

**CHANGING
ECONOMY
CHANGING
SOCIETY**

**IT INDUSTRY
IN POST-SOVIET
COUNTRIES**

ANATOLY MOTKIN

ABOUT STRATEG EAST



StrategEast is a strategic center whose goal is to create closer working ties between political and business leaders in the former Soviet countries outside of Russia and their peers in the United States and Western Europe.

StrategEast believes nations from the former Soviet Union share a heritage that has resulted in common obstacles to the formation of stable, efficient, market-oriented democracies. We hope to appeal to political, business, and academic leaders in post-Soviet countries and the West, helping them better understand one another, communicate across borders, and collaborate to support real change.

Our work is focused on the 14 former Soviet states outside of Russia. This post-Soviet, non-Russia (PSNR) region includes: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

StrategEast focuses on six key issue areas that are especially influential to the transition to Western political and economic systems: fighting corruption, implementing a Western code of business conduct within a post-Soviet business environment, modernizing infrastructure, promoting independent press and civil society, energy transparency, and leadership impact.

**LEARN MORE
AT OUR WEBSITE:**

www.StrategEast.org

StrategEast is a registered 501c3 based in the United States.

PSNR© – Post-Soviet Non Russian

StrategEast focused on the Former Soviet Union outside of the Russian Federation. StrategEast sees Post Soviet Non Russian (PSNR©) nations as coalescing around and facing common geopolitical challenges. We are strongly convinced that the rapprochement of the post-Soviet elites with American and West European government institutions and civil society serves the interests of global security and could gradually lead to the Westernization of the entire region.

© 2018 StrategEast.

All rights reserved.

ISBN: 978-0-692-12025-5

A report “Changing Economy, Changing Society. IT Industry in Post-Soviet Countries” is available on our website: www.StrategEast.org

StrategEast

1900 K Street, NW

Suite 100

Washington, D. C., 20006

USA

office@strategeast.org

www.StrategEast.org

Cover image: Vladitto/ Shutterstock.com

Project coordinator: Tatiana Slynko

Design: Vitaly Tchirkov

Page proof: Mark Mironchuk

STRATEGEAST 2018 WESTERNIZATION INDEX

StrategEast created the 2018 Westernization Index with two goals in mind: first, we seek to help the nations of the PSNR better address the shared challenges they face in the process of rebuilding their states and institutions since the collapse of the Soviet Union; second, we seek to draw attention to an important but geopolitically fragile region in a way that helps the international community better support its development.



SCORES (BASED ON A 1-100 SCALE)

1	Estonia	93
2	Lithuania	85
3	Latvia	82
4	Georgia	62
5	Moldova	56
6	Ukraine	54
7	Armenia	48.5
8	Kazakhstan	39.5
9	Azerbaijan	37
10	Kyrgyzstan	37
11	Belarus	31.5
12	Uzbekistan	29.5
13	Tajikistan	19.5
14	Turkmenistan	17.5

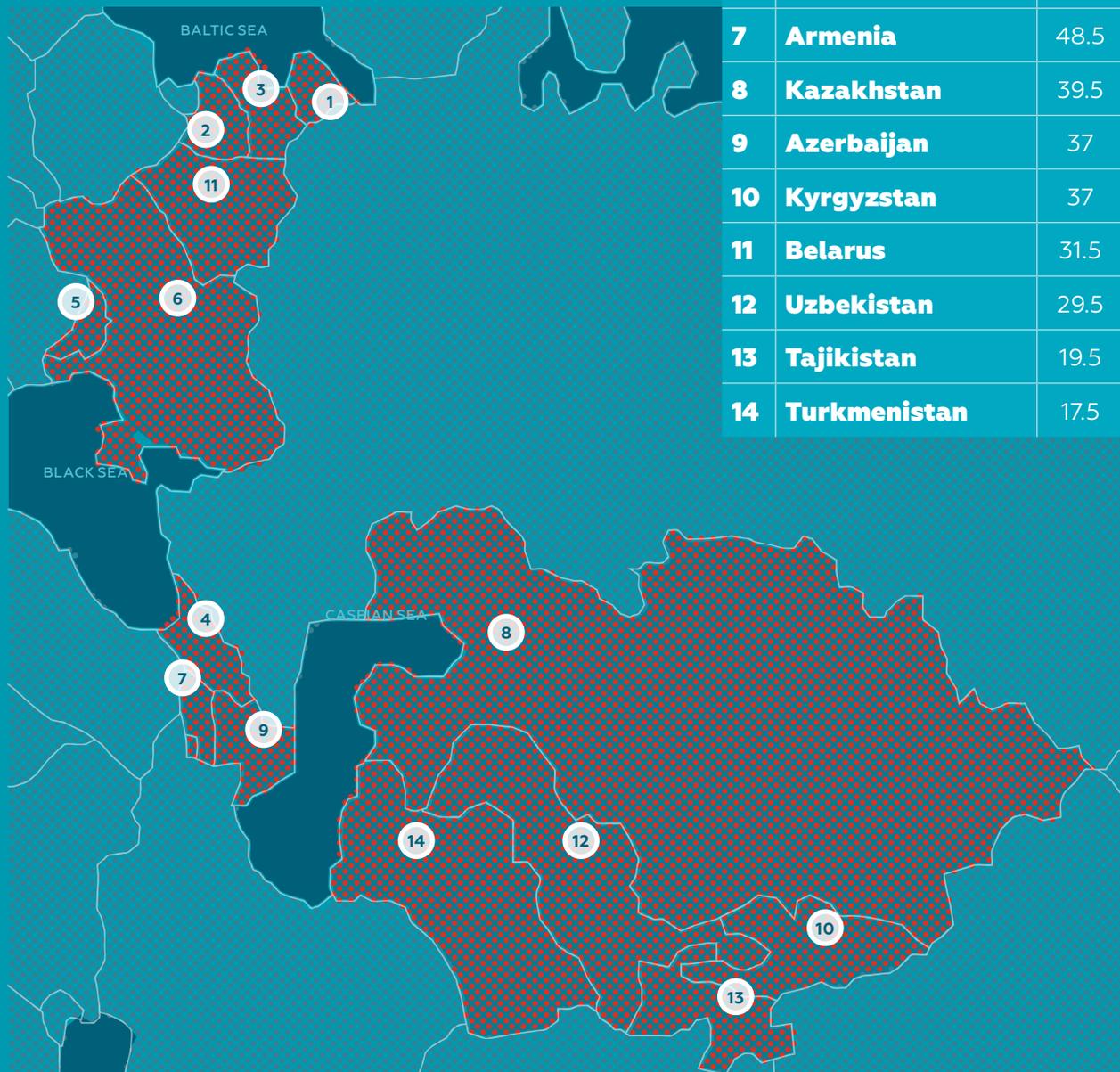


TABLE OF CONTENTS

01.	Introduction	6
02.	Example: Belarus High Technologies Park	8
03.	The overview of the IT industry in other PSNR states	10
	• Estonia. The first e-state in Europe	10
	• Latvia. Focus on foreign specialists	12
	• Lithuania. Invites existing business projects to relocate	13
	• Ukraine. Development without the state's involvement	14
	• Moldova. The first steps and US aid	16
	• Georgia. Focus on international donors	17
	• Armenia. Development supported by the Armenian diaspora	20
	• Azerbaijan. The state invests in startups	21
	• Kazakhstan. IT accounts for one third of the GDP growth	22
	• Uzbekistan. tax and currency benefits from the state	24
	• Kyrgyzstan. The state starts walking the IT way	25
	• Tajikistan. IT development is on paper only	26
	• Turkmenistan. Getting ready to make the first step	26
04.	PSNR in the Global Information Technologies Report	27
05.	Belarus: a step towards the future	30
06.	The Post-Soviet Region Needs Help – From Global Tech Leaders	32
07.	Recommendations from StrategEast	34
08.	Executive Summary	35
09.	Bibliography	36

INTRODUCTION

Twelve years ago, when oil prices were very high and growing, Alexander Lukashenko, the controversial president of Belarus, made a historic decision to reorient the nation's economy from a post-Soviet hydrocarbon-dependent model to an innovative one.

The results of this decision can be seen today – the Belarusian IT-sector employs dozens of thousands of employees earning on average about 2,500 USD per month, which is five to six times higher than the average salary in the country.

Furthermore, these salaries are paid officially, including payment of taxes and social contributions. The export of high-tech products from Belarus generates the equivalent of 1 billion USD annually for the economy of the country and keeps growing.

On the face of it, this trend may seem like a purely economic issue.

In fact, these dozens of thousands of IT professionals embody the emergence of a full-fledged middle class in Belarus in the most important sense of the word – people that are highly aware of and ready to protect their rights as citizens.

Young people involved in this new sector of Belarus's economy have proven to themselves and to others that knowledge, intelligence, and a proactive approach to professional life bring many more results and rewards than the dependent behavior patterns of their parents who have generally waited for the government to provide them with material benefits and security.

StrategEast recently published its first [Westernization Index](#), which analyzed trends towards Westernization in political, legal, economic and cultural life in the countries of the post-Soviet Union (except Russia). One of four main conclusions is that the pace of Westernization of the economy is much faster than the Westernization of the remaining spheres of political and social life.

The market entry by Western companies; the investments from the United States, European Union, and Japan; the creation of special economic zones for the high-tech industry; the integration of the infrastructure of these countries into the global infrastructure – this is the list of steps that the authorities of Post-Soviet countries are mostly happy to welcome.

In the wake of these economic reforms and initiatives,

Today, StrategEast is presenting a new study, Changing Economy, Changing Society, that applies the Index's findings on the criticality of economic engagement to the IT Sector. This report examines the level of IT sector growth in the 14 post-Soviet countries and makes several important findings.

Westernization also occurs in other areas: to attract Western companies, legislation is improved; Western standards of governance are gradually introduced in state institutions for the purpose of attracting Western partners and FDI. Increasingly, more people working with these companies or projects are studying English and other languages of international communication, traveling to Western countries and acquiring a Western education.

Today, StrategEast is presenting a new study, **Changing Economy, Changing Society**, that applies the Index's findings on the criticality of economic engagement to the IT Sector. This report examines the level of IT sector growth in the 14 post-Soviet countries and makes several important findings.

In Belarus, as well as in other post-Soviet countries, the role model for success is undergoing a profound change. In the 1990s, the model was to take control of state assets (often using criminal means); in the early 2000s, the model to become involved in the production and trade of oil, gas and other natural resources. But the success model of the 2010s is increasingly to become a software engineer or an IT-entrepreneur.

In addition, due to the work ethic that IT professionals in region acquire, they have contributed to global economic growth. Effective cross-cultural communication with foreign colleagues has enabled them to absorb best practices of Western corporate culture.

In order to continue to build a middle class in Belarus and in other post-Soviet countries, it is imperative to create a critical mass of citizens who are dependent on themselves for their own prosperity and for whom such reality is a natural and conscious necessity.

For many years there has been an unspoken agreement between the elites of the post-Soviet countries and their population – “loyalty in exchange for food”.

Today, when oil and gas prices have hit their low points and will most likely not rise again, most of the leaders of the post-Soviet countries have faced an unfamiliar challenge – how to fill the budget and feed the population?

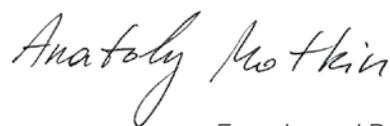
This is why today we have a unique opportunity to accelerate the process of middle class growth and law-based institutions in post-Soviet countries first economically and then, ultimately, politically.

The Belarusian example can demonstrate to the other post-Soviet leaders that the innovative transformation of the economy allows them not only to create new jobs, new companies and a higher tax base, but also to reduce their economic dependence on neighbors.

Our task is to cultivate this aspiration in them and to help the post-Soviet countries become part of the Western ecosystem.

