

# **CHANGING ECONOMY CHANGING SOCIETY**

IT INDUSTRY IN EURASIAN COUNTRIES

**BY ANATOLY MOTKIN**

**SECOND EDITION**



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# ABOUT STRATEG EAST

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StrategEast is a strategic center whose goal is to reinforce the values of rule of law and private property protection in Eurasian and Baltic countries through the transition from a natural resources-based to a knowledge driven economy.

Our work is focused on the 14 countries which proclaimed or restored their independence after the collapse of the USSR: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

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**THE REPORT  
WAS PREPARED  
IN COOPERATION  
WITH AXIOS HOLDING**



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# EXECUTIVE SUMMARY

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

In this report, we analyze the level of development of the IT industry in the 14 Eurasian countries, 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 exports from these countries. We paid particular attention to the development of the High Technologies Park in Belarus, a country with a low degree of Westernization and significant economic dependence on 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 further development of the IT sphere. We also considered the possibilities of imple-

## 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 country's exports, and the number of employees in this sphere.
- Despite the fact that most of the Eurasian countries do not have such advanced legislation in the IT sphere as Belarus, some of them, such as the Baltic countries, Ukraine and Moldova, have made significant progress in the development of the IT industry.
- Exports of products in this industry have outstripped exports of many traditional industries for these countries.
- In all Eurasian countries, the local authorities attempt to develop the IT sphere and create special zones for high-tech parks, which have developed with varying degrees of success.
- The development of IT technologies in the Eurasian countries contributes significantly to the development of civil society, a responsible middle class, and the improvement of legislation in other areas.

menting the Belarusian experience in other countries studied by our team.

Support from leaders of Western IT industry and Western governments could contribute to the future success and intensive development of the IT industry

in Eurasian countries 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 path of Westernization. We present this paper as one step towards encouraging such vital support.

# INTRODUCTION

Fifteen years ago, when oil prices were very high and growing, Belarusian government 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 50 thousand people earning on average about USD 2,500 per month, which is five 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 USD 2 billion annually for the economy of the country and continues to grow.

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

In fact, these 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 second Westernization Index in 2020, which analyzed trends towards Westernization in political, legal, economic and cultural life in the post-Soviet countries. One of our main conclusions is that the pace of Westernization of the economy is much faster than Westernization of the remaining spheres of political and social life.

The market entry of Western companies; 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

**StrategEast is presenting a new study—the second edition of “Changing Economy, Changing Society.” During the last two years we have ensured that our vision of Westernization of Eurasian countries suggested to the Western world was right: the IT industry is growing rapidly and creates more and more law based sectors in Eurasian countries.**

these countries into the global infrastructure – this is the list of steps that the authorities of Eurasian countries are mostly happy to welcome.

In the wake of these economic reforms and initiatives, 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 collaborating with these companies or projects are studying English and other languages of international communication, traveling to Western countries, and acquiring a Western education.

In Belarus, as well as in other post-Soviet countries, the 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 was to become involved in the production and trade of oil, gas, and other natural resources. But the model for success in the 2020s is increasingly to become a software engineer or an IT-entrepreneur.

In addition, due to the work ethic that IT professionals in the 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 Eurasian 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 Eurasian 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 to the levels experienced in the 2000s, most of the leaders of these countries have faced an unfamiliar challenge – how to meet budget demands and feed the population?

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

The Belarusian example can demonstrate to the other Eurasian 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 Eurasian countries become part of the Western ecosystem.

StrategEast contributes to that too by pursuing a mission to reinforce the values of rule of law and private property protection in Eurasian countries through the transition from a natural resources-based to a knowledge-driven economy. In November 2019 we held the first StrategEast State and IT Eurasian Forum in Ukraine, and in February 2020, together with EPAM Systems, one of the leading American engineering companies, we launched a unique IT Hub in Georgia.

The mission of IT Industry development is entrusted not only to leaders of the Eurasian nations, but also to leaders of the US and Western 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 Eurasian region through economic and commercial engagement, particularly in the IT sector. I urge that this opportunity is seized.



