not outside areas.

Let's assemble all this in one visually understandable and schematic policy roadmap. As a result, we may take an integrated approach designed by WB to develop and catch up with countries and adapt to Latvia's circumstances. Only a balanced rapid development of local science and the ability to support the needs of the national

economy for the absorption and adaptation of the latest knowledge and technologies imported from abroad, creating growth companies and fast-growing innovative startups, can be a solution to overcoming the middle-income trap. **Figure 6**. shows the five primary sources of new knowledge and technology. The imported technology and knowledge flow will be able to be perceived by the renewed and internationalized science segment, the concentration and diversity of prepared, returned, and attracted engineering and natural science talents, the small administrative burden, the created culture of innovation at all levels of society, giving great importance to the integration of society and the eradication of the post-Soviet value system. It is a complex and challenging task that requires understanding the interrelated interactions of individual areas and addressing them with a systemic, balanced, and long-term strategy, creating a related hierarchy of specialized and limited objectives after a causal analysis.

The WB report clearly outlined Latvia's lagging behind Europe in high-tech manufacturing, export, productivity, innovation, and value-added, confirmed by the European Innovation Index (Agapitova and Watkins, 2004).

For years, Latvia ignored the recommendations of external experts to invest in the education system, universities, and science and technology transfer centers, reducing the innovation system's performance and increasing lagging behind the leading EU centers. As a small country, Latvia's science capacity became even smaller, and it was difficult for them to get involved in EU-level research projects on equal terms with equal contribution of resources. The extensive availability of EU structural funds in the CEEC countries created a reaction from the old member states, which tried to lobby as much as possible and attract the resources of EU grant projects to the science centers of their regions. A closed network of clubs of excellence levels emerged, which, with the right of the "elder brother," limited the entry of the young into the closed club or leaving the growth of the backward institutions "in the hands of the downers themselves" (Mathew's principle) (Visionary Analytics, 2017), which contributed to the brain drain and the further increase of differences.

The conclusions made in this research are still valid and vital today. The designed by authors' economic development scheme in **Figure 6**. outlines the major factors determining innovation capability for the catching-up country:

1) Proactive and novel imported incremental innovations seeking, sourcing, and implementing in domestic firms' policies within export, FDI attraction, diaspora communication, SME promotion, and talent pull-building policies (Ozols and Avotins, 2021).
2) Create a world-class entrepreneurial academic (4th generation HEIs and RTD) institutional base (Avotins et al., 2016).
3) Create quality interactive and innovation-proactive linkages between key actors in the national innovation ecosystem and a conducive entrepreneurial and innovation environment (Ozols et al., 2023).

6. Conclusions

The consolidated conclusions help to understand the exact reasons for Latvia's backwardness and measure how to overtake it:

1) After independence in the 1990s, neoliberal policies prevailed, and mass privatization was uncritically adopted in Latvia from East Germany. Transit and financial service sectors were approved as two priorities for developing the national economy. Both depended on the former apparatchik's-controlled flow of Russian goods and capital. Due to Russia's war with Ukraine and the imposed sanctions, development dropped, and growth must be shifted to new, innovative technology, long-term policy-based, and high-value-added sectors.
2) In 2003, Watkins and Agapitova(2004) pointed out that cheap labor, or the cost factor, determines Latvia's competitiveness. Latvia joined the EU as a poor country. The low labor productivity, the small volume of exports, and the small share of innovative product companies resulted in the added value per capita indicator and productivity well below the EU average. Unable to change the policy of redistribution of resources in the interests of the elite to an innovative technology growth strategy, Latvia inevitably began to lag the two neighboring Baltic states in the second and third decade of the restored independent state.
3) Latvia spends the least on R&D (from GDP) among the Baltic states. Years of backwardness in higher education and science funding have so far depleted the sector's performance and, after obtaining a doctorate and increasing bureaucracy level, pushed young, talented students to seek further career opportunities in the leading science centers in the developed countries at best. Due to limited funding and resources, a significant difference in R&D spending and its short-term and fragmented essence has led to an innovation gap. Latvia struggles to retain and attract top talent and has lower rankings in global innovation indices, affecting its international reputation and partnerships.
4) Investors in Latvia hardly build long-term investment research centers or high-tech production plants with high added value. Subsidiaries established in the IT industry often perform limited programming coding tasks and serve as pumps to attract local talent to their R&D centers in other countries. The flow of new knowledge and innovations brought, attracted, and absorbed into the national economy of Lithuania should also be considered insufficient benefits in the state's export and FDI attraction policies.
5) As the analysis highlights, Latvia and Lithuania share more similarities regarding their post-Soviet mindset and how it manifests within their respective power structures. However, Estonia stands out as distinct in this context. European Innovation Scoreboard for 2023 allows us to conclude that it's important to note that all three Baltic States exhibit a relatively equal level of training compared to the broader European Union (EU) entrepreneurial landscape. It signifies that the development of skills and expertise is relatively consistent across these countries. However, when it comes to the role of government procurement as a driver of research and innovation, we observe a significant distinction between Lithuania and Latvia compared to Estonia. Government procurement lags behind the EU standards in fostering research and innovation activities in these two countries.
6) The analysis in the article (Ozols et al., 2023) shows that Latvia also lags in digital development in the Baltics.
7) Within post-Soviet nations, the post-Soviet mindset influences public support or resistance to specific policy measures related to talent and innovation policies