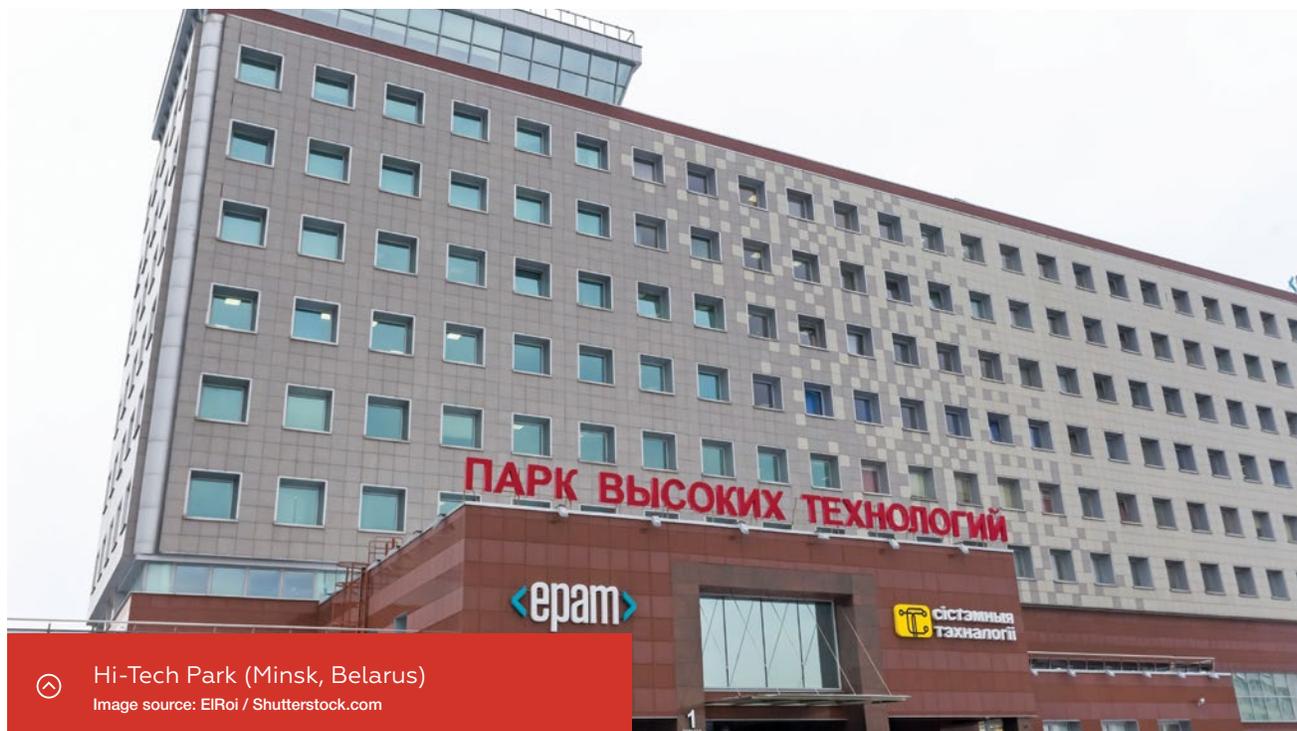
This mission is entrusted not only to leaders of the Post-Soviet nations, but also to those US and Western leaders of the IT sector who are changing the political and economic landscape across the globe. With global influence comes global responsibility.

Today, there is a unique opportunity to help democratize the Post-Soviet region through economic and commercial engagement, particularly in the IT sector. I urge that this opportunity be seized.



Anatoly Motkin
Founder and President, StrategEast

THE HISTORY OF THE BELARUSIAN “SILICON VALLEY”



More than one billion people in 150 countries around the world use mobile applications created by the residents of the Belarus High Technologies Park. It is here, in the Belarus Hi-Tech Park, where World of Tanks, MSQRD and Viber have been developed. The Hi-Tech Park has every right to be called Belarus's Silicon Valley. Belarus itself rightfully deserves the reputation of the leading IT state of Eastern Europe.

Software developed by the residents of the Hi-Tech Park is used by global corporations including automotive majors Peugeot (France) and Mitsubishi (Japan), media holdings British Telecom (Great Britain), T-Mobile (Germany), Reuters (Great Britain-USA); fuel and energy corporations British Petroleum (Great Britain), Rosenergoatom, RAO UES, the London Stock Exchange, the World Bank, Deutsche Bank, the Central Bank of the Russian Federation and global manufacturers of consumer goods such as Coca-Cola, Procter & Gamble, Colgate Palmolive (USA) and Samsung (Korea).

Belarus has supported software development for the past twenty years. However, the starting point for the development of Belarus's IT sector was September 2005,

when President Lukashenko passed a Decree on the High Technologies Park establishing a legal framework for the successful operation of the Belarusian “Silicon Valley” and attracting investments into the software development sector.

In 2017, export of services of the High-Tech Park exceeded one billion U.S. dollars for the first time in history. In connection with this milestone, Vsevolod Yanchevskiy, the director of the Park, told BelTA, “We have crossed the psychological threshold. In 2016, the value of the Park's exports was 820 million USD. In 2017, it grew by 25 % and exceeded 1 billion USD for the first time in history. Also, it was the first time that the total production value had exceeded 1 billion USD by demonstrating the growth of 20 %.”¹ That same year, 5,160 new jobs were created at the Park, and by the end of the year resident companies employed 32.6 thousand people.

Unlike the majority of European and Asian hi-tech parks, the Belarus Hi-Tech Park is a virtual park; meaning, the legal status granted to the High-Tech Park covers the entire territory of the Republic of Belarus. You can register as a resident and enjoy all the benefits afforded by the High-Tech Park regardless of the actual location

of the office of your Belarusian company, which could be either a big city or a small town. Such an arrangement allows utilizations of the educational, scientific research, professional and infrastructural potential of the entire county to the fullest extent.

The High Technologies Park is the only organization in the state that has the right to grant tax benefits on a regular basis. Resident companies enjoy considerable state aid: they are exempt from the majority of taxes, including value-added tax and corporate income tax. Moreover, employees of the resident companies receive 30 % discount on personal income tax as compared to other industries ².

The Hi-Tech Park actively supports IT education and innovative entrepreneurship. The resident companies operating within the framework of the Hi-Tech Park participate in eighty joint laboratories and universities in Belarus. The Hi-Tech Park resident companies established the Educational Center for retraining older people who would like to start a career in the IT industry and also for upgrading skills and knowledge of employees of IT companies. In 2016, 1,629 people attended courses at the Educational Center, and 340 of them received jobs at Hi-Tech Park companies. Also, there is an iTeen Academy functioning at the Education Center that caters to the needs of children ages six to fifteen ³.

Alongside the extra-territorial registration of its resident companies, the High Technologies Park occupies around fifty ha of land used to build auxiliary infrastructure. Nowadays, the Park's territory is the materialization of an idea of a high-tech city whose residents live, work and relax in a comfortable environment. A residential neighborhood comprises of several multistorey buildings, a day childcare center and a primary school. A business and education area hosts business centers, offices of IT companies, a dormitory for students of the IT Academy, and hotels. It is expected that branches of the High-Tech Park will be established at regional centers of Belarus.

On April 30, 2017, Ernst & Young published a report of the most detailed and independent evaluation of the operational results of the High Technologies Park, entitled, "The IT Industry in Belarus: 2017 and Beyond". Let's cite the most interesting facts about the Belarus High-Tech Park presented in this report ⁴:

1. Hi-Tech Park residents supply software products and IT services to 67 countries globally in 2016. 49.1 % and 43.1 % of exports are going to Western Europe

and the USA respectively. The share of CIS countries in total exports has shrunk from 10.7 % to 5.3 % amid a 43 % drop in exports to Russia in 2016.

2. 51 % of the respondents surveyed by Ernst & Young indicated that the size of the domestic market is the least important factor for the development of IT companies. 38 % of the respondents believe that it has a negative rather than positive (8 %) impact on the industry's development.
3. IT products and services is the fastest growing segment of the economy in terms of revenues and exports. Exports of computer services surged by a factor of 36 over 12 years to reach 956.8 million USD in 2016.
4. Belarus's IT industry is taking on strategic importance. ICT accounts for 10.5 % of GDP in the service sector and 5.1 % of total GDP. IT services are making up 3.2 % of total exports.
5. Foreign direct investments in HTP companies reached 169.2 million USD in 2016. They account for a relatively small share in total foreign investments in the sector because most HTP residents use their own profit to drive organic growth rather than seek external investments.
6. Technology companies have set up 52 joint laboratories in 15 educational institutions.
7. An employer's tax expenses are the highest in Belarus (727 USD on a salary of 2 thousand USD) and the lowest in Ukraine (349 USD). As for the expenses of employees, the highest taxes and deductions from salary are in Latvia (644 USD) and the lowest in the Russian Federation (260 USD). However, Belarus and Russia have introduced measures of government support to stimulate the IT industry. Under these regimes, Belarusian Hi-Tech Park residents have clear benefits: they pay 233 USD of taxes from 2000 USD salary, and their employees pay 200 USD of tax. The measures of government support provided to Hi-Tech Park residents thus substantially enhance an employer's competitiveness in terms of sales and on the labor market.
8. Just five years ago, it was hard to find developers with any proficiency in English, whereas now the majority of highly qualified technology specialists can speak English.
9. According to an "accelerated development" scenario, Hi-Tech Park companies will have a workforce of around 40 thousand by 2020, and their revenues will reach 1.45 billion USD.

THE OVERVIEW OF THE IT INDUSTRY IN OTHER PSNR STATES

BALTIC STATES

ESTONIA

The first e-State in Europe

The Estonian IT sector employs about twenty thousand highly qualified employees who constitute 9.3 % of the total workforce. High technologies account for 6.8 % of the total GDP, and the share of IT products in exports is 14.2 %. Estonian companies have clients in more than 120 countries around the world ⁵.

Estonia can be justly considered the state with the most developed IT sector among all the post-Soviet states. This is attributed not only to the exports achievements of the Estonian IT but also to the fantastic size of the domestic market. Estonia declared itself an “electronic state” quite a while ago and took enormous effort to convert the entire state mechanism into an electronic format.

AS A RESULT, TODAY:

- 99.6 % of bank transactions are performed online;
- 96.3 % of tax returns are filed in an electronic form;
- 95 % of medical records are stored in an electronic form;
- 98 % of medical prescriptions are given online;
- by 2020, all study materials will be made available online;
- 20,735 people received e-Residency ⁶.

The last line merits a separate explanation. Estonian electronic residency (also known as virtual residency or e-residency) is a program launched by Estonia

on December 1, 2014. This program allows non-Estonians to receive electronic access to company registration services, banking services, payments processing services and to pay taxes. E-residents receive a smart card that can be used to sign documents. The program is targeted at entrepreneurs whose operations do not depend on a certain location, for instance, at software developers.

The Estonian IT sector quite quickly pivoted from outsourcing to the production of its own products.

Skype is the flagship product created by the local IT industry. In addition to being a symbol of success achieved by Estonian IT, Skype gave impetus to numerous new startups. The large portion of the proceeds from the sale of Skype to Microsoft went to Ambient Sound Investments (ASI), an investment fund established by the Estonian engineers employed by the company. According to some estimates, approximately half of the existing Estonian startups in the ICT field obtained their starting capital from ASI. In addition to money, the fund invested the experience and knowledge of its founders. In fact, they became mentors and teachers for a new industry.

Thanks to its high-quality legislative framework, Estonia remains the state that has a considerable potential for the development of IT. Red tape is almost non-existent in Estonia. Local residents can register a company in a mere fifteen minutes and file tax returns in a matter of few minutes ⁷.

Internet access is a basic human right in Estonia. Estonia is considered one of the most wired countries in the world. It was the first state that permitted online voting during presidential elections while staying at home. Here, you can do almost everything online: register a company, file a tax return, or pay bills.



However, the Estonian IT industry has hit its ceiling. The local workforce capacity is almost exhausted.

Moreover, the growth of the average salary in the state resulted in local programmers becoming too expensive for the industry. Managers of large IT firms claim that in order to develop business, they are forced to create more new jobs outside Estonia, local resources are insufficient and too expensive. Although just a few years ago, Nortal AS – a software development company – used to employ more than 600 employees, by the end of the last year this number dropped below 500⁸. According to the company's director, Priit Alamae, Estonia is a very important market for Nortal, but more than half of the company's employees are already located outside Estonia. "This proportion is likely

to continue increasing as the potential for growth on the Estonian market is limited due to objective reasons," admits Alamae.