Anatoly Motkin  
Founder and President, StrategEast



# THE HISTORY OF THE BELARUSIAN “SILICON VALLEY”



U.S. Secretary of State Mike Pompeo visited High-Tech Park in Minsk, Belarus in February, 2020  
Photo by: Sergey Sheleg / Belta (Belarusian Telegraph Agency)

More than one billion people in 193 countries around the world use mobile applications created by residents of the Belarus High Technologies Park. It is here, in the Belarus High-Tech Park, where World of Tanks, MSQRD and Viber have been developed. The High-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.<sup>1</sup>

Software developed by the residents of the High-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; financial institutions including 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, the High-Tech Park exported services in excess of USD 1 billion for the first time in history. In remarks about this milestone, Vsevolod Yanchevs-

kiy, 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%.”<sup>2</sup>

In subsequent years, the growth rate of the High-Tech Park only accelerated. In 2018, enterprises from the Park exported products worth USD 1.4 billion. Thus, the annual growth in export revenue amounted to 38%. The supply of products to the domestic market increased by 57%. At the same time, the High-Tech Park maintains its export orientation – the share of export revenue exceeds 90%.

In 2018, 268 new companies were registered in the Park. The total number of residents at the end of the year reached 454. The number of employees of High-Tech Park residents was 45,734 people. The average monthly salary is BYR 4.4 thousand (approximately USD 2,200).

The average monthly income tax of employees of High-Tech Park residents is more than three times the average monthly income tax for employees of other organizations in Belarus.

The High-Tech Park is represented in all regional centers of the country. In 2018, 30 new residents from the regions were registered in the park.

Residents of the High-Tech Park, with universities, have created and are supporting 60 joint laboratories and research centers, as well as 34 branches of university departments on the sites of resident companies.

According to preliminary data for the end of 2019, over 2 billion dollars in exports are expected. It is further expected that over three years, exports from the High-Tech Park will grow by 2.4 times. The share of ICT in the country’s GDP will be 5.5%, which is comparable with agriculture and forestry (6.4%), construction (5.4%), and transport (5.8%). By 2022, according to forecasts by industry experts, the share of IT will increase to 10%.<sup>3</sup>

Unlike the majority of European and Asian high-tech parks, the Belarus High-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. One 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 a Belarusian company, which could either be in a big city or a small town. Such an arrangement allows residents to make full use of educational and scientific research, as well as the professional and infrastructural potential of the entire country.

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 a 30% discount on personal income tax as compared to other industries.<sup>4</sup>

Alongside the extra-territorial registration of its resident companies, the High Technologies Park occupies around fifty hectares 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 several multi story buildings, a 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 in Belarus.

On April 30, 2017, Ernst & Young published a report titled, “The IT Industry in Belarus: 2017 and Beyond” which included an independent evaluation of the Park’s operational results. Some of the most interesting facts about the Belarus High-Tech Park cited in this report are:<sup>5</sup>

1. High-Tech Park residents supplied software products and IT services to 67 countries globally in 2016. Of these, 49.1% and 43.1% of exports went 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.

2. Fifty-one percent 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. Thirty-eight percent of the respondents believe that it has a negative rather than positive (8 %) impact on the industry's development.
3. 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 make up 3.2% of total exports.
4. Foreign direct investments in High-Tech Park companies reached USD 169.2 million in 2016. They account for a relatively small share in total foreign investments in the sector because most High-Tech Park residents use their own profit to drive organic growth rather than seek external investments.
5. Technology companies have set up 52 joint laboratories in 15 educational institutions.
6. An employer's tax expenses are the highest in Belarus (USD 727 on a salary of two thousand

dollars) and the lowest in Ukraine (USD 349). As for the expenses of employees, the highest taxes and deductions from salary are in Latvia (USD 644). However, the government in Belarus has introduced measures to stimulate the IT industry. Under these regimes, Belarusian High-Tech Park residents have clear benefits: they pay USD 233 of taxes based on a salary of USD 2000 and their employees pay USD 200 of tax. The measures of government support provided to High-Tech Park residents thus substantially enhance an employer's competitiveness in terms of sales and on the labor market.

7. In 2015 it was hard to find developers with any proficiency in English, whereas now the majority of highly qualified technology specialists can speak English.

It is interesting to note that when publishing the report, Ernst & Young underestimated the growth prospects of the IT industry in Belarus. According to Ernst & Young's 2017 forecast, "Hi-Tech Park companies will have a workforce of around 40 thousand by 2020, and their revenues will reach 1.45 billion USD." However, these figures were already reached in 2018. In 2020 the Park will have revenues of more than 2 billion dollars and more than 50,000 employees.<sup>6</sup>

# THE OVERVIEW OF THE IT INDUSTRY IN EURASIAN COUNTRIES



## BALTIC STATES

### ESTONIA

#### The first e-state in Europe

Named 'the most advanced digital society in the world' by Wired,<sup>7</sup> Estonians are pathfinders, who have built an efficient, secure and transparent ecosystem that saves time and money.