and assumes a pivotal role. In countries where post-Soviet values loom large, the endorsement of policies geared towards innovation and talent policies may encounter substantial hurdles, as they may not be perceived as paramount for ensuring individuals' survival or fostering competitiveness and economic growth.

8) The authors' proposed approach to the visual representation of economic growth should be further studied by analyzing other transitional economic countries and performing a comparative analysis.

9) The transition to education in public schools only in the Latvian language, changes in public media policy, the influence of integration measures of bi-communal society around Latvia's prosperity goals, and the reduction of the neo-soviet-mindset should be studied further, taking into account the considerations expressed in this article and the influence factors discussed. It should be emphasized that until now, the attention and ability of researchers to predict events, as well as to analyze the impact on the growth of the IES and NIS, has not been sufficient and requires additional attention when developing recommendations for the improvement of a series of state planning documents. It should be noted that Latvia has much more work to do in this area than its Baltic neighbors.

7. Suggestions

Neo-post-Soviet mindset factors and their impact on economic policy should be explored in more detail. The issue is complicated. It is easier for everyone to ignore than look for answers and solutions. Research should also be continued in the context of further developing Latvia's economic policy. Specific case studies on talent and innovation policies or initiatives in Latvia should be conducted to determine the factors that contributed to their success or failure and assess whether the post-Soviet mindset played a significant role in these outcomes.

Another complicated research question is whether policy successes or failures influence mindset evolution and whether mindset shifts, in turn, influence future policy decisions.

Author contributions: Conceptualization, AO and VA; methodology, AO and VA; software, AO and VA; validation, AO and VA; formal analysis, AO and VA; investigation, AO and VA; resources, AO and VA; data curation, AO and VA; writing—original draft preparation, AO and VA; writing—review and editing, AO and VA; visualization, AO and VA; supervision, AO and VA; project administration, AO and VA; funding acquisition, AO and VA. All authors have read and agreed to the published version of the manuscript.

Acknowledgements: The authors would like to express deep gratitude to the economist Janis Hermanis for his helpful critiques and data support throughout this research work.

Conflict of interest: The authors declare no conflict of interest.

Notes

[1] European innovation scoreboard. Available online: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en (accessed on 24 September 2022).

[2] European Innovation Scoreboard 2023. Available online: Country profile Latvia https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-lv.pdf (accessed on 24 September 2022).

[3] Eurostat. Available online: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_gind&lang=en (accessed on 20 September 2022).

[4] Available online: https://www.ceicdata.com/en/latvia/labour-force-survey-economically-active-population/population-economically-active (accessed on 27 September 2022).

[5] Eurostat. Available online: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_pc&lang=en (accessed on 20 September 2022).

[6] Available online: https://www.investmentmonitor.ai/tech/central-and-eastern-europe-cee-a-tech-hotbed/ (accessed on 10 April 2023).

[7] Available online: https://www.eurofound.europa.eu/observatories/emcc/erm/factsheets/elcoteq-tallinn-0 (accessed on 10 April 2023).