Almost one third of 250 employees of Helmes, an international software consultancy company, work outside Estonia. "Our clients are spread over the world, while our employees are mainly located in Estonia and Belarus", comments Jaan Pillesaar, the Chief Executive Officer at Helmes. The number of the company's employees has been growing from year to year. In recent years, forty to fifty new employees joined the company annually. Today, Helmes tends to employ from outside Estonia. "The level of salaries on the Estonian domestic market combined with the employer's expenses in connection with taxes have created a situation where it is cheaper and easier to hire developers located, for example, in Spain or Portugal", claims Pillesaar⁹. He noted that the Estonian tax system creates barriers for global IT firms, "We are leaving Estonia bit by bit and opening offices in the states where 80 % tax burden does not fall on IT services¹⁰."

LATVIA

Focus on foreign specialists

The Latvian IT industry has been steadily developing. The volume of exports of IT services and information technology from Latvia is growing rapidly: in 2017 it grew by 24 % and reached 425 million euros. The wages in the IT sector are also growing rapidly. In 2017 the average wage in the industry was 1,703 euros per month. This is 84 % more than the average salary in the country. The top ten employers, who paid the largest labor tax in 2017, included two IT companies: Evolution Latvia and the Latvian branch of Accenture. Despite the fact that the volume of exports of ICT services in Latvia does not represent an impressive figure, IT exports in Latvia in 2017 outstripped two other traditional segments: the export of financial services (370 million euros) and railway transportation (291 million euros) ¹¹.

Workforce shortage is becoming the main challenge to the Latvian ICT market.

Among the EU countries, Latvia ranks fourth lowest by the share of ICT professionals on the labor market, with IT specialists making up just 2.2 % of the market ¹². According to the Central Statistical Bureau of Latvia, approximately twenty-two thousand specialists are employed in the IT sector.

Domestic higher-education institutions fail to train a sufficient number of young professionals. On average, a person works in the position of a specialist for about twenty years. To satisfy market demand, at least one thousand specialists must graduate each year. It has never been the case in Latvia ¹³ where in 2016 only 656 specialists graduated. According to estimates, by 2022 this number will reduce to 622 ¹⁴.

According to the assessments made by the national IT Association, Latvia requires twice as many IT specialists as are currently engaged in IT sector of the country. To address the problem, the IT Association launched a joint pilot project with the Ministry of Education, which will teach programming in schools. This step might reduce the number of students who enter and then drop out from universities.

The second option for supplying workforce to the labor market is attracting foreign specialists. In February 2017, the Saeima (Parliament) of Latvia passed a law on “startup visas”, which allowed foreigners residing outside the EU to apply for a three-year visa if intending to develop innovative products in Latvia. It is expected that about fifty companies will avail themselves of an opportunity to employ foreign labor on an annual basis.

On November 23, 2016, the Parliament of Latvia adopted the law supporting startups. The new law, drafted by the Ministry of Economy of Latvia and the Latvian Startup Association, offers preferential tax treatment for up to five years to “new companies creating unique and innovative products”. The preferential tax treatment includes:

- a “flat” tax rate of 252 EUR per person with monthly salary of up to 4,050 EUR to ensure minimum coverage of social contributions. If an employee receives bigger salary, than additional “solidarity” tax applies; or
- tax treatment where all social contributions and taxes payable by an employee are actually paid by the state, and an employee is granted a full social package. This option can apply to highly qualified professionals who have more than five years of professional experience or an academic degree.

TO QUALIFY FOR AN INCENTIVE PROGRAM, THE STARTUP SHOULD:

- create innovative products or services;
- exist for at least five years;
- generate revenue of at least 200 thousand EUR during the first two years after the registration; and
- not pay dividends ¹⁵.

Furthermore, each startup should raise financing of at least thirty thousand EUR, which guarantees the performance of an idea and the ability of founders to promote the product. It is expected that the new law will ensure the registration of at least twenty new hi-tech companies and create up to 120 new jobs for qualified specialists ¹⁶.

LITHUANIA

Invites existing business projects to relocate

In a European context, Lithuania stands out with a considerable percentage of persons who received high education in IT (81 %), second in the EU, after Ireland. According to statistical data, states that have the highest percentage of IT specialists on their labor markets, the majority of employed specialists do not have proper education in the IT sphere. For instance, in Estonia and Sweden, the share of such specialists exceeds 40 %¹⁷.

The small population of Lithuania is a natural impediment to the organic growth of the country's IT industry. For this reason, the state supports the relocation of foreign companies with existing IT projects. To attract foreign IT players, the Lithuanian government actively builds new offices, provides relocation support, and makes efforts to create a technological community where startups and investors will get an opportunity to exchange ideas and establish dialog. The state prides itself on the world's fastest public Wi-Fi and the highest broadband connection speed¹⁸.

According to Invest Lithuania, twenty-nine IT companies chose Lithuania over the period from 2013 to 2016, which is twice as many compared to the 2011-2013 period. Google, Uber, Revel Systems, Game Insight, Charlie Oscar and other companies either transferred their business to Lithuania or established IT development departments, R&D, or marketing services here¹⁹.

The most important element of this story is that the state's government is interested in attracting as many IT startups as possible and engages agencies that promote investment attractiveness of the state.

The Lithuanian venture market is relatively small and does not exceed 100 million EUR. In Lithuania, not only game development and programming are well-developed, but also biochemistry, physics (specifically, Lithuanian lasers and transistors are well-known) and mathematics. The financial sector is on the rise as well: Western Union, Barclays and NASDAQ opened their representative offices in Lithuania. Moreover, NASDAQ office in Vilnius became the main representative office of the company on the Scandinavian and Baltic market²⁰.

The Lithuanian labor market is represented by 1.5 million specialists. There are about 11,200 programmers in the entire Lithuania and 6,300 of them are located in Vilnius.

The Lithuanian government actively supports business and also invites foreign companies and capital. A focus is made on the creation of new jobs. Lithuania welcomes teams that:

- will export their products and services while staying in Lithuania;
- view Lithuania as a springboard for entering the European market;
- plan to extend their business by hiring Lithuanian specialists²¹.

The Lithuanian state finances the companies that provide support to local and foreign entrepreneurs: Enterprise Lithuania and Invest Lithuania. The first company focuses on startups (up to medium business) and on supporting Lithuanian exports. The second company works with well-established businesses (for instance, it assisted a Lithuanian office of Barclays to establish themselves in Lithuania) and is the first contact point for companies arriving in Lithuania.

According to Invest Lithuania Management, they are going to run a nationwide project of business "counsels", i.e. professionals who will help entrepreneurs to launch their business. The idea is that young businessmen in small towns do not have an opportunity to consult and receive advice, and this initiative should open new doors to those who doubt their abilities.

The state refrains from providing direct aid to business (including startups). This is due to the fact, that under EU law the state cannot finance the development of commercial prototypes. However, an indirect aid

is provided. Moreover, it is easy for a project to obtain support on its early stages. For instance, Enterprise Lithuania supports projects up to the stage of a commercial prototype²². Actually, it is a common practice for many Lithuanian startups: they develop a minimum viable product (MVP) and then seek financing elsewhere, for instance, in London. An answer to the question, what does the Lithuanian government get from this, is quite simple: **even a startup hires people and pays taxes during a year and also develops a local community.**

There are four venture funds already operating in Lithuania. Their establishment was supported by European JEREMIE Initiative: Practica Capital; Business Angels Funds I; BaltCap and LitCapital. Such venture companies as Nextury Ventures also cooperate with startups and invest in business ideas.

IT projects also receive support from major startup accelerators, such as Startup Highway and Startup.it. To gather IT startups, investors, accelerators, entrepreneurs and artists under one roof, the Vilnius Tech Park – a hub for startups and Lithuanian IT companies – was opened in Sapiegos Park²³.

THE FOLLOWING BELARUSIAN BUSINESSES HAVE FOUND THEIR HOME IN LITHUANIA:

- JetCat Games – a game developer studio established in Vilnius in 2014 that raised investments of 100 thousand EUR;
- Game Show – the largest cyber sports operator in Europe, Middle East and Africa, and soon coming to the CIS states, that in late 2015 relocated its game broadcasting production studio (due to logistics reasons) and transferred its team from Belarus and Russia;
- Promwad – a Belarusian bespoke electronics and software manufacturer for major companies;
- Gamelnsight – one of the global leaders developing free games for smart phones, tablets and social networks that opened its office in Vilnius in 2014 with a view to entering the European computer games market²⁴.

EASTERN EUROPE

UKRAINE

Development without the state's involvement

Among all post-Soviet states, it is Ukraine, with its more than 40 million population, that is the leader in IT service exports in absolute terms.

A 2017 industry report on the 2017 results and 2018 forecasts published by IT Ukraine, a Ukrainian association that joins together more than fifty domestic IT companies, notes that thirteen Ukrainian companies are among Top 100 world-class developers, and more than 100 Fortune companies choose Ukrainian IT services²⁵. According to the calculations made by the association, exports of IT services grew from 3.0 billion USD in 2016 to 3.6 billion USD in 2017; the share of the IT exports in the GDP was 3.34 %, and the companies operating on the domestic market paid 16.7 billion UAH (640 million USD) in taxes. The association expects that in the current year exports will reach 4.5 billion USD, and this indicator will hit 5.4 billion USD by 2020 and rise up to 8.4 billion USD in 2025 (by that time the IT share in the GDP will reach up to 4.65 %, and the value of tax paid will be 46.1 billion UAH (1.75 billion USD)²⁶.

From 2011 to 2016, the number of Ukrainian IT specialists rose by 144 %, and at the moment there are about 116 thousand qualified specialists on the market. And there is more to come. By 2025, the number of specialists is expected to reach about 242 thousand. Presently, 72 % of Ukrainian IT specialists are male; average age – 30 years; average salary – 1.6 thousand USD²⁷.

Top-5 specializations: Software Engineering, Testing, Test Automation, Application Support and Architecture. Top-5 Ukrainian IT cities: Kyiv, Dnipro, Lviv, Kharkiv, and



Lviv IT Cluster team (Lviv, Ukraine)

Image source: <https://itcluster.lviv.ua/>; <https://itarena.ua/>

Odesa. Top 5 universities: Kyiv Polytechnic Institute, Dnipro National University, Kyiv National University, Kharkiv National University of Radio Electronics, and Lviv Polytechnic National University ²⁸.

A conceptual difference between Ukraine and the majority of post-Soviet states is that the state is barely involved in the development of the national IT industry. Even those few incentives that were introduced to promote the industry growth have been subsequently revoked. Earlier, the Ukrainian Tax Code provided that IT companies may pay corporate income tax at a reduced rate of 5 % subject to their special registration with tax authorities. However, just few IT companies availed themselves of this opportunity as they were afraid of becoming a subject of undesired “monitoring” by the state.

However, Law of Ukraine no. 71 on Changes and Amendments to the Tax Code of Ukraine and some Ukrainian laws and regulations in connection with a tax reform dated 28 December 2014 canceled this tax relief for IT companies. Meaning that since 01 January 2015 IT companies have been paying corporate income tax at the standard rate of 18 % ²⁹. In December 2017, the Ukrainian government adopted the Concept of the Development of Digital Economy and Society until 2020. However, IT market players

are skeptical about the impact of this document on the development of the IT industry due to its declaratory character.

While central Ukrainian authorities fail to pay any considerable attention to the IT industry, some municipalities support local IT business. In particular, the hub of IT development in Ukraine is the Lviv IT Cluster, a community of leading information technology companies, which, together with universities and local authorities, improve and develop IT throughout the city. This group took a lead to conduct systematic changes in the business environment of the city and the country. The activity of Lviv IT Cluster is one of the priorities throughout Lviv City competitiveness strategy. According to the Cluster’s administration:

“We see Lviv as a European city that Ukrainian and international companies from the information technologies sphere select for the effective development of business. Lviv is a city with the highest quality of education in Ukraine, the city of comfortable life, professional growth opportunities, the city of new technologies development and progressive ideas realization. We are engaged in promoting the city, showing it as a city of opportunities for career growth and business. Lviv is comfortable city to live and work in. Furthermore, each year more and more IT professionals

are choosing Lviv to build their future, and more and more companies from other regions of Ukraine and from abroad open offices in Lviv”³⁰.