Estonia can justifiably be 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 sec-

tor 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% of public services are available online
- 99% of the population uses electronic ID cards
- 35% of the population uses smart ID
- 17% of the population uses mobile ID
- 62,000 people received e-Residency<sup>8</sup>

The last point merits further explanation. Estonian electronic residency (also known as virtual residency or e-residency) is a program launched by Estonia on December 1, 2014.<sup>9</sup>

This program allows non-Estonians to receive electronic access to company registration services, banking services, payment 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, 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 start-ups. A 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. In addition to money, the fund invested the experience and knowledge of its founders. In fact, they became mentors and teachers for a burgeoning IT industry.

Today there are already 4 unicorns in Estonia. The number of start-ups in the country exceeded 1000.<sup>10</sup> Thanks to its high-quality legislative framework, Estonia remains the state that has 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 a few minutes.<sup>11</sup>

Internet access is considered a basic human right in Estonia. Estonia is 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, one can do almost everything online: register a company, file a tax return, or pay bills.

Only a few years ago it was popular opinion that the Estonian IT industry had reached its peak mostly because of limitations in the population. But today a solution has been found. Innovation in the Estonian economy has contributed to an influx of skilled professionals into the country.<sup>12</sup>

In 2018 and for the fourth year in a row, Estonia's net migration rate has been positive.<sup>13</sup> Data and research clearly point to two elements contributing to this tendency – skills and innovation.

A growing share of Estonians have decided to stay and take advantage of the opportunities the country has to offer. At the same time and between 2014 and 2018, more and more people chose to move to Tallinn, Tartu, and Narva due to promising career prospects and the high quality of life for families.<sup>14</sup> Online expatriate network InterNations, in its Digital Life Abroad Report, ranks Estonia at the top of the chart for digital life.<sup>15</sup>

Ahead of countries like Finland, Norway, Denmark, and New Zealand, expats rate Estonia best in the world for unrestricted access to online services, and availability of public e-services.<sup>16</sup> Respondents also hold in high regard the widespread cashless and card payment culture. The ease of getting a local mobile number and high-speed Internet at home are highly rated as well.

The share of foreign workers in Estonia has more than doubled in the past few years and one of the reasons people give for their relocation is the tech-savvy environment.<sup>17</sup> Academic research has shown that innovation can be a pull factor for attracting highly-skilled migrants.<sup>18</sup> An economy that is open to highly-skilled workers fosters productivity and furthers technological development.

Today the Estonian ICT sector employs around 20,000 people, which represents 5.9% of the working population of the country. Even with this share of the population, the industry still needs around 7,000 specialists.<sup>19</sup>



## LATVIA

### Focus on foreign specialists

The Latvian IT industry has been steadily developing, which is clear from the rapid growth in the volume of exports from the ICT sector. According to Latvian Information and Communications Technology Association (LIKTA) in 2018 the industry's exports was EUR 1.88 billion. The number of people working in the IT industry as of the beginning of 2020 was 36,900. The sector's turnover was EUR 3.7 billion, and the share in GDP – 4.3%. Companies in the ICT sector pay 7% of all taxes in the country, despite the tax incentives.

**Shortages in the workforce is becoming the main challenge to the Latvian ICT market. Leaders from Latvia's IT sector insist on simplifying the rules for employing specialists from abroad. It is difficult for Latvian start-ups to develop without programmers from Belarus and Ukraine.**

"There are vacancies in the IT sector in Latvia with salaries of up to 10 thousand euros, so money is not a problem for this sector, it's a much more difficult task to find such employees", said Liva Perkone, TechChill board member. According to Perkone, "at-

tracting talent for Latvian startups, as well as foreign companies that would be ready to open their offices in the Baltic country and solve the most pressing problems of the IT sector."

"In many respects we have a favorable country for doing business – we enter the EU, we have cheaper labor and lower living expenses compared to many other European countries. In addition, you can easily fly from Riga to any direction, and we have good infrastructure, and distances are small," said Perkone.

According to Perkone, the salary level in the IT sector in Latvia is quite high. "Look, now MikroTik is looking for IT specialists with a salary of up to 10 thousand euros per month, so very valuable specialists also have such salaries in Latvia. It is a much bigger problem to find such workers," she said.