References

Achim, M.V. (2016). Cultural dimension of corruption: a cross-country survey. Int.Adv.Econ.Res., Vol.22, 2016, pp.333-345.

Adner, R. (2016). Ecosystem as Structure: An actionable construct for strategy. Journal of Management, 43(1), 39–58. https://doi.org/10.1177/0149206316678451

Agapitova, N., & Watkins, A. (2004). Creating a 21st Century National Innovation System for a 21st Century Latvian Economy. In: Policy Research Working Papers. The World Bank. https://doi.org/10.1596/1813-9450-3457

Allen, M., & Haas, R. (2001). The Transition in Central and Eastern Europe: The Experience of Two Resident Representatives. IMF Staff Papers, 48(S1), 9–28. https://doi.org/10.2307/4621688

Angel, R. (2006). Putting an innovation culture into practice. Ivey Business Journal.

Arezki, R., Fan, R. Y., & Nguyen, H. (2019). Technology Adoption and the Middle-Income Trap: Lessons from the Middle East and East Asia. Policy Research Working Paper. https://doi.org/10.1596/1813-9450-8870

Arogyaswamy, B., Elmer, W. (2005). Technology Absorption in Emerging Nations: An Institutional Approach. Journal of East-West Business, 10(4), 82. https://doi.org/10.1300/J097v10n04_05

Ash, T. G. (1990). The magic lantern: The revolution of '89 witnessed in Warsaw, Budapest, Berlin, and Prague. Random House.

Ashbourne, A. E. G. (1997). Lithuania: the rebirth of a nation, 1991–1994. Available online: https://research-repository.st-andrews.ac.uk/handle/10023/14406 (accessed on 11 October 2022).

Aslund, A., Dombrovskis, V. (2011). How Latvia came through the financial crisis. Available online: https://www.piie.com/publications/chapters_preview/6024/01iie6024.pdf (accessed on 19 September 2023).

Audretsch, D. B. (2001). What's New about the New Economy? Sources of Growth in the Managed and Entrepreneurial Economies. Industrial and Corporate Change, 10(1), 267–315. https://doi.org/10.1093/icc/10.1.267

Audretsch, D. B., & Thurik, A. R. (2000). Capitalism and democracy in the 21st Century: from the managed to the entrepreneurial economy. Journal of Evolutionary Economics, 10(1–2), 17–34. https://doi.org/10.1007/s001910050003

Audretsch, D. B., Grilo, I., Thurik, A. R. (2007). Explaining entrepreneurship and the role of policy: A framework (chapter 1). In: Handbook of Research on Entrepreneurship Policy. CBSS.

Autio, E. (2014) Innovation from big science: enhancing big science impact agenda. Department for Business, Innovation and Skills, London.

Avotins, V., Azanda, D., Baranovs, O., et al. (1998). The state and the private sector: creating a better environment for development. In: Latvia Human Development Report 1998. UNDP, Riga. pp. 73–96.

Avotins, V., Sloka, B., Jarohnovich, N. (2016). Global Talent War: Differences in Small Emerging Country. Engineering for Rural Development, LLU, Jelgava, 15(2016b), 1230–1237.

Baker, K. A. (2002). Organizational Culture 1. Retrieved from: https://www.au.af.mil/au/awc/awcgate/doe/benchmark/ch11.pdf (accessed on 13 September 2023).

Barni D., Vieno A., Roccato M. (2016). Living in a non-communist versus in a post-communist European country moderates the relation between conservative values and political orientation: a multilevel study. European Journal of Personality, Vol.30, 2016, pp.92-104.

Beno, M. (2021). E-working: Country versus culture dimension. Agris on-line papers in economics and informatics, 13(2), 23-34.

Callon, M. (1999). Actor-Network Theory-The Market Test. The Sociological Review, 46(S), 181–195. https://doi.org/10.1111/1467-954x.46.s.10

CIVITTA. (2022). The Baltic startup scene up-close: today's realities, tomorrow's possibilities. Available on: https://civitta.com/upload/files/BSE_Research_Short_2022_10_17.pdf (accessed on 2 June 2023).