THE MAJOR CLUSTER PROJECTS INCLUDE:

- IT Arena conference was held for the first time on 2–4 October 2014 and covered the most promising and edgy areas of IT industry. The success of the conference made it an annual event.
- Lviv IT Tour – traveling IT conferences that are designed to promote cooperation and exchange of experience between IT specialists from different cities. Initially this project visited cities of Western Ukraine: Lutsk, Ternopil, Rivne, Chernivtsi and Ivano-Frankivsk. In 2017, during a 6-day tour, Lviv IT Cluster visited six cities: Vinnytsia, Odesa, Mykolaiv, Mariupol, Dnipro, and Kharkiv³¹.

MOLDOVA

The first steps and US aid

In 2016, the volume of the IT sector sales was 10,452 million MDL (about 500 million USD), which is 21 % higher than in 2015. These numbers were presented by Vitalii Tarlev, Deputy Minister of Information Technologies and Communications during Moldova ICT Summit 2017. Deputy Minister Tarlev stated that the IT sector is one the most developed and dynamic sectors in Moldova’s economy. It accounts for about 7 % of Moldova’s GDP³². Today, the industry provides jobs for twenty-two thousand specialists.

Moldova adopted the Law on IT Parks to promote the export of the IT products. A center for best practices and innovations – Tekwill – was opened in March 2017 to provide support to aspiring entrepreneurs and education to everyone willing to receive training. “In five years, hundreds of young people will not consider emigrating from Moldova, more than 100 international companies will open their representative offices here, and the directors of at least five firms when giving an interview to Forbes will say that they have earned their first million thanks to Tekwill – an excellence center of IT innovations that opened in Chisinau”, stated Irina Strezhesku, President of the Moldovan Association of Information and Communications Technology Companies (ATIC). ATIC expects that Tekwill established by the Association will take to a new level not only the IT industry but the Moldovan economy in general³³.

James Pettit, the U.S. Ambassador to the Republic of Moldova, in his speech during the Tekwill opening ceremony, noted the response from American people as the reason for the issuance of an USAID grant of two million USD to support the development of Moldovan IT sector. Ambassador Pettit also noted the involvement of two American companies – IBM and Microsoft – that will bring modern knowledge and state-of-art technologies to Tekwill³⁴.

Signe Burgstaller, the Ambassador of Sweden to the Republic of Moldova, underlined the importance of filling the Center with innovative content. In her opinion, Tekwill could give impetus to the development of other industries, as the center will provide a platform for sharing knowledge and ideas, which would boost the economy in general. Sweden also intends to finance a program aimed at engaging young girls and women in the IT sector³⁵.

The Moldova government pins its hopes on the center. Prime Minister Pavel Philip considers the IT sector a preferred industry that produces products with high added value that could become a real driving force for the economy. During his presentation at the Tekwill opening ceremony, the Prime Minister stated that people with their talents and abilities are the biggest value for Moldova, and Tekwill will provide an opportunity for development. In Philip’s opinion, the center should become a bridge between the knowledge a student receives in university and requirements of the modern labor market.

Moldova actively attracts international investors to develop its IT industry.

In February 2017, the Parliament of Moldova passed a special bill granting special treatment to the investors in the IT sector, so they can continue working in the country without a temporary leave to remain. The bill also introduces a number of amendments to the Law on the stay of foreigners in Moldova, and the Law on Labor Migration that detail a legal status of foreigners that occupy top management positions, investors, and highly qualified specialists in the sector of information technologies. Under the new law, such persons can work on the territory of Moldova without a temporary leave to remain.

As Andrian Kandu, the speaker of the Moldova Parliament and the author of the bill, noted, the simplification of the legal framework for the stay of this category of foreign nationals in Moldova will enable transnational corporations including startups to use and develop human resources. According to the Moldovan politician, a good example is given by Ireland and Lithuania. To support the development of the IT sector, including startups, the state created an efficient legal framework allowing granting visas to investors in the IT sector, highly qualified IT specialists and members of their families, both from the EU and elsewhere³⁶.

This bill was drafted in the context of adoption of the Law on Information Technologies Parks. According to the data of the State Registration Chamber of Moldova, the share of companies wholly or partially owned by foreign investors in the IT sector is about 1 % of the total number of companies with domestic capital (in developed countries, this indicator is about 45 %)³⁷.

At the end of December of 2017, the Government of the Republic of Moldova passed Resolution no. 1144. This document approves the Regulation on the establishment of the Moldova IT Park. From January to February 2018, more than fifty members of the Moldova IT Park were registered³⁸.

To obtain IT Park residency, an applicant should execute at least a four-year contract with the management of the Park. As a result, IT Park residents receive the right for a unified tax that covers:

- corporate income tax;
- tax on the personnel's salary;
- mandatory social insurance contributions;
- mandatory medical insurance contributions;
- local taxes;
- real property tax;
- tax on automotive vehicles registered in the Republic of Moldova ³⁹.

During the first year of operation, the entrepreneurs engaged in Tekwill programs were able to raise more than one million USD of financing. Eighty startups

received support, eighty-five companies hired new employees or upgraded skills of their personnel. In total, about 8,000 people attended various trainings organized under the framework of the Center ⁴⁰.

SOUTH CAUCASUS

GEORGIA

Focus on international donors

Since 2013, the World Bank has been providing support to the Georgian government and private business in promoting the innovative growth of the key sectors of the economy. Georgia's Innovation and Technology Agency (GITA) was established to provide advice on politics, transfer knowledge, and build up potential. GITA's objective is to promote innovative entrepreneurship, support innovations, and commercialize research results in private and public sectors.

The Georgia National Innovation Ecosystem (GENIE) Project will supplement the current activity of the World Bank Group.

The Tech Park – an IT platform established by the GITA and located in the suburbs of Tbilisi – will host an ecosystem of innovations and technologies, attract foreign investments and support Georgian talents to attain worldwide success. In terms of infrastructure, it joins together small incubators, training centers, laboratories equipped with state-of-art equipment, a library, show rooms of world-famous technical companies, and office space.

Tech Park offers a wide range of opportunities for education: PHP, Python, Java, Android, Frontend, iOS, Project Management and UX/Design. The age of students is not an impediment. Here, you could meet both an eight year-old child programming a LEGO robot, and an elderly professor sharing his experience with the youth. The encouragement of so-called “future professions” is aimed at creating new jobs and opportunities in the state ⁴¹. The success of the project has already been proven by the trade fair where the products created by startups supported by the Tech Park were sold.



Tech Park (Tbilisi, Georgia)

Image source: <https://www.gita.gov.ge/>

Georgian youth receive professional training for work in the IT sector from Ukrainian specialists.

In 2014, the government of Georgia made a strategic decision to increase the number of IT specialists up to 40,000 by 2020 ⁴². To implement this project, the Ministry of Economy and Sustainable Development of Georgia chose SkillUP – an IT training center from Ukraine. This center won an international competition against rivals from Canada, Israel, Russia and Belarus. The Ukrainian company implemented a large-scale project to develop information technologies at the request of the Government of Georgia.

Specialists that were trained within the framework of the governmental program of the development of the IT sector in Georgia received international certificates. The certificates were awarded during a ceremony held at the High Technologies and

Innovations Development Center. More than 135 IT trainers and specialists received training, and 52 of them have already started teaching in schools, universities and other educational centers in Georgia. It is expected that during the first year, these graduates will train 3,500 IT specialists in eight most demanded, export-oriented IT fields (Java, FrontEnd, iOS, Android, PHP, Python, UX/Design and Project Management). The graduation party was opened by Irakli Kashibadze, the man behind the project and the GITA chairman ⁴³. A unique training program for preparing IT specialists was presented at the party.

This program was developed by Evgenii Makarenko, the best expert in the creation of IT training centers in the Eastern Europe. “During five years, we and the team from the Ukrainian training center SkillUP have been engaged in developing a new system for training IT specialists. This system is notable for its results in guaranteeing employment for graduates, 92 % of whom have already found jobs in their field”, commented Evgenii Makarenko at the event of Georgia's Innovation and Technology Agency in Tbilisi ⁴⁴.

“This result is achieved through the combination of two formats of education. The first one envisages the training by a practicing trainer working at an IT company. He teaches all the necessary theoretical and practical skills. The second format includes the coaching on psychology of reaching aims and objectives. Experienced trainers who work in IT companies and HR specialists with the market’s leading companies help people reach their goals. This combination provided us with 92 % employment rate. We came to Georgia with our own training methodology and brought with us our trainers. While during the first project we provided training in six fields, the second project included eight areas of specialization. During the first program we prepared 52 trainers, and 120 trainers graduated from the second program”, commented Mr. Makarenko ⁴⁵.

Training was provided by the best IT specialists from Ukraine within very tight time frames. We had to work 18 hours each day. During the month we stayed in Georgia, we selected the most talented people who wanted to participate in the program and who were capable to become IT trainers. 3,000 people who have knowledge of information technologies and have higher education participated in a competition. Our first graduates are already teaching at the best technical universities and other educational centers in Georgia. We introduced three new disciplines that had not been taught in Georgia. They are used in the leading US universities and are advanced technologies both in Georgia and Ukraine. This system is called Blended Learning.

This methodology will enable Georgian trainers to teach people wishing to become IT trainers even in the remote towns in Georgia, including by way of distance learning. According to the terms of the agreement signed by our graduates, each of them has to train 40 specialists. Our new graduates have to train more than 3,500 people during the first year of their employment. People who completed this program became highly qualified programmers, project managers in the IT sector, designers. In Georgia, our SkillUp training centers have already completed two programs for “turn-key” training of IT specialists. We are ready to apply our knowledge and experience in other countries wishing to develop the IT sector that brings additional investments to these states: Moldova, Azerbaijan, Belarus, Kazakhstan, and Iran”, summarized Evgenii Makarenko ⁴⁶.

The development of the Georgian IT sector is also supported by the European Union. The second phase of E-Twinning program envisaging the cooperation between ICT institutions of different states was launched in Georgia. The project is implemented by the Estonian-Italian consortium and the Georgian Data Exchange Agency of the Ministry of Justice; financing is provided by the EU. The eighteen-month long project will receive financing of 1.3 million EUR. The program’s objective is to develop electronic governance, efficient communication between people and state services, improve the awareness of the population and establish long-term cooperation in the area of information technologies.

Foreign specialists from the consortium comprising the Estonian E-Governance Academy and Italian company CSI Piemonte will provide consultations, trainings, and seminars for employees with the Data Exchange Agency. As was noted by Estonian Minister of Foreign Affairs Marian Kaljurand, Estonia benefited considerably from the introduction of e-governance in the state. The Minister expressed the readiness to share the experience with Georgia.

“E-governance helped us to implement reforms quickly and efficiently. I can state that thanks to e-governance Estonia established itself as a democratic and modern state with transparent governance governed by the rule of law. Georgia has already made significant progress in the field of information technologies. I hope that the project and the experience of Estonian experts will drive Georgia even further in the field of ICT”, said Marina Kaljurand ⁴⁷.

The project is comprised of five components and envisages cooperation in several areas, such as the development of e-governance, the creation of client-oriented services and improvement of Georgian laws and regulations in line with EU law. Irakli Gvenetadze, the Chairman of the Data Exchange Agency at the Ministry of Justice of Georgia believes that E Twinning will help formulate and implement a strategy for the further development of e services in the country.

“The European Union is actively involved in the development of e-governance in Georgia. We appreciate the aspirations of our donors and partners to help Georgia develop the sector of information and communication technologies. No organization,

institution or state can today function properly without ICT. This project is very useful for us. It gives us an opportunity to receive information about practices accepted in developed countries and establish close cooperation with our European colleagues”, said Iraklii Gvenetadze at the presentation of E-Twinning Programme ⁴⁸.