Perkone explained that today in Latvia the number of graduates from IT programs does not correspond to the level of demand for such specialists – at least three times as many graduates are needed.<sup>22</sup>

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. However, at present, less than 700 such specialists graduate from local universities per year.

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

The second option for increasing the workforce is to attract foreign specialists. In February 2017, the Saeima (Parliament) of Latvia passed a law on "start-up visas," which allowed foreigners residing outside the EU to apply for a three-year visa if intending to develop innovative products in Latvia.

Since January 1, 2017 there has been a law in place aimed at attracting investors with several advantages for start-up companies. It is unique in Europe and provides opportunities to efficiently grow venture capital investors' money in young Latvian start-ups. The adopted law creates a special tax regime for start-up companies in Latvia and the first years' experience shows good results.

The law did not work right away. In the first year, almost no start-up was able to receive state funding, as the selection criteria were too strict. As a result, in April 2018, the law was amended, and began to have its intended effect.<sup>23</sup>

The Act on Aid for Start-up Companies provides incentives for start-up companies registered in Latvia to hire employees and pay them a competitive salary without having to pay too many taxes. This makes Latvia a very competitive place in the EU to register a start-up company.

### THE LAW FORESEES TWO TAX PLANS:

- A special flat tax regime, currently EUR 252 per month per employee, regardless of salary paid, for minimal social benefits (in case monthly salary exceeds EUR 4,050, there is an additional solidarity tax applied for the excess amount);
- A special flat tax regime for more highly qualified employees with a doctor's or master's degree, or 5+ years of experience; a regime where all their social and personal taxes are covered by the state from EU funds, and they receive full social benefits.<sup>24</sup>

### TO QUALIFY, A START-UP NEEDS TO MEET FOLLOWING CRITERIA:

- Be less than 5 years old – the start-up company can't be carrying out commercial activities for more than 5 years;
- Have revenue under two hundred thousand euros during the first two years since registration, and under five million euros during the first five years of its registration;
- Not pay dividends;
- The product or service offered must be innovative;
- The portfolio should have at least one investment from a venture fund (from 30 thousand euros), an acceleration fund (from 15 thousand euros) or from a business angel (from 15 thousand euros).

In addition, Latvian start-ups can apply for support from the EU. European institutions have allocated Latvia 15 million euros to support start-ups at an early stage. The Latvian development bank, ALTUM, chose three acceleration funds – Overkill Ventures, BuildIT and the Commercialization Reactor – to manage this money. In addition to 15 million euros, the European Union approved the allocation of 60 million euros for more mature start-ups.<sup>25</sup>

Latvia already has a lot going on that supports the claim that it has a growing start-up ecosystem and has been a great place for developing start-ups. This new tax regime only continues to encourage it.

## LITHUANIA

### Invites existing business projects to relocate

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 start-ups and investors will have an opportunity to exchange ideas and establish dialog. The state prides itself on having the world's fastest public Wi-Fi and the highest broadband connection speed.<sup>26</sup>

The agency, Invest Lithuania, lists the following reasons for foreign IT companies to choose to relocate to Lithuania:<sup>27</sup>

- Approximately 31,500 IT specialists are employed in Lithuania;
- At Lithuanian universities 10,600 students are now obtaining an education in IT;
- Annually, 2,500 new specialists enter the market from specialized coding schools;
- According to the World Competitiveness Yearbook 2018, Lithuania is first globally for digital / technological skills availability;
- According to the Global Innovation Index 2018, Lithuania is third globally in mobile app creation
- Seventy percent of Lithuanian Global Business Service centers perform IT functions, 50% – software development (back end), 48% – software development (front end), 39% – big data analytics;
- The most popular programming languages in Global Business Service centers are Java, JavaScript, Python, .NET;

- Lithuania has more than 98% coverage of 4G broadband (the EU average is 91%); 5G was launched at the end of 2018 with a record speed of 1.8 GB/s.

Companies that have already opened a technical office, development office or development unit in Lithuania are UBER, WIX.com, Adform, Unity, Trafi, Winted and others with globally recognized names.

**The most important element of this story is that the state government is interested in attracting as many IT start-ups as possible and engages agencies that promote state investment opportunities.**

The Lithuanian government actively supports business and also invites foreign companies and capital, and focuses 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 specialists.<sup>28</sup>



The Lithuanian state finances the agencies Enterprise Lithuania and Invest Lithuania, which provide support to local and foreign entrepreneurs. The first agency focuses on start-ups (up to medium-sized businesses) 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 management at Invest Lithuania, they are going to run a nationwide project of business “counsels,” i.e. professionals who will help entrepreneurs launch their business. The idea is that young businesspeople in small towns do not have an opportunity to consult and receive advice, and this initiative should open doors to those who lack these opportunities outside big cities.