Cohen, W., Nelson, R., & Walsh, J. (2000). Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or not). National Bureau of Economic Research. https://doi.org/10.3386/w7552

Cooke, R. A., Clayton, J. (2016). White paper. Building a culture for innovation. Available online: https://www.human-synergistics.com.au/docs/default-source/default-document-library/building_a_culture_for_innovation_wp.pdf?sfvrsn=2 (accessed on 22 September 2023).

Correa, P. (2007). Technology adoption and the investment climate: Enabling the private sector to acquire and use modern technologies. Presentation at Knowledge Economy Forum VI, Cambridge, England.

Drucker, P. (1985). Innovation and entrepreneurship. Practice and principles. New York, NY, HarperCollins Publishers.

EC Country. (2023). EC Country Report—Latvia. Available on: https://economy-finance.ec.europa.eu/system/files/2023-05/LV_SWD_2023_614_en.pdf (accessed on 12 May 2024).

EC, DG Enterprise and Industry. (2005). Innovation regions in Europe. Today's network for tomorrow. EC, DG Enterprise and Industry.

Economic Development of Latvia. (2023). Riga, MoE. Available on: https://www.em.gov.lv/en/economic-situation-0 (accessed on 12 May 2024).

Enderwick, P., Tung, R. L., & Chung, H. F. L. (2011). Immigrant effects and international business activity: an overview. Journal of Asia Business Studies, 5(1), 6–22. https://doi.org/10.1108/15587891111100778

ETAG. (2022). TA Statistics in International Trade. Available on: https://www.sgi-network.org/2022/Estonia/Economic_Policies (accessed on 2 June 2023).

Etzkowitz, H., Leydesdorff, L. (2000). The dynamics of innovation: from national systems and "mode 2"to a triple helix of university-industry-government relations. Research Policy, 29, 109–123. https://doi.org/10.1016/S0048-7333(99)00055-4

EU DG Enterprise. (2002). Innovation tomorrow. Innovation policy and the regulatory framework: making innovation an integral part of the broader structural agenda. EU DG Enterprise, 28, 221.

EU RIS / RITTS Focus Group. (2003). "Fostering an innovation culture" discussion paper. Cardiff Business Technology Centre.

European Commission. (2018). European Innovation Scoreboard 2018: Comparative analysis of innovation performance across EU countries. Publications Office of the European Union. https://euraxess.ec.europa.eu/worldwide/japan/european-innovation-scoreboard-2018-srip-report-2018 (accessed on 7th October 2022).

European Commission. (2023). Commission staff working document: 2023 country report – Latvia. Accompanying the document recommendation for a council recommendation on the 2023 national reform programme of Latvia and delivering a council opinion on the stability programme of Latvia (SWD/2023/614 final). European Commission. https://economy-finance.ec.europa.eu/system/files/2023-05/LV_SWD_2023_614_en.pdf (accessed on 2 June 2023).

Florida, R. (2002). The rise of the creative class and how it's transforming work, leisure, community and everyday life. New York, Basic books.

Frese, M., Mertins, J. C., Hardt, J. V., et.al. (2010). Innovativeness of firms and organizational culture: the role of error management culture and pro-initiative climate. Univ. of Glessen.

Goldberg, I., Branstetter, L., Goddard J.G., et al. (2010). Globalization and technology absorption in Europe and Central Asia. In: The role of trade, FDI7, and Cross-border knowledge flows. World Bank. 150. p. 149.

Goldberg, I., Trajtenberg, M., Jaffe, A., et al. (2006). Public financial support for commercial innovation. In: Europe and Central Asia. Knowledge Economy. 1(1). p. 78.

Grancelli, B. (1992). Social Change and Modernization: Lessons from Eastern Europe. New York: M.E. Sharpe.

Granstrand, O., Holgersson, M. (2020). Innovation ecosystems: A conceptual review and a new definition. Technovation, 2020, 90–91. https://doi.org/10.1016/j.technovation.2019.102098

Gruszewska E. (2014) Changes in informal institutions in Poland and transition countries. Equilibrium. Quarterly Journal of Economics and Economic policy, 2014, Vol.9, Issue 1, pp.39-55.

Guerrero, M., Urbano, D., Fayolle, A., et al. (2016). Entrepreneurial universities: Emerging models in the new social and economic landscape. Small Business Economics, 47(3), 551–563. https://doi.org/10.1007/s11187-016-9755-4

Gupta, V. K., Turban, D. B., Wasti, S. A., & Sidkar, A. (2009). The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneur. Entrepreneurship Theory and Practice, 33(2), 397-417.