ARMENIA

Development supported by the Armenian diaspora

The Concept of the development of the information technologies sector adopted by the government of Armenia in 2008 sets out the following objectives of the Armenian IT sector: Armenia is striving to become a leader of the target IT markets and an advanced information society based on knowledge. To attain this ultimate objective, Armenia has to transform itself from an outsourcing state with a low level of IT services into the provider of advanced IT products and services, become an information society based on knowledge and a society relying on technical education, world-class information, communication technology and computer literacy.

Short-term strategic development (1–3 years) envisages the construction of world-class ICT infrastructure to support the development of the IT industry and build an information society in Armenia. Medium-term objectives (3–5 years) include strengthening the ICT infrastructure in Armenia, ensuring the presence of the Armenian “IT brand” on the world market, and market penetration. Long-term objectives (5–10 years) are to achieve full market penetration of the Armenian IT brand on the world market, in particular, target segments demonstrating rapid growth. All these objectives should foster further development of the ICT industry, increase the sector’s revenues and support the economy based on knowledge through the development of an information society⁴⁹.

When presenting the national digital agenda of the Eurasian Economic Union (EAEU) within the framework of the Digital Agenda in the Era

of Globalization Forum held in Almaty (the Republic of Kazakhstan) on February 2, 2018, Prime Minister of the Republic of Armenia Karen Karapetyan noted the development of information technologies in Armenia, commenting that,

in the past several years, this industry has been demonstrating annual growth of about 25 %. By the end of 2017, this indicator is expected to reach 28–30 %.

Six key areas of digital development of Armenia have been determined: digital government, cyber security, private security, institutional basis, digital skills and infrastructure. By 2030, Armenia plans to reach 100 % digitalization rate in G2B relations and 80 % digitalization rate of service provided to the population⁵⁰.

The volume of the Armenian IT sector increased 4.3 times between 2010 and 2017, as informed Karine Minasyan, the Minister of Internal Markets, Information Support and ICT during the session “The Republic of Armenia and EAEU: new opportunities and prospects” in Yerevan. This “is the best indicator in the national economy. The number of IT companies operating on the global market has grown 2.4 times since 2010 and reached 400”, informed Karine Minasyan ⁵¹.

The IT sector is a priority sector of the Armenian economy.

The share of the IT sector in the Armenian GDP is nearly 4 %. There are about 400 IT companies that provide jobs to about 15,000 people ⁵².

Influencers in the tech world are making efforts to strengthen ties between Armenia and the US. In March 2016, Triada Studios' Ara Aghamyan wrote to President Obama explaining the tech community's role in developing US-Armenian commerce. "He drew attention to the issue of double taxation that deters foreign investment and restricts growth for businesses that are based in Armenia", writes The Next Web columnist ⁵³.

Armenia's enormous diaspora means that there are actually more Armenians living outside of the country: there are between seven to ten million Armenians concentrated in Russia, the United States and France, in contrast to just three million within the country.

Cofounder of Inet Technologies, Sam Simonian and his wife Sylva founded TUMO Center for Creative Technologies – a free digital learning center in Yerevan that provides classes for around 5,000 twelve to eighteen year-olds interested in new technologies. Armenia boasts a number of innovative centers such as TUMO, launched as a result of international advocates and big partnerships ⁵⁴.

Former Twitter Vice President and current Uber CEO Raffi Krikoryan is also a member of TUMO Board. He is actively involved in the areas where support for new startups is required. "Honestly, if you are Armenian, I will probably want to help you", he said during an interview to Itel.am ⁵⁵.

In 2011, Microsoft launched the Microsoft Innovation Center in Armenia in partnership with the US Agency for International Development (USAID) and Enterprise Incubator Foundation (EIF). The center aims to enable IT growth by supporting students and startups. It offers programs such as coding boot camps, training courses, workshops, and startup acceleration schemes that include early-seed investment, helping to power a growing startup ecosystem ⁵⁶.

Entrepreneurs also benefit from a new emergence of enterprises such as the Center for Entrepreneurship and Executive Development (CEED), which this year launched the Armenia – US IT Acceleration Program with the EIF, the Government of Armenia, and the World Bank helping to connect new startups with global markets.

AZERBAIJAN

The state invests in startups

According to the International Telecommunication Union, Azerbaijan ranks sixty-five among 176 states in level of development of information and telecommunication technologies – the top position in this ranking among the South Caucasus states ⁵⁷.

Such high rankings are mainly achieved through direct investments made by the state in attractive startup projects.

In 2017, the State Fund for the Development of Information Technologies at the Ministry of Transport, Communications, and High Technologies of Azerbaijan issued grants to develop seventy-one ICT projects. One hundred seventy-two startups competed for the grant. Twenty-two of them were disqualified at the first stage. Following thorough assessment, the commission selected seventy-one projects out of 150 ⁵⁸.

The State Fund also attracts private investors. There is a community of private IT investors functioning at the Fund that supports and develops projects in the ICT sector. As stressed by Elchin Zeynalov, the CEO of the State Fund for the Development of Information Technologies, businessmen will be involved as shareholders.

In Azerbaijan, there is a strategy for the development of information and communication technologies for 2018–2021. The strategy is based on the national strategy for the development of an information society in Azerbaijan for 2014–2020, which was adopted earlier. The ICT development strategy envisages the upgrade of the industry regulatory authorities, liberalization of the telecommunications market, extension of the range of e services, formation of an e-government, integration of the state into the global information community, production of IT products, workforce training and strengthening of state information security.

The document also provides for the increase of investments in the sector. The implementation of the program for the development of telecommunication and information technologies is the responsibility of the Institute of Information Technology (IIT) of the Azerbaijan National Academy of Sciences (ANAS).

Reforms will be undertaken simultaneously in several areas. In particular, the IT will find jobs for graduates with degrees in IT. Furthermore, the institute has to assess the quality of education in this area and, if necessary, make suggestion on improvements. According to experts, the Azerbaijan ICT sector needs workforce capable of producing products and services meeting modern requirements.

The ICT industries of the Caspian bordering state will also see the improvement of regulations and development of entrepreneurship, in particular, in the creation of a favorable business environment. The other important issue is the security of the Azerbaijan information field that also covers the e-government.

CENTRAL ASIA

KAZAKHSTAN

IT accounts for one third of the GDP growth

In 2017, the Kazakhstan government adopted the Digital Kazakhstan Program providing, in particular, for the creation of an innovative ecosystem. The successful implementation of this program means that by 2022 there will be:

1. Manifold increase of the number of technological startup projects launched in Kazakhstan and their aggregate capitalization.
2. The private professional sector of venture capital capable of satisfying the demands of a fast-growing ecosystem.
3. Stories of Kazakhstan startups success on the international arena ⁵⁹.

Long-term objectives include the creation of all conditions necessary for the establishment of “unicorns” and smaller companies with considerable capitalization in Kazakhstan, and also the formation of the culture of technological entrepreneurship. To attain this objective, an institutional framework will be established, and efforts will be used to give a boost to innovations, venture financing and the development of technological entrepreneurship.

An innovative ecosystem will be established on the basis of the existing technology parks, venture funds, research and development organizations and universities, and newly-created Astana Hub – an IT startup tech park. This environment aims to create conditions for attracting ideas, technologies, digital solutions and talents from around the world, and engage Kazakh nationals that run IT projects abroad.

The innovative ecosystem established in the state will help increase the share of technologies originating from Kazakhstan. A regulatory environment will be established at the Astana Hub allowing transforming it into a point of attraction for innovations from Kazakhstan and the CIS states as well as other countries around the world. The Astana Hub will be incorporated into a system of international IT-clusters, such as Israel, California, Singapore, and Berlin, and become a bridge for the entry of Kazakhstan residents to global markets ⁶⁰. Furthermore, this initiative envisages the improved quality of the existing infrastructure for innovative development: incubators and accelerators of the Republic of Kazakhstan, and also adaptation of law including financial and tax benefits for startups and increased protection of intellectual property.

The Digital Kazakhstan Program will help create favorable conditions for bringing technology entrepreneurs, academics and other qualified personnel to the republic. Foreign entrepreneurs and technology specialists are the sources of specialist know-how required for the development of the local startup ecosystems. Their experience, research and development technologies, entrepreneurship and best practices can be shared by foreign specialists could accelerate the formation of the local startup ecosystem.

The possibility of introduction of e-residence for foreign nationals who for some reason refuse to receive a status of residents of the Republic of Kazakhstan allowing them doing business within the state will be discussed within the framework of the Program.



The future pavilion
of Astana Hub (Astana, Kazakhstan)

Image source: <https://astanahub.com/>

In addition, the state will create all the conditions necessary to stimulate transnational corporations to localize their products and test breakthrough technologies on the territory of Kazakhstan. With that in mind, a short list of the areas of technological developments will be prepared and any company from anywhere in the world will receive a legal opportunity to test such developments in a controlled environment, thus escaping a risk of breaching their national laws.

The development of innovations has yet another mandatory requirement: a non-governmental professional venture capital sector. Simultaneously with the development and regulation of private venture investments, the development and introduction of measures aimed at attracting professional venture funds to Kazakhstan will be required. A co-investment fund mitigating risks faced by private investors on the initial stage will be established on the basis of the Astana Hub for providing coordination and support to venture funds. Subsequently, according to Israeli experience, the role of this fund will be downgraded, and it will be replaced with private financing.⁶¹

In addition to professional financial organization, venture financing can be provided by large domestic corporations by establishing their own corporate venture funds. Such practice is typical for many global

telecommunication operators, technology companies, and second-level banks. The state could support the establishment of such funds through co-investing or providing other incentives.

In 2017, the budget of the state program was 12 billion KZT (36 mln. USD), and the state plans to spend 57.3 billion KZT (174 mln. USD) in 2018, 25.7 billion KZT (78 mln. USD) in 2019 and 37.9 billion KZT (121 mln. USD) in 2020. Finally, the budget for 2021 is 17.8 billion KZT (54 mln. USD). The estimated aggregate budget is 150 billion KZT (457 mln. USD).

Some 140 projects will be implemented within the Digital Kazakhstan Program, including forty-four projects to be undertaken by the quasi-governmental sector. The main portion, sixty-nine projects, will be financed by the state; seven projects will be implemented through public private partnership; four projects will be financed by international financial organizations; financing to nine projects will be provided by local authorities, and the remaining twenty-eight projects will be financed by private capital of the owners⁶².

According to the information guide of the Digital Kazakhstan Program, by 2021, the number of workforce employed by the ICT sector should reach 182 thousand. This sector's revenues are expected to account for 4.9 %

of the GDP. According to estimates made by the Ministry of Information and Communications, in four years the share of Internet users will reach 81 %, and computer literacy of the population will be 81.5 %⁶³.

Kairat Balykbaev, the Vice Minister of Information and Communications in his interview to Profit.kz talks about target indicators of the Digital Kazakhstan Program, “We engaged, among others, analytics from Boston Consulting Group to develop the program. The experts unconditionally agree that added value is created around the world exclusively through digitalization. In other words, other methods for improving labor productivity are not working anymore. Moreover, digitalization accounts for one third of the GDP growth in developing countries. We expect that this trend will become noticeable in Kazakhstan as well:

after 2025, one third of the GDP growth will be attributed to digitalization.

It means that with Kazakhstan’s GDP growth of 4 %, one third equals 1.3 %, and this is a very ambitious aim”⁶⁴.

UZBEKISTAN

Tax and currency benefits from the state

The Mirzo Ulugbek Innovation Center – an innovation center for supporting the development and introduction of information technologies – was established in accordance with the Decree of the President of Uzbekistan dated June 30, 2017 to promote the development of the national IT sector. Companies that became residents of the Innovation Center enjoy tax and customs benefits. As of December 1, 2017, 147 companies and organizations have a status of residents of the Innovation Center.