The state refrains from providing direct aid to businesses (including start-ups). This is due to the fact that under EU law the state cannot finance the development of commercial prototypes. However, indirect aid is provided. Moreover, it is easy for a project to obtain support in its early stages. For instance, Enterprise Lithuania supports projects up to the commercial prototype stage.<sup>29</sup> In fact a common practice for many Lithuanian start-ups is they develop a minimum viable product (MVP) and then seek financing elsewhere, for instance, in London. To answer the question, what does the Lithuanian government get from this, it is quite simple: even a start-up hires people and pays taxes during a year and also develops a local community.

IT projects also receive support from major start-up accelerators, such as Startup Highway and Startup.It. To gather IT start-ups, investors, accelerators, entrepreneurs, and artists under one roof, the Vilnius Tech Park – a hub for start-ups and Lithuanian IT companies – opened in Sapiegos Park.

According to the head of Startup Lithuania, Roberta Rudokiene, “in 2018 there were 14 successful cases of attracting investors in startups totaling about EUR 20 million. Another 3 enterprise teams are on contract signing stage.” She went on to explain, “There

are about 400 startups in Lithuania, 4-5 times more compared to 2012. Our task is to motivate people to start their own business. We talk about that with students, give free consultations and teach future entrepreneurs.”

Ieva Dirvonskaite, head of commerce at Vilnius Tech Park explained how this tech park has grown:

- “This is the first tech park in Vilnius, that has opened in 2016. The building we used was an abandoned hospital before. We have contacted the city council with a request to transfer this territory to us for the creation of a technological park, and the mayor’s office allocated it to us for rent for 25 years.
- We have invested about 7 million euros in the reconstruction of the premises, some of which we took on credit. But it is not possible to make money on the rental of premises; high prices can scare off tenants and entrepreneurs. The average rate at which premises in our tech park are currently renting out is 9.5 euros per square meter, excluding VAT.
- Various activities for entrepreneurs and investors bring income. Now 60 entrepreneurs are renting premises in the technology park, another 80 are on the waiting list.

Natalia Likhodedova, a project manager at Startup Visa Lithuania described a similar situation of growing demand for their services from entrepreneurs. She explains, “In 2017, we got the right to choose startups, the founders of which are given a residence permit in Lithuania according to a simplified procedure. The document is issued for one year with the possibility of extension for another year and allows you to transport your family to Lithuania. We cooperate with the Startup Lithuania team, which advises and trains entrepreneurs for free. Since the launch of the program in March 2017, we have received 120 applications from potential people wishing to develop their business in our country, but so far 27 application were accepted.”

# EASTERN EUROPE

## UKRAINE

### Development without the state's involvement

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

Ukraine's IT industry has become one of the factors driving the country's economic growth: The industry's exports totaled USD 4 billion, or 9% of the country's total exports. In 2018, investments into the IT industry reached USD 337 million, which amounted to 14% of total foreign investments. These results were achieved with the efforts of 184,000 persons employed in the IT industry (1.2% of the nation's total workforce). Ukraine's IT industry continues to exhibit rapid growth: In the last five years, its export volume has doubled, total investments quadrupled, and every year Ukrainian universities turn out 23,000 new IT specialists. The IT industry also fuels the growth of related industries, such as biotech, agrobiotech, pharmabiotech, and aerospace.

According to a survey of IT companies, the absolute majority of revenue is foreign in origin. Over 50% comes from the USA, with the UK in second place. Ukrainian companies also have a long record of cooperation with Germany, Canada, Israel, Sweden, and Switzerland. The 2019 Global Outsourcing 100 (the annual listing of the world's best outsourcing service providers) included 16 Ukrainian IT companies and

companies with offices in Ukraine: EPAM, Ciklum, EL-EKS, Luxoft, N-iX, Miratech, Intetics, Softjourn, Sigma Software, TEAM International Services, Program-Ace, Softengi, Infopulse, Intellias, Svitla, AMC Bridge.