Harward Business School Press. (2004) Coaching and mentoring. How to develop top talent and achieve stronger performance. Harward Business School Press, Boston. p. 159.

Hofstede G., Minkov M. (2010). Long- versus short-term orientation: new perspectives. Asia Pacific Business Review, Vol.16, No.4, 2010, pp.493-504.

Hofstede, G. (1991). Cultures and organizations: Software of the mind. McGraw-Hill.

Hofstede, G. (1998). Masculinity/femininity as a dimension of culture. In G. Hofstede (Ed.), Masculinity and femininity: The taboo dimension of national cultures (pp. 3–28). Thousand Oaks, CA: Sage.

Hofstede, G. (2001). Culture's consequences: comparing values, behaviors, institutions, and organizations across nations. Sage Publications.

Hofstede, G. (2015). The Hofstede Centre: Strategy, culture, change. The Hofstede Centre. http://geert-hofstede.com/countries.html (accessed on 10 July 2023).

IMD. (2015, 2016, 2017, 2018, 2020). World Competitiveness Rank (online). Available on: https://worldcompetitiveness.imd.org/ https://worldcompetitiveness.imd.org/rankings/Digital (accessed on 9 September 2023).

IMF. (2023). World Economic Outlook Database. Available on: https://www.imf.org/en/Publications/WEO/weo-database/2023/April/weo-report?c=939,941,946,&s=NGDPRPPPPC,NGDPDPC,PPPPC,PCPIPCH,&sy=1980&ey=2028&ssm=0&scsm=1&scc=0&ssd=1&ssc=0&sic=0&sort=country&ds=,&br=1 (accessed on 10 July 2023).

Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. Strategic Management Journal, 39(8), 2255–2276. https://doi.org/10.1002/smj.2904

Jarohnovicz, N., Avotins, V. (2013). The changing role of Hofstede, G. (1991). Cultures and organizations: Software of the mind. McGraw-Hill.entrepreneurial university in developing countries: The case of Latvia. Journal of Higher Education Theory and Practice, 13 (2), 121–148.

Jarohnovitch, N., Avotins, V. (2012). Absorption of new technology capacity opportunities of Latvian enterprises. In: Processing of the XVII Int. Conference "The role of science and technology parks in supporting entrepreneurial community"; September 12–14; Vilnius, Lithuania. pp. 54–55.

Kattel, R., Raudla, R. (2022). Estonia's radical transformation. Successes and failures of "crazy ideas". Available on: https://economy2030.resolutionfoundation.org/wp-content/uploads/2022/11/Estonias_radical_transformation.pdf (accessed on 9 September 2023).

Keith, N., & Frese, M. (2010). Enhancing Firm Performance and Innovativeness Through Error Management Culture. In: The Handbook of Organizational Culture and Climate. Sage Publications. 137–157. https://doi.org/10.4135/9781483307961.n9

Kudela, J. J., Avotins, V. (1999). An evaluation of Phare SME programmers. Available on: https://www.researchgate.net/publication/321155380_An_Evaluation_of_Phare_SME_Programmes_Latvia_Final_Report (accessed on 9 September 2023).

Lachmann, L. M. (1970). The legacy of Max Weber. Heinemann Educational Books.

Lankhuizen, M. (1998). Catching Up, Absorption Capability and the Organisation of Human Capital. UNU-MERIT Research Memoranda. UNU-MERIT.

Laruelle, M. (2015). The "Russian World". Russia's soft power and geopolitical imagination. Available on: https://www.researchgate.net/publication/344222398_The_'Russian_World'_Russia's_Soft_Power_and_Geopolitical_Imagination_Center_for_Global_Interests_Papers_May (accessed on 2 June 2023).

LU Biznesa, vadības un ekonomikas fakultātes Produktivitātes zinātniskais institūts. (2020). Latvijas Produktivitātes ziņojums. Available on: https://www.bvef.lu.lv/petnieciba/petnieciba/zinatniskie-instituti/recovery-lv/ (accessed on 8 September 2023).