The Center operates on the basis on an extraterritoriality principle within the entire territory of the state, and its residents can be located anywhere in Uzbekistan. The Mirzo Ulugbek Innovation Center was established for a ten-year term, but this term can be subsequently extended.

The Center specializes in software development, design and development of information systems, resources and databases. The Center residents will also undertake information security projects. The Center will support startups. It will also engage in research and development in the IT field.

The founder of the Mirzo Ulugbek Innovation Center is Tashkent Inha University. According to the presidential decree, the key objectives of the Innovation Center are the following:

1. Creating necessary organizational, technical, financial and economic conditions for expanding the interaction between commercial entities and higher educational institutions in connection with production and sale of information technology products on the domestic and global markets;
2. Providing assistance to residents of the Innovation Center in attracting foreign investments for the implementation of competitive ICT projects on the domestic and global markets;
3. Participating in providing employment for graduates of higher educational institutions and professional colleges specializing in information technologies, including by providing support to talented young people with startup projects;
4. Organizing advanced training and retraining of personnel in the ICT field through short and medium-term specialized courses, including by inviting foreign specialists;
5. Providing support to aspiring entrepreneurs in the implementation of innovative projects aimed at the development of promising ICT products⁶⁵.

The Center residents are eligible for the following benefits and preferential treatment:

- exemption until January 1, 2028 from all taxes and mandatory contributions to state special-purpose funds, single social contribution, customs charges (except customs duties) on equipment, parts, details, units, technological documentation, software imported for own needs and not manufactured in Uzbekistan, in accordance with special lists; exemption from mandatory sale of a portion of currency revenues generated by the export of goods (services) produced by the residents;
- additional benefits for the Center residents’ employees whose salaries received before January 1,

2028 will be assessed for personal income tax at the fixed rate of 7.5 %, and personal contributions to the Pension Fund will be charged at the rate of 4.5 %. Furthermore, such income is not included in the aggregate annual personal income for tax assessment purposes;

- residents of the Innovation Center can use the revenues received in foreign currency from the export of goods (services) of their own making to pay salary to their employees and dividends on the territory of Uzbekistan by transferring funds to international payment cards, and also to sell goods and services for foreign currency through online shops to foreign customers without an export contract ⁶⁶.

The Center officially launched its operations on August 25, 2017. On this day, the administration of the Mirzo Ulugbek Innovation Center started accepting applications for a resident status from companies.

Uzbekistan plans to increase the share of ICT in the GDP up to 4 %.

According to Farhad Ibragimov, director of the Mirzo Ulugbek Innovation Center, their “aim is to increase the share of the IT sector in the GDP, which is currently 2 % to 4 % by 2021. For this, we have to take on certain tasks” ⁶⁷.

Google has become the first global company that announced its cooperation with the Center. Barish Yesugey from Google’s Developers Relation for Turkey, Caucasus, and Central Asia visited Tashkent. Tashkent Inha University and Google discussed cooperation in training IT specialists through joint training programs and support to startups.

A Google representative received information about the conditions and opportunities created at the university and discussed his plans to promote cooperation with programmers from Uzbekistan. He said that his team provides various assistance to developers from the region, including information and technical support. So-called Google Developer Groups (GDG) are responsible for facilitating cooperation in this field.

KYRGYZSTAN

The state starts walking the IT way

In Kyrgyzstan, the IT sector has just started developing in recent years. One prime example is the High Technologies Park (HTP), which in three years of its operations increased the annual turnover from one million USD to almost 3.5 million USD. These numbers are quite considerable for small Kyrgyzstan where an average monthly salary barely reaches 200 USD ⁶⁸. However, this is just the starting point in a long journey. The Park intends to become an intellectual hub of the Central Asia region.

Azis Abakirov, the chairman of the High Technologies Park, discusses the work of the Park, its achievements and plans for the future, “At the end of 2013 when we just opened, three companies immediately joined the Park. By the end of 2014, eight companies with sixty employees became residents of the High Technologies Park, and in 2015, thirteen companies with 111 employees became the residents of the Park. By the end of 2016, we have twenty-seven resident companies and 251 employees. In terms of financial turnover, in 2014, it amounted to eighty million KGS (about 1.16 million USD), in 2015 – 130 million KGS (1.884 million USD) and in 2016 – 241 million KGS (3.492 million USD). It means that every programmer earns revenues of almost one million KGS.

We are growing exponentially, and we enjoy it. However, we should not be complacent. Our task is to create fifty thousand jobs by 2030. To attain this goal, we have to increase our efforts. Our success should not make us complacent. We are currently engaged in other projects as well, such as an IT academy than opened last autumn. We are also planning to launch projects in the state’s remote areas as it is important to involve local guys in the IT sector. They can live and work from any location, all they need is Internet access.

By the way, we are also tackling this task and cooperate with the Telecommunications Operators Association to bring Internet to each house in the country ⁶⁹.”

The Kyrgyz Association of Software and Service Developers (KASSD) expands the network of IT academies throughout the state. Following the first successful graduation of the academy students

in Bishkek, the KASSD decided to open a similar educational center in Karakola and Osh. The first IT academy in Kyrgyzstan was opened on the basis of a vocational school in 2016 and has already graduated more than forty qualified professionals. Apart from certificates, graduates received an opportunity to find jobs at member companies of the KASSD.

TAJIKISTAN

IT development is on paper only

In the past several years, Tajikistan has adopted a number of laws and regulations governing the information and communications technology sector. As a result, the number of telecommunication operators increased more than twice and boosted the application of ICT in all areas of the country's life. There has been certain notable progress in the development of information infrastructure and implementation of projects and digitalization projects in the sector. The level of the ICT development that has been achieved in the state allows the government to start formulating a state policy aimed at the formation and development of the single information space in the Republic of Tajikistan.

PRESENTLY, THE DEVELOPMENT OF THE DOMESTIC IT SECTOR IS LIMITED TO NUMBER OF LAWS AND REGULATIONS:

- the Information and Communications Technologies for the Development of the Republic of Tajikistan National Strategy approved by the Decree of the President of the Republic of Tajikistan on 5 November 2003;
- The National Program for the Introduction of Information and Communication Technologies in Educational Institutions of the Republic of Tajikistan for 2018–2022;
- The National Program for the Introduction of Information and Communication Technologies in the Republic of Tajikistan for 2014–2017.

TURKMENISTAN

Getting ready to make the first step

Turkmenistan is the post-Soviet state that has the least number of contacts with the modern IT-community and where only 2 % of the population has internet access.

However, the Turkmenistan government has already started considering making efforts aimed at the development in this field.

At the government's meeting held on February 10, 2017, President Berdymukhamedov instructed the Academy of Sciences to prepare a new national program – Digital Turkmenistan. It is expected that the main objective of the program will be the development of information and communications technologies, increasing their role in the state's economy, and ensuring equal access to ICT for the entire population of Turkmenistan. In the opinion of President Berdymukhamedov, the implementation of the program will boost the introduction of innovative technologies in the industry by improving efficiency and competitiveness of the domestic products on the global market.

IT specialists will receive an opportunity to apply their talents as researchers working at the state's hi-tech manufacturing undertakings. Considering that today the IT industry specifically attracts Turkmenistan youth, the Digital Turkmenistan program will also help create new jobs for this age bracket.

At the government's meeting, the President issued an order to ensure that schools, vocational and higher education institutions should be provided with computer equipment and specialized teaching staff. The Ministry of Communications of Turkmenistan is already working on the upgrade of the information and communications financed by the grant of 273 million USD issued by the Islamic Development Bank. The Digital Turkmenistan program will allow realizing the high potential of the upgraded network by using its capacities in the most efficient manner.

PSNR IN THE GLOBAL INFORMATION TECHNOLOGIES REPORT

The development of the IT sector in the PSNR states can be considered an underresearched topic. The most comprehensive quantitative assessments of this sector development are presented in The Global Information Technology Report published by the World Economic Forum.

The Global Information Technology Report 2016 features the latest iteration of the Networked Readiness Index (NRI), which assesses countries' preparedness to reap the benefits of emerging technologies and to capitalize on the opportunities presented by the digital revolution and beyond.

In particular, the Report presents the results of assessment based on the factors, policies and institutes that enable countries to leverage ICTs for increased competitiveness and well-being and translate them into the global NRI of the country.

THE COUNTRIES ARE ASSESSED BY FOUR INDICATOR GROUPS:

- general environment for the use and development of technologies (political, regulatory, business and innovation environment);
- networked readiness in terms of ICT infrastructure, affordability, and skills;
- acceptance/usage by three stakeholder groups (government, business and individual usage);
- economic and social impacts of new technologies⁷⁰.

Unfortunately, the Index, which covers in aggregate 139 countries, does not include all of the PSNR states. Out of fourteen PSNR states, only eleven are included in this global rating. The publishers of the Report did not assess Belarus, Turkmenistan and Uzbekistan. However, the data collected in the Report allows for some important findings regarding the trends of development of the IT industry in PSNR states.

With this in mind we present in the table below the data for PSNR states in several Networked Readiness Index categories that have particular relevance:

TABLE FROM THE NETWORKED READINESS INDEX 2016⁷¹

	Rank	Political and regulatory environment	Business environment	Education	Economic impact	Social impact
Estonia	22	27	26	19	24	6
Lithuania	29	41	31	26	27	25
Latvia	32	45	30	36	34	32
Kazakhstan	39	48	54	45	51	35
Azerbaijan	53	79	74	68	50	48
Armenia	56	116	50	51	56	56
Georgia	59	73	55	64	91	44
Ukraine	64	113	67	33	59	75
Moldova	71	125	89	70	81	60
Kyrgyz Republic	95	103	75	81	114	104
Tajikistan	114	42	105	60	101	96

BASED ON THE DATA PUBLISHED IN THE REPORT, THE FOLLOWING TRENDS IN THE DEVELOPMENT OF INFORMATION TECHNOLOGIES IN THE PSNR STATES HAVE BEEN OBSERVED:

1. By social impact driven by the development of high technologies, the PSNR states mentioned in the Index had scores higher than overall Index scores in nine out of eleven cases. This means that the IT sector has a considerable impact on the development of social environment in these countries. Although Belarus has not been included in the Index, it can be cited here as an example because an entire new class of the pro-Western youth came into the picture after the creation of the High Technologies Park. We will discuss this phenomenon in a separate chapter.
2. At the same time, only four countries out of eleven had higher economic impact rankings than their overall scores in the Index. Based on this, it may be concluded that the economic potential of the IT development in these countries has not been exploited enough. As a matter of fact, as we have already seen in the analysis of the IT development in the PSNR states, the government is the only investor that invests in high technologies, including startups. Such a situation is characteristic primarily to the Central Asia countries and the South Caucasus, although to a lesser degree. Naturally, the state pays lesser attention to direct economic yield from its own investments while treating investments in IT as an infrastructure or even social project.
3. In ten out of eleven cases, the countries scored higher in the general index than in the political and regulatory environment section. This means that it is common to the PSNR states for the IT sector to develop contrary to regulatory impediments rather than in response to an adequate legal framework. Such a situation shows that in the countries under analysis, there are large groups of enthusiasts with sufficient IT skills who are ready to act at their own peril and risk. As a result, these countries are afforded an excellent opportunity: if they improve their regulatory frameworks in line with the best practices applied in the countries with the highest scores, the information technologies sector will start soaring in no time.
4. Similar to the problem caused by the absence of a regulatory environment favorable to the development of information technologies, the PSNR states are affected by inadequate quality of the business environment. Only four out of eleven PSNR states have higher scores in the business environment ranking than in the aggregate rankings.
5. Finally, the Index demonstrated that the PSNR states have high educational potential that has not been fulfilled to the maximum extent. In terms of the quality of education score that takes into account quality of math and science education, ten out of eleven countries are included in the global top 70.

BELARUS: A STEP TOWARDS THE FUTURE

At the beginning of 2017, the Belarusian IT community was actively discussing prospects for the development of the industry and opportunities for supporting technology companies through the High Technologies Park.