A conceptual difference between Ukraine and the majority of post-Soviet states is that the state has been minimally involved in the development of the national IT industry. Even the few incentives that were introduced to promote the growth of the industry 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, only a few IT companies availed themselves to this opportunity as they were afraid of becoming a subject of undesired "monitoring" by the state. However, the 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 December 28, 2014 canceled this tax relief for IT companies, meaning that since January 1, 2015, IT companies have been paying corporate income tax at the standard rate of 18%.<sup>30</sup>

Further growth of the IT industry is restrained by several systemic factors: a flawed state system of protecting intellectual property (Ukraine is included in the Special 301 Report Priority Watch List), far-from-perfect customs legislation as it concerns IT, absence of a uniform government policy or state system of supporting education in the field of IT, and excessive bureaucratization which obstructs the employment of highly-skilled foreign specialists in Ukraine.

According to the leaders of the Ukrainian IT industry, it is the state that can take certain steps to remove these obstacles and further growth of the IT industry. Improvement in the intellectual property protection system in Ukraine would help increase the number of orders placed with the Ukrainian IT industry by Western companies. The key measures the Ukrainian government must take to develop intellectual property protection system include: reorganizing the system for collective management of proprietary copyright and related rights, providing a legislative definition and consolidation of the specific principle of IP rights exhaustion, working on the procedure



of customs clearance suspension, improving the process of destructing counterfeit goods, adopting a law establishing the National Authority on Intellectual Property of Ukraine, and intensifying international cooperation at the highest level through the facilitation of a consistent dialogue between the Presidential Offices of Ukraine and the USA. Among other measures the government must implement to create the conditions for accelerated growth of the IT industry are: establishing the legislative framework for software development on a “customer-owned” basis (i.e. when software is developed in Ukraine but is the property of a nonresident customer), instituting a government loan program for the education and training of IT specialists, and optimizing the process of employment for foreigners in Ukraine.

According to experts of the largest Ukrainian IT cluster, “Unit.City,” the implementation of these measures by the Ukrainian government would accelerate the growth rate of Ukraine’s GDP by 1-2% per annum, increase the exports of Ukraine’s IT industry by USD 1-1.5 billion, create 30,000-40,000 new jobs, and bring USD 80-120 million in additional tax revenues to the Ukrainian budget every year.

While central Ukrainian authorities fail to pay any considerable attention to the IT industry, some municipalities support local IT business. There are 16 IT clusters in Ukraine, the most significant of which are located in Kyiv, Dnipro, Odessa, Kharkiv, Lviv, Lutsk, and Ivano-Frankivsk.

## KYIV

The city boasts Ukraine’s largest IT talent pool comprising over 40,000 specialists in the IT outsourcing sector, which is around 46.6% of all resources in Ukraine. The city has a strong educational system with 68 universities that prepare future IT professionals. The 3 top-rated technical universities located in Kyiv include NTUU “Kyiv Polytechnic Institute,” Taras Shevchenko National University of Kyiv, National University of “Kyiv-Mohyla Academy.” Kyiv is the most attractive destination for opening an R&D center in Ukraine due to its favorable geographical location and 2 airports with regular flights to major European cities. Global companies such as Microsoft, Samsung Electronics, Wargaming, Boeing, eBay, Siemens, and IBM have R&D centers in Kyiv.

## KHARKIV

Kharkiv is the second largest city in Ukraine with developed IT infrastructure. Over 22,000 specialists work in the software development sector in the city, which is around 16.2% of all IT resources in Ukraine. The city is home to more than 20 higher educational institutions, five of which have technology and engineering faculties. Currently, more than 200,000 students study in colleges and universities in Kharkiv with more than 2,000 IT graduates every year. Kharkiv is also an attractive destination for opening an R&D center. Global companies like Plarium, Mirantis, Gameloft, Grid Dynamics, TOA Technologies, Huawei, Maxymiser, and SightPower have already opened their R&D offices.

## LVIV

Lviv is ranked the third biggest IT hub in Ukraine comprising 10% of Ukrainian IT resources. The city concentrates more than 20,000 qualified IT software developers. More than 192 IT companies are located in Lviv. Lviv boasts a well-developed technical educational system, which includes 10 colleges and 7 higher technical educational establishments. Currently, more than 12,000 IT specialists are studying in Lviv. Around 5,000 engineers graduate from Lviv educational institutions every year.