Lundvall, B.A. (1992). National innovation systems: Towards a theory of innovation and interactive learning. London, Pinter.

Luthans, F., Patrisck R.R., Luthans B.C. (1995). Doing business in Central and Eastern Europe: political, economic, and cultural diversity. Business Horizons, 1995, pp.9-16.

LV PEAK (2022). Economic Barometer. Available on: https://www.lvpeak.lu.lv/en/about-us/news/detail-view/t/72655/ (accessed on 2 June 2023).

Marody, M. (1987) Technologie intelektu: językowe determinanty wiedzy potocznej i ludzkiego działania, Wydawnictwo PWN, Warszawa 1987.

Megginson, W. L., & Netter, J. M. (2001). From State to Market: A Survey of Empirical Studies on Privatization. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.262311

Merheim-Eyre, I. (2018). After homo sovieticus: Democratic governance gaps and societal vulnerabilities in the EU's eastern neighborhood. European View, 17(2), 155–162. https://doi.org/10.1177/1781685818808715

Miłosz, C. (1953). Zniewolony umysł [The Captive Mind] (K. Jaspers, Preface). Paris: Institut Littéraire.

Monck, C., Bateman, M., Kudela, J. J., et al. (2000). An evaluation of Phare SME programmers. Final Synthesis Report. EC DG1, 2000, 153.

Mudrakov, V., Polishchuk, O., Popovych, M., et al. (2020). Identity of Homo Sovieticus in Retrospective and Modernity: value and Anthropological Objectivations of Phenomenological and Literary Senses. Logos Universality Mentality Education Novelty: Philosophy & Humanistic Sciences, 8(2), 51–71. https://doi.org/10.18662/lumenphs/8.2/45

Muiznieks, N. (2009). Responsibility of Latvia's relations with the diaspora (Latvia). In: Human Development Report, Riga, LU Advanced Social and Political Research Institute. pp. 130–135.

NESTA. (2008). Innovation by Absorption. Measuring & Mapping Innovation in UK Nations & Regions, NESTA, 6.

Nissinen M. (1993). The Baltics as a business location for information technology and electronics industries. VTT Technology studies. Research Notes No.2169, 221.

Nissinen, M. (2002). The Baltics as a business location for information technology and electronics industries. VTT Technology Studies, Research Notes No.2169, 2002, 221 p.

Ontario. (2013). What is a culture of innovation? Available on: https://www.marsdd.com/news/what-is-a-culture-of-innovation/#:~:text=A%20culture%20of%20innovation%20is,improved%20products%2C%20services%20or%20processes (accessed on 20 September 2022).

Oxford Research Baltics. (2022). Assessment of the Latvian startup ecosystem and identifying the current state (Latvian) Available online: https://petijumi.mk.gov.lv/node/4042 (accessed on 30 May 2023).

Ozols, A., & Avotins, V. (2021). Regional centre development management factors: Case study of Liepaja. Available on: http://www.tf.llu.lv/conference/proceedings2021/ (accessed on 13 June 2023).

Ozols, A., Bicans, J., & Avotins, V. (2023). The labor supply to the growing digital ecosystem: the challenge to Latvia. In: Conf. Proceed. Challenges, trends and inspirations within the Labor Market. Publ.House A.Dubček University in Trenčin. pp. 200–210.

Pisano, G. P. (2019). The hard truth about innovative cultures. Harvard Business Review, 62–71.

Porter, M. E. (1990). The Competitive Advantage of Nations. Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-11336-1

Porter, M. E. (1996). What is strategy? Harvard Business Review, 74(6), 61–78.

Porter, M. E., Stern, S. (2002). National innovation capacity. In: The Global Competitiveness Report 2001–2002. New York, Oxford University Press. 2002.

Putniņš, T. J., & Sauka, A. (2015). Measuring the shadow economy using company managers. Journal of Comparative Economics, 43(2), 471–490. https://doi.org/10.1016/j.jce.2014.04.001

Radavičius, R. (2016). Culture and economic development: emigration as evaluation of Lithuanian cultural environment. Ekonomika, 2016, Vol.95, No.2, pp.57-72.