In the opinion of market players, programming at the request of international companies did not offer prospects for rapid growth, while the development of Belarusian startups was impeded by the absence of a regulatory framework for venture financing. In parallel with the discussions in the professional community, in January 2017, during a meeting held at the Administration of the President of the Republic of Belarus, a resolution was passed to formulate a new plan for the development of the IT industry that provided for new support measures for Belarusian IT companies and the introduction of information technologies at state-owned undertakings.

This task was assigned to Vsevolod Yanchevskiy, an advisor on ideology to President Lukashenko and head of the state ideology department of the Presidential Administration, an advisor on state policy in the fields of information support and high technologies, who is known for being liberal-minded.

On April 21, 2017, in his annual Address to the Parliament and Belarusian people, Alexander Lukashenko made a request to draft a new decree on the High Technologies Park that would attract international companies engaged in the development of unmanned vehicles, artificial intelligence and digital currencies to the country.

The administration of the High-Tech Park engaged representatives of the IT sector in the drafting of the new decree and the expert community held dozens of meetings and discussions with technology companies and also with Belarusian and international law firms and consulting companies.

The first draft of the decree, dubbed by the IT community “the Decree on the High-Tech Park 2.0”,

While recognizing the contribution made by this institution, critics insisted that the existing operating model had created conditions for the growth of bespoke software development and IT outsourcing and at the same time had failed to boost the progress of companies engaged in the development of their own software.

was published in a number of sources in July 2017, prompting numerous discussions among market players and economists. In September 2017, the draft was presented to Alexander Lukashenko for consideration as part of the package of liberal reforms of laws governing entrepreneurial activity. When discussing “Decree 2.0”, the president suggested that the title of the documents be reconsidered as its provisions not only apply to the operations of the High-Tech Park but also impact the Belarusian economy in general.

By the beginning of December, the document titled “The Decree on the Development of Digital Economy” was coordinated with all authorized governmental authorities and submitted again to the president for consideration. On December 11, 2017, Alexander

Lukashenko held a meeting on the draft decree, which was attended by state officials and prominent members of the IT community, and announced that he would sign the decree by the end of 2017. The president signed the Decree on December 21, 2017.

The new presidential decree, in particular, extends the term of a special legal status of the High-Tech Park until January 1, 2049 while preserving the principle of extraterritoriality. It grants the Park residents the right to engage in educational activity in the field of information and communication technologies; do business in the field of cybersports including training of cybersports teams, organizing and holding competitions and organizing the broadcasting of such competitions; and in the field of artificial intelligence, and development of drone-type systems.

The decree provides the High-Tech Park residents with a wide range of opportunities in connection with cryptocurrencies, including mining and transactions.

Companies have the right to own tokens and carry on the following operations: to issue and place their own tokens in the Republic of Belarus and elsewhere through the High-Tech Park residents engaging in such activity; to keep tokens in virtual wallets; to buy, sell, or perform other transactions with tokens through cryptoplatform operators, cryptocurrency exchange operators and other High-Tech Park residents engaging in such activity.

Private individuals can own tokens and perform the following operations: mining, keeping tokens in virtual wallets, exchanging tokens for other currencies, buying and selling tokens for Belarusian rubles, foreign currencies, electronic money and also donating and bequeathing tokens. Operations in connection with mining, acquiring or selling tokens conducted by private individuals do not constitute entrepreneurial activity. Declaration requirements do not apply to tokens. The Decree also provides for the legalization of smart contracts executed under Belarusian law.

These measures aimed at the legalization of operations with cryptocurrencies

transform Belarus into a state with the most advanced legal framework in this field.

The new presidential decree provides for unprecedented measures intended to protect business against the interference of the state. In particular, under clause 4.6 of the Decree, no inquiries into the activity of the resident companies of the High-Tech Park can be conducted without consent of the Park administration. An audit of the High-Tech Park residents conducted within the scope of controlling (supervisory) activity in the Republic of Belarus is not allowed without prior consent of the Administration of the High Technologies Park⁷².

Subsequently, the High-Tech Park will be used as a “testing site” for new regulations, and successful regulations will then be extended over the entire Belarusian business. A legal experiment aimed at assessing new legal concepts with a view to their further implementation into the civil law of the Republic of Belarus will be conducted within the framework of the High-Tech Park⁷³.

IN PARTICULAR, THIS DECREE CLAUSE PROVIDES FOR:

- convertible loan agreements;
- option agreements;
- transactions executed and performed under a smart contract;
- no-competition clauses with employees;
- any rates of default interest/penalty in contracts.

By projecting legislative initiatives tested at the HTP over other spheres of business, a new initiative of the Belarusian government could not only advance the High-Tech Park but also boost the Belarusian economy as a whole.

The PSNR states could use new opportunities of the Belarus High-Tech Park as a road map for their own legislative initiatives.

THE POST-SOVIET REGION NEEDS HELP – FROM GLOBAL TECH LEADERS

In 2017, tech companies became synonymous with disruption. In 2018, it's time they focus on construction – that is, helping develop the regions they have globalized.

In the post-Soviet region, which was isolated from the West only 30 years ago, the transformative effects of the internet are dramatic. Today, Estonia is itself a tech pioneer through the invention of Skype and the adoption of e-voting and e-residence. Belarus has created a Hi-Tech Park that employs nearly 30,000 and exports \$1 billion in products. Internet and smartphone penetration is high and Western social media sites are popular in many post-Soviet countries. Citizens are using the internet and smartphone apps in increasingly sophisticated ways.

Tech giants have created exciting new ways for people to connect and communicate, but their actions also provoke questions about the responsibilities and restraints that should accompany these powerful platforms. Particularly in the post-Soviet region, the tech sector has transformed societies, and now its leaders should promote more lasting change.

Right now, too many promising young people in this region have grown up in societies where economic opportunity comes from industries that are corrupt and obsolete. Mining, oil and gas, and heavy industry continue to play an outsized role in the economy, where influence is concentrated among powerful industry owners and the state. Young people see few alternatives to prosperity beyond these problematic sectors.

But social media and the internet have revealed new possibilities. The sector offers a future in which entrepreneurs can create for themselves, take more ownership of their futures, and reform people's relationships to the state. The tech sector can help

the region move from consumption to creation – a necessary transition in the new digital world.

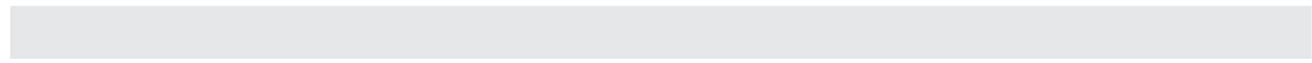
Facebook, Google, Amazon, WhatsApp, and their peers created platforms that are open, connected, active, and mobile. These model the way societies themselves should function. Governments obviously play a role in making reforms, but at a time when many tech companies find their platforms under attack from illiberal forces, the industry has much to gain by spreading values of transparency, accountability, and entrepreneurship.

I recommend three types of action tech leaders should take.

First, they can inspire, by sending leaders to the post-Soviet region. Young people in these countries need to be inspired to take risks and to innovate. Larry Page, Sergey Brin, Mark Zuckerberg, Jeff Bezos and Jan Koum are rock stars in this region. They form a group of “Global Minds” who exemplify the potential of tech in a modern world. High-profile visits to universities, startups, and governments could help to develop local tech sectors, and are more valuable in some places than millions in investment.

Second, they can educate. Local entrepreneurs need to understand how Silicon Valley operates and how it interacts with government and citizens. Tech giants can offer trainings that help local officials and innovators understand best business practices, legal frameworks, and cooperation with authorities and regulators. These are the practical details that support innovation and help aspiring entrepreneurs become successful.

Finally, they can connect, by organizing programs for young tech leaders and government officials that build relationships with one another and their counterparts



in the U.S. These networks will supply needed support and mentorship as tech leaders develop new industries and products, and as new political leaders look to promote stability and reform.

With help from the tech giants of the West, a thriving post-Soviet tech sector can lead to a more dynamic regional transformation. It can create a new generation of intellectual leaders. It can also move workers into a formal economy from the large, cash-based shadow economies that currently dominate. Young people will gain access to legal money and online payment systems, while governments gain a more reliable tax base.

A stronger tech sector can also help improve transatlantic relationships, by creating new opportunities for cooperation with Western companies and governments. With the development of regional intellectual elites, countries can become more reliable partners.

Three decades after gaining independence, the post-Soviet region still struggles to reach its full potential. But if the tech sector's leaders accept this opportunity for active engagement and development, they can help make 2018 the first year in a new era of transformation.

RECOMMENDATIONS FROM STRATEG EAST

POLICY RECOMMENDATIONS FOR THE US AND EU GOVERNMENTS

1. To formulate and implement special programs promoting the development of the IT sector in the PSNR states and aimed at:
 - raising awareness of these states' governments about the impact caused by IT on social and economic development;
 - development of international business leadership programs in the IT sector for existing and potential entrepreneurs operating in this industry;
 - preservation and development of widespread engineering and technical education in these states.
2. To make the development of the IT sector part of the policy agenda in relations between the West and PSNR states by organizing workshops with representatives of the governments of the Western states and PSNR states, stimulate investments made by Western IT companies in the PSNR states and promote stories of success of local IT entrepreneurs.
3. To put priority on the share of the new economy in the GDP of the PSNR states by including this indicator into the criteria for cooperation between international financial institutions and the PSNR states.

POLICY RECOMMENDATIONS FOR PSNR STATES GOVERNMENTS

1. Considering the importance of information technologies for the modern world in general and for social and economic development of these states, to create the most favorable environment for the development of the IT sector: to draft special laws and regulators for the IT sector that would ease registration of IT companies, grant a special tax status that would guarantee the legalization of income earned by IT sector employees, and ease currency exchange operations in states where exchange restrictions exist.
2. To formulate and implement systems of state purchase orders for IT products placed preferably with local IT companies thereby creating preconditions for the formation of the domestic IT market.
3. In countries where law enforcement agencies have extra powers, to adopt the best practices of Belarus that restricted the interference of law-enforcement agencies in the operations of IT companies and prohibited audits of such companies without permission of the High-Tech Park Administration.

EXECUTIVE SUMMARY

The purpose of Changing Economy, Changing Society is to study trends and prospects for the development of the IT industry in the countries of the former Soviet Union, as well as the degree of influence of this industry on the transformation of post-Soviet society into a modern society of the Western type.

In this report, we analyze the level of development of the IT industry in the 14 countries of the PSNR region (Post-Soviet, Non-Russia), including: the level of legislative development; the state's establishment of favorable conditions; the creation of specialized

high-tech parks; and the share of IT in gross national product, particularly in the exports from these countries. We paid particular attention to the development of the High Technologies Park in Belarus, a country of low degree of Westernization and a great economic dependence on the old post-Soviet heavy industry. We analyzed both the results of the work of the High Technologies Park and its prospects based on the latest decisions of the Belarusian authorities aimed at the further development of the IT sphere. We also considered the possibilities of implementing the Belarusian experience in other countries studied by our team.

THE STUDY INCLUDES THE FOLLOWING MAIN FINDINGS:

- In recent years, one of the most advanced legislative frameworks in the region encouraging the development of the IT industry was created in Belarus. Adoption of this legislation contributed to the rapid growth of Belarusian IT, its share in the export of the country, the number of employees in this sphere;
- Despite the fact that most of the countries of the PSNR region do not have such advanced legislation in the IT sphere as Belarus, some of them, the Baltic countries, Ukraine, Moldova, have made significant progress in the development of the IT industry. Exports of products in this industry have outstripped exports of many traditional "old" industries for these countries;
- In all countries of PSNR region, the local authorities attempt to develop the IT sphere, create special zones for hi-tech parks, which have developed with varying degrees of success;
- The development of IT technologies in the post-Soviet countries contributes significantly to the development of civil society and a responsible middle class and the improvement of legislation in other areas.

The future successful and intensive development of IT industry in the PSNR and subsequent development of a new generation of socially active and responsible citizens oriented towards Western values and capable of leading the country along

the way of Westernization could benefit to a large extent from the support of leaders of the Western IT industry and governments. We present this paper as one step towards encouraging such vital support.