## DNIPRO

Dnipro is the fourth largest IT destination by number of IT specialists in Ukraine. Around 9,000 IT professionals are engaged in Dnipro's software development outsourcing sector. This is 7.9% of all Ukrainian IT resources. The city's IT sector includes more than 44 software vendors providing a variety of software development services. Dnipro ranks second in the number of R&D centers in Ukraine. The region has already attracted international companies such as Playtika, Siemens, ISM, Sitecore, Oracle, Wix, and Transferwise to open offices in the city.

## ODESA

Odesa is the 5th biggest IT hub in Ukraine with around 8,000 technical specialists, which constitutes 5.5% of the Ukrainian IT talent pool. Around 150 IT

companies are situated in Odesa. Five technological universities are located in the city. Moreover, local IT companies and IT coaching centers provide advanced training in software development, UX/UI design, QA and testing, data science, and other disciplines. Odesa is also convenient in terms of establishing an R&D center. Around 23 offices of multinational companies are located in this region, including Comodo, DIDWW, Netcracker, LogNET, Opera, Social Quantum, Teradek, and others.

Ukrainian IT professionals eagerly share their knowledge and try to master new tools and technologies so there are a lot of IT events and an active community life. Here are just a few of the main events of 2018 including the number of participants:

- iForum Kyiv, 12,000
- Outsourcing Forum Kyiv, 2,000
- IT Arena Lviv, 3,300
- ITEM Dnipro, 1,600
- Mobile Beach Conference Odessa, 1,200
- UNIT Fintech Forum Kyiv, 1,000

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## BELARUS

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### From outsource to own products

In February 2020, the U.S. Secretary of State Michael Pompeo visited the Minsk High-Tech Park. "I am inspired by what I saw in the HTP. A great example of how Belarus can realize its extraordinary growth potential with farsighted economic policies and prudent regulation," the head of the State Department wrote on his Twitter feed.

According to Pompeo, on the example of the Belarusian High-Tech Park "it becomes clear how effectively American investments can contribute to improving welfare around the world." The

High-Tech Park has 62 companies with American shareholders. US software exports in 2019 exceeded USD 900 million.<sup>31</sup>

Assessing the visit of Pompeo and the impact of the High-Tech Park activities on improving economic relations between the USA and Belarus, the Director of the High-Tech Park Administration Vsevolod Yanchevsky said: "Every year we grow. But now a new incentive will be given. I think that there will be a new stage in cooperation, in deliveries to the American market, and in American investments here, in Belarus. Now things are going well, but I think tomorrow they will be even better."<sup>32</sup>

**Although the history of the Belarusian High-Tech Park has been around for a decade and a half, in 2017 the Belarusian IT industry received a powerful impetus for development, after which it became possible to double its size in two years.**

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 Yanchevsky, an advisor to President Lukashenko on state policy in the fields of information support and high technologies, who is known for being liberal-minded.

On December 21, 2017, President Lukashenko signed a new decree "The Decree on the Development of Digital Economy."<sup>33</sup>

The new presidential decree, extends the term of special legal status of the High-Tech Park until January 1, 2049, while preserving the principle of extra-territoriality. 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 cyber sports including training of cyber sports teams, organizing and holding competitions and organizing the broadcasting of such competitions; and engage in the field of artificial intelligence, and development of drone-type systems.

In addition, 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 crypto platform 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 curren-



cies, 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 the 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 from the Administration of the High Technologies Park.

And the High-Tech Park that the US Secretary of State observed during his visit is largely a product of the implementation of this decree. The implementation of the decree made it possible to achieve not only quantifiable growth of the IT industry, but also qualitative change:

- In January 2019, the first cryptocurrency exchange Currency.com was launched in Belarus;<sup>34</sup>
- The second cryptocurrency exchange of Belarus iExchange passed an audit in the company of the Big Four (Ernst & Young);<sup>35</sup>
- In 2018, more than 1000 start-ups worked in Belarus;<sup>36</sup>
- Every second Belarusian start-up attracted investment, 85% of start-ups were going to attract investment in the next three years.

The Belarusian High-Tech Park has moved on from exclusively outsourcing services to creating its own products.