Radosevic, S. (2017). Upgrading technology in Central and Eastern European economies. IZA World of Labor. https://doi.org/10.15185/izawol.338

Reid, A. (2012). A smart, sustainable nation? A review of Scottish research and innovation policy in the context of the smart specialization agenda. Technical Report, 68.

RIS Latvia. (2004). The Latvian Innovation System. Strategy and action plan 2005–2010. Available on: http://petijumi.mk.gov.lv/sites/default/files/file/32%20-%20Latvian%20Innovation%20System_Strategy%20and%20Action%20Plan.pdf (accessed on 20 September 2022).

Romer, P. M. (1986). Increasing Returns and Long-Run Growth. Journal of Political Economy, 94(5), 1002–1037. https://doi.org/10.1086/261420

Ronis, I. (1995). Red capital in Latvia (Latvian). Available on: http://periodika.lv/periodika2-viewer/?lang=fr#panel:pp|issue:90315|page:8 (accessed on 2 June 2023).

Roper, S., Love, J., Cooke, P., et al. (2005). The Scottish innovation System: actors, roles and actions. Final Report, Aston Business School.

Roy, A., & Sikdar, A. (2003). Technology Absorption in Large and Small Enterprises: A Proposal for Comparative Research 1. The Journal of Entrepreneurship, 12(2), 183–199. https://doi.org/10.1177/097135570301200202

Sachs, J. (1994). Understanding shock therapy, London, Social Market Foundation, 25.

Sauka, A., Putnins, T. (2023). Shadow economy index for the Baltic Countries 2009–2022. Available on: https://www.sseriga.edu/shadow-economy-index-baltic-countries (accessed on 2 June 2023).

Schein, E. H. (1985). Organizational culture and leadership: A dynamic view. San Francisco, Joddey-Bass Publishers.

Shapira, P., Stuart, R. (1996). An Overview of Technology Diffusion Policies and Programs to Enhance the Technological Absorptive Capabilities of Small and Medium Enterprises, Organization for Economic Cooperation Development (OECD), Directorate of Science, Technology and Industry, Paris.

Sharafutdinova, G. (2019). Was There a "Simple Soviet" Person? Debating the Politics and Sociology of "Homo Sovieticus." Slavic Review, 78(01), 173–195. https://doi.org/10.1017/slr.2019.13

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. The Quarterly Journal of Economics, 70(1), 65. https://doi.org/10.2307/1884513

Spurga, S., Žalėnienė, I. (2021). The Changing Role of Universities in Lithuanian Society. In: The Promise of Higher Education. Springer, Cham. https://doi.org/10.1007/978-3-030-67245-4_35

Stein, J. (1997). How Institutions Learn: A Socio-Cognitive Perspective. Journal of Economic Issues, 31(3), 729–740. https://doi.org/10.1080/00213624.1997.11505962

Šteinbuka, I. (2021). Part of the state support went to non-viable companies (Latvian). Available on: https://lat.bb.lv/raksts/ekonomika/2021/08/09/steinbuka-dala-valsts-atbalsta-nonaca-pie-dzivotnespejigiem-uznemumiem (accessed on 20 April 2023).

Sztompka, P. (1991). Dilemmas of the great transition. In: Sisyphus: Social Studies. Institute of Philosophy and Sociology, Polish Academy of Sciences. Volume 2 (VIII). pp. 9–28.

Sztompka, P. (1993a). Civilizational Incompetence: The Trap of Post-Communist Societies. Zeitschrift Für Soziologie, 22(2), 85–95. https://doi.org/10.1515/zfsoz-1993-0201

Sztompka, P. (1993b). The sociology of social change. Oxford, Blackwell, 368.

Sztompka, P. (1995). "Vertrauen: Die fehlende Ressource in der postkommunistischen Gesellschaft." Kölner Zeitschrift für Soziologie und Sozialpsychologie, Sonderheft 35/1995 "Politische Institutionen im Wandel," edited by B. Nedelmann, pp. 254–276.

The World Bank. (2008). Globalization and Technology Absorption in Europe and Central Asia. The World Bank.

Tidd, J. (2021). Managing Knowledge, Absorptive Capacity and Innovation. Series on Technology Management. https://doi.org/10.1142/q0303

Timofejevs, A., Avotins, V., & Skutans, V. (2019). Roadmap for transnational utilization of existing and planned R&I infrastructure. Available on: https://www.baltic-science.org/wp-content/uploads/2020/04/7-bsn-roadmap-for-transnational-utilisation.pdf (accessed on 20 August 2022).