BIBLIOGRAPHY

1. For the first time in the history of HTP, the export of the High Technology Park exceeded \$ 1 billion, 15 February 2018, <http://www.belta.by/economics/view/vpervye-v-istorii-pvt-eksport-parka-vysokih-tehnologij-prevysil-1-mlrd-289702-2018/>
2. The IT industry in Belarus: 2017 and Beyond, [http://www.ey.com/Publication/vwLUAssets/ey-it-industry-in-belarus-2017-and-beyond/\\$FILE/ey-it-industry-in-belarus-2017-and-beyond.pdf](http://www.ey.com/Publication/vwLUAssets/ey-it-industry-in-belarus-2017-and-beyond/$FILE/ey-it-industry-in-belarus-2017-and-beyond.pdf)
3. Ibid.
4. Ibid.
5. Denis Krivoblotskii: Do you know that in Estonia information technologies are used everywhere?, 23 November 2017, <https://www.start-business-in-estonia.com/estoniya/it-texnologii-v-estonii.html>
6. Aleksei Voronkov: IT on service of the state: Estonian experience, 28 September 2017, <https://dou.ua/lenta/columns/estonia-technology/>
7. Denis Krivoblotskii: Estonia is a window to Europe for IT startups from Russia and CIS states, 4 January 2018, <https://www.start-business-in-estonia.com/estoniya/zapusk-it-startapa-v-estonii.html>
8. IT firms relocate jobs from Estonia, 19 April 2017, <http://www.dv.ee/novosti/2017/04/19/it-firmy-vyvodjat-rabochie-mesta-iz-jestonii>
9. Ibid.
10. Ibid.
11. Latvian IT industry has been steadily developing, 30 April 2018, <http://www.delfi.lv/biznes/bnews/latvijskaya-it-otrasl-perezhivaet-bum.d?id=49972405&all=true>
12. Latvia experiences the record shortage of IT specialists, 26 October 2016, <https://ru.delfi.lt/news/economy/v-sosednej-latvii-rekordnyj-deficit-it-specialistov.d?id=72683092>
13. The IT sector experiences the workforce shortage, 19 February 2016, <https://rus.lsm.lv/statja/novosti/ekonomika/otrasl-informacionnih-tehnologiy-ispitivaet-deficit-kadrov.a169887/>
14. Viacheslav Dombrovskii. How could Latvia get on the IT world map?, 16 November 2017, <http://rus.delfi.lv/news/daily/versions/vyacheslav-dombrovskij-kak-latvii-popast-na-mirovuyu-kartu-it.d?id=49454321&all=true>
15. Latvia introduces new tax benefits for startups, 23 November 2016, <https://dev.by/lenta/main/latviya-vvodit-zakonodatelnye-igoty-dlya-startapov>
16. Ibid.
17. More than half of Lithuanian companies are unable to find IT specialists, 7 November 2017, <https://ru.sputniknews.lt/society/20171107/4290748/litve-bolee-poloviny-kompanij-zatrudnyautsya-najti-it-specialista.html>
18. Svetlana Zykova: IT in Lithuania: numbers and facts, 17 November 2015, <https://rb.ru/news/lithuania/>
19. Ibid.
20. Why is Lithuania getting more attractive for IT business, and what can Belarus offer in response?, 19 April 2016, <http://marketing.by/analitika/pochemu-litva-stanovitsya-privlekatelnee-dlya-it-biznesa-i-chto-v-otvet-gotova-predlozhit-belarus/>
21. Ibid.
22. Svetlana Zykova: Business in Lithuania: is transferring the project worth the bother?, 6 November 2015, <https://rb.ru/news/lithuania/>

23. Ibid.
24. Why is Lithuania getting more attractive for IT business, and what can Belarus offer in response?, 19 April 2016, <http://marketing.by/analitika/pochemu-litva-stanovitsya-privlekatelnee-dlya-it-biznesa-i-chto-v-otvet-gotova-predlozhit-belarus/>
25. IT Ukraine Association: In 2017, exports of IT services were 3.6 billion USD, the share of the IT exports in the GDP was 3.34 %, and the tax paid was 16.7 billion UAH [infographics], 15 January 2018, <https://itc.ua/news/assotsiatsiya-it-ukraine-v-2017-godu-eksport-it-uslug-sostavil-3-6-mlrd-vklad-v-vvp-stranyi-3-34-kolichestvo-uplachennyih-nalogov-16-7-mlrd-grn-infografika/>
26. Ibid.
27. Ibid.
28. Ibid.
29. Tax benefits for IT industry in Ukraine, 25 June 2015, <http://itin.ua/nalogovie-igoti-dlya-it-industrii-v-ukraine.html>
30. Lviv IT Cluster. Community of leading information technology companies, <https://itcluster.lviv.ua/en/about-us/about-cluster/>
31. Ibid.
32. In 2016, the volume of the IT sector sales was 21 % higher than in the previous year, 30 March 2017, <http://www.allmoldova.com/ru/news/obiem-prodazh-it-siektora-moldovy-v-2016-ghodu-prievysil-proshloghodnii-na-21>
33. IT to stay. Why Moldova needs Tekwill Innovation Center, 21 March 2017, <http://newsmaker.md/rus/novosti/it-chtob-ostatsya-zachem-moldove-tsentr-innovatsiy-tekwill-30383>
34. Ibid.
35. Ibid.
36. New benefits for investors in Moldova's IT sector, 24 February 2017, <http://www.allmoldova.com/ru/news/novye-l-ghoty-investoram-v-it-siektorie-moldovy>
37. Ibid.
38. Moldova: Common tax of 7 percent for investors in the IT-Sector, March 9, 2018, <http://www.roedl.com/insights/moldova-common-tax-it-sector>
39. Ibid.
40. Pavel Philip at the event dedicated to Tekwill's anniversary: Today, IT technologies are the driving force of the global economy, 15 March 2018, <https://www.moldpres.md/ru/news/2018/03/15/18002071>
41. Today Meets Tomorrow at Tech Park Georgia, March 15, 2016, <http://www.worldbank.org/en/news/feature/2016/03/16/today-meets-tomorrow-at-tech-park-georgia>
42. SkillUP from Ukraine introduces a new system of IT education in Georgia, 6 June 2016, <https://www.2000.ua/novosti/novosti-kompanii/skillup-iz-ukrainy-vnedrila-v-gruzii-novuyu-sistemu-it-obrazovaniya-.htm>
43. SkillUP from Ukraine introduces a new system of IT education in Georgia, 14 June 2016, https://bzns.media/press_releases/skillup_iz_ukrainy_vnedrila_v_gruzii_novuyu_sistemu_it_obrazovaniya-343809/
44. Ibid.
45. Ibid.
46. Ibid.
47. The European Union to give Georgia 1.3 mln EUR to develop IT, 11 November 2015, <https://digital.report/evrosoyuz-vyidelit-gruzii-1-3-mln-evro-na-razvitie-it/>
48. Ibid.
49. Express Diagnostics of potential for ICT R&D collaboration with the European Union, https://eeca-ict.eu/images/uploads/pdf/EECA_countries_reports/ICT_RD_cooperation_potential_assessment_for_ARMENIA.pdf
50. Armenia's IT market, http://www.tadviser.ru/index.php/%D0%A1%D1%82%D0%B0%D1%82%D1%8C%D1%8F%3A%D0%98%D0%A2-%D1%80%D1%8B%D0%BD%D0%BE%D0%BA_%D0%90%D1%80%D0%BC%D0%B5%D0%BD%D0%B8%D0%B8#.D0.A8.D0.B5.D1.81.D1.82.D1.8C_.D0.BA

- D0.BB.D1.8E.D1.87.D0.B5.D0.B2.D1.8B.D1.85_.D0.BD.D0.B0.D0.BF.D1.80.D0.B0.D0.B2.D0.BB.D0.B5.
D0.BD.D0.B8.D0.B9_.D1.86.D0.B8.D1.84.D1.80.D0.BE.D0.B2.D0.BE.D0.B3.D0.BE_.D1.80.D0.B0.D0.B7.
D0.B2.D0.B8.D1.82.D0.B8.D1.8F_.D0.90.D1.80.D0.BC.D0.B5.D0.BD.D0.B8.D0.B8
51. Minasyan: Armenia has made tremendous progress in the development of information technologies, 6 July 2017, <https://ru.armeniasputnik.am/economy/20170706/7856095/minasyan-armeniya-sdelala-kolossalnyj-shag-v-razvitii-it.html>
 52. Zinker: Israel could be interested in Armenian IT products, 27 July 2017, <https://ru.armeniasputnik.am/economy/20170627/7755616/izrail-mozhet-byt-zainteresovan-armyanskoj-it-produkciej.html>
 53. "It is easier to launch a startup in Armenia than ever before". How the Republic has become the Silicon Valley of the former USSR, 20 March 2017, <https://www.rvc.ru/press-service/media-review/eco/100883/>
 54. Ibid.
 55. Ibid.
 56. Ibid.
 57. Azerbaijan has the top rating in the ICT development among the South Caucasus states, 15 November 2017, <https://www.trend.az/business/it/2821608.html>
 58. Azerbaijan: 71 ICT projects to receive financing from the state, 23 August 2017, <https://digital.report/azerbaydzhan-71-ikt-proekt-poluchit-gosfinansirovanie/>
 59. Digital Kazakhstan State Program, [https://www.zerde.gov.kz/upload/docs/Digital %20Kazakhstan_ru.pdf](https://www.zerde.gov.kz/upload/docs/Digital%20Kazakhstan_ru.pdf)
 60. Ibid.
 61. Ibid.
 62. Digital Kazakhstan in numbers, 16 May 2017, <http://profit.kz/news/38233/Cifrovoj-Kazahstan-v-cifrah/>
 63. The future "digital Kazakhstan" experiences the shortage of IT specialists, 19 July 2017, <https://rus.azattyq.org/a/programma-cifrovoi-kazahstan-deficit-it-specialistov/28625463.html>
 64. Kayrat Balykbaev: one third of the GDP growth will be ensured by digitalization, 30 January 2018, <http://profit.kz/articles/13388/Kajrat-Balikbaev-tret-prirosta-VVP-budet-sledstviem-cifrovizacii/>
 65. Decree of the President of the Republic of Uzbekistan on Measures aimed at radical improvement of conditions for the development of the information technologies sector in the republic, <http://uza.uz/ru/documents/o-merakh-po-korennomu-uluchsheniyu-usloviy-dlya-razvitiya-ot-30-06-2017>
 66. Ibid.
 67. Uzbekistan to increase the IT share in the GDP up to 4 %, 5 December 2017, <https://www.spot.uz/ru/2017/12/05/muic/>
 68. The Kyrgyzstan High Technologies Park: in the absence of oil and gas focus is made on IT creativity, 20 February 2017, <https://digital.report/park-vyisokih-tehnologiy-kyrgyzstana-v-otsutstvie-nefti-i-gaza-stavka-sdelana-na-it-kreativ/>
 69. Ibid.
 70. The Networked Readiness Index 2016, http://www3.weforum.org/docs/GITR2016/WEF_GITR_Chapter1.1_2016.pdf
 71. Ibid.
 72. Decree no. 8 of the President of the Republic of Belarus on the Development of Digital Economy, http://president.gov.by/ru/official_documents_ru/view/dekret-8-ot-21-dekabrja-2017-g-17716/
 73. Ibid.

ABOUT THE AUTHOR



Photo by Alexander Kozachenko

**Anatoly Motkin,
Founder and President, StrategEast**

Mr. Motkin is a successful technology investor with years of experience in political consulting and media entrepreneurship in the post-Soviet region. His extensive background has led him to deepen his focus on Westernizing the former Soviet region through the creation of StrategEast.

Mr. Motkin previously served as an advisor and investor to both the public and private sectors, most recently by successfully backing a number of Israeli IT projects, developed in Belarus High Technologies Park. He began his career as a political consultant both - in Israel and post-Soviet region. He later moved from politics into media, helping to start one of the leading Russian language media companies in Israel. As his career has shifted over time, he has consistently shown his dedication to improving business practices and government transparency in the post-Soviet region.