Tischner, J. (1992). A view from the ruins. In G. Weigel (Ed.), A new worldly order: John Paul II and human freedom (pp. 166). Washington, D.C.: Ethics and Public Policy Center.

Tovstulaks, J., Avotins, V., & Jarohnovica, N. (2011). Enterprise technology absorption readiness assessment model in Latvia (Latvian). In: Proceedings of 7th Annual Int. Sci. Conf. "New dimensions in the development of society"; 6–7 October 2011; Jelgava, Latvia University of Agriculture.

Tsujimoto, M., Kajikawa, Y., Tomita, J., et al. (2018). A review of the ecosystem concept—Towards coherent ecosystem design. Technological Forecasting and Social Change, 136, 49–58. https://doi.org/10.1016/j.techfore.2017.06.032

Tureac, C. E. (2005). The components of the organizational culture. Acta Universitatis Danubius, 1, 77–91.

UNCTAD. (2020). World Investment Report 2020. International production beyond pandemic. Available on: https://unctad.org/system/files/official-document/wir2020_en.pdf (accessed on 14 April 2021).

Valuzis, M. (2015). Overview of promoting technology - based innovations and investments in R&D in Lithuania. Applied Technologies and Innovations. 11. 47-51. 10.15208/ati.2015.05.

van Dyck, C., Frese, M., Baer, M., et al. (2005). Organizational Error Management Culture and Its Impact on Performance: A Two-Study Replication. Journal of Applied Psychology, 90(6), 1228–1240. https://doi.org/10.1037/0021-9010.90.6.1228

Vasks, A. (2022). Estonia and Lithuania have higher wages and faster growing economies. Latvia lags behind. Why? (Latvian). Available on: https://www.lsm.lv/raksts/zinas/zinu-analize/igaunija-un-lietuva-ir-lielakas-algas-un-atrak-augosa-ekonomika-latvija-atpaliek-kapec.a475575/ (accessed at 20 April 2023).

Visionary Analytics. (2017). Study to support the impact assessment on the Strategic Innovation Agenda of the European Institute of Innovation and Technology (EIT). European Commission Directorate-General for Education, Youth, Sport and Culture. https://www.visionary.lt/expertises/innovation-research-and-development/ (accessed at 17 May 2023).

Wach, K. (2015). Modern policy for the entrepreneurial economy: theoretical considerations. In: Institutional aspects of entrepreneurship. Univ. of Miskolc, Poland, 9–18.

Walrave, B., Talmar, M., Podoynitsyna, K. S., et al. (2018). A multi-level perspective on innovation ecosystems for path-breaking innovation. Technological Forecasting and Social Change, 136, 103–113. https://doi.org/10.1016/j.techfore.2017.04.011

Watkins, A. (2005). Education, science, technology, and innovation. In: Proceedings of the Presentation at the WB Workshop on Technology innovation, private sector development, and economic growth; 25–27 May 2005; Hangzhou, China.

Wesner, M. S. (2004). Understanding innovation in corporate environments. Journal of Organizational Behavior, 25(3), 123-140.

Witte, P., Slack, B., Keesman, M., et al. (2018). Facilitating start-ups in port-city innovation ecosystems: A case study of Montreal and Rotterdam. Journal of Transport Geography, 71, 224–234. https://doi.org/10.1016/j.jtrangeo.2017.03.006

Woźniak, W. (2014). From underclass to Homo sovieticus: The human factor a brake on modernization. Praktyka Teoretyczna, 13(3), 171. https://doi.org/10.14746/pt.2014.3.7

Zaslavsky, V. (1994). The Neo-Stalinist state: Class, ethnicity, and consensus in Soviet society. M. E. Sharpe.

Zemmer, A., Homestead, S., & Covit, R. (2018). Fostering culture of innovation: a framework for understanding organizational capacity for innovation. Available on: https://www.researchgate.net/publication/325539222_Fostering_a_Culture_of_Innovation_A_Framework_for_Understanding_Organizational_Capacity_for_Innovation (accessed at 20 August 2022).