## MOLDOVA

### The first steps and US aid

“Since 2005, USAID has supported the comprehensive development of the ICT sector in Moldova. We have chosen this sector because we see in it a great potential for growth and a positive impact on the country’s economy. In addition, information technology attracts young people, so this area can provide decent jobs for them. And such support from USAID fully fits into the global strategy of transforming the national economy of Moldova into a knowledge-based economy,” says Karen Hilliard, Head of USAID Mission in Moldova. “We actively participated in developing the industry development strategy and implementing a number of reforms aimed at stimulating the activities of IT companies through tax incentives and attracting foreign investment to the sector. And this was largely the impetus for the creation of the first virtual IT-park, which became the locomotive of the development of the entire sector. The new industry development strategy for 2019-2023, adopted with our participation, provides for the extension of the Tekwill fleet’s experience to the regions of the country, and the industry turnover should grow to \$500 million.”<sup>37</sup>

First of all, it was the efforts of international donors that led Moldova to its current achievements in the field of IT. In April 2019, the International Data Corporation (IDC) presented the results of a study commissioned by the Government of the Republic of Moldova with the support of the USAID Competitiveness Project, the governments of Sweden and the United Kingdom.<sup>38</sup>

The title of the document sounds promising: “IT players in the Republic of Moldova are ready for presence all over the world.” This study continues the series of IDC reports on the Moldovan IT market, prepared in 2011 and 2015. It is intended for potential investors already present in the Moldovan market, as well as for those who want to work in an innovative IT ecosystem. The document analyzes the government’s policies related to the de-

velopment of the IT sector, a virtual IT park, preferential taxation, and also considers components of the ecosystem necessary for creating and developing business in this industry, including IT institutions, industry associations and organizations that support and promote IT companies. The document suggests that their joint efforts can turn Moldova into a global center of information technology because Moldovans are already used to working with enterprises from all over the world. According to IDC, Moldovan IT companies participate fully in the development of a wide range of products in the USA and the EU in various industries, including financial technology, communications and the automotive industry, which use Big data, Cloud and Internet of Things (IoT) technologies.

With an average annual increase of 0.7 percentage points in total exports since 2009, IT services have become one of the main factors of Moldova's economic growth and are considered a strategic resource for further development. In 2017, the sector's contribution to Moldova's GDP amounted to 5.7%, which roughly corresponds to neighboring Romania (6.2%), a member of the European Union.

According to Moldovan Association of ICT companies today, 23,000 people are employed in the ICT sector of Moldova. Every year, 1,200 new IT professionals graduate from Moldavian universities, and another 6,500 specialists in related professions graduate. The average salary for an IT professional is USD 1,600.

According to the Minister of Economy and Infrastructure, Kirill Gaburich, in 2018 the IT services market in Moldova reached a sales volume of USD 154.4 million, and by 2024 it is expected to grow to USD 262.26 million. Most of the products of Moldovan IT are exported, the value for which is more than USD 120 million per year.

Moldova adopted the Law on IT Parks to promote the export of the IT products. Tekwill, a center for best practices and innovations 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 will not only take the IT industry to a new level but it will also raise the Moldovan economy in general.<sup>39</sup>

In his speech during the Tekwill opening ceremony, the U.S. Ambassador to the Republic of Moldova, James Pettit, noted the response from American people as the reason for the issuance of a USAID grant of two million dollars to support the development of the Moldovan IT sector. Ambassador Pettit also noted the involvement of two American companies – IBM and Microsoft.

### TODAY TEKWILL INCLUDES:

- 23,000 people who participated in educational programs
- 20,000 participants in entrepreneurial activities
- 389 work teams created in the park
- 35% of the participants in the activities of the park are women and girls

Western donors, primarily USAID and the Swedish government, have invested approximately USD 9 million in Tekwill. The private sector in Moldova has invested about USD 2 million. The companies operating here have been able to attract about USD 10 million in investment.

## Moldova actively attracts international investors to develop its IT industry.

In February 2017, the Parliament of Moldova passed a bill granting special treatment to 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 that regulates the stay of foreigners in Moldova, and the Law on Labor Migration that detail the 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. At the end of December 2017, the Government of the Republic of Moldova passed Resolution no. 1144. This document approves the regulation on the establishment of the virtual Moldova IT Park.<sup>40</sup> 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<sup>41</sup>

Instead of all these taxes, residents of the IT park pay a single tax of 7% of turnover.

In December 2019, in Chisinau, another center for the development of the IT industry was opened - Digital City, and again with the help of the American authorities. At the opening of Digital City Dereck J. Hogan, the US Ambassador to Moldova spoke about American participation in the project: "The Digital Park provides a world-class business infrastructure, adapted to the requirements of IT companies. This investment represents an important step in the development of the IT industry in the Republic of Moldova, strengthening Moldova's competitiveness and positioning Moldova as a premium IT destination. The United States Government is pleased to contribute to the development of The Digital Park as well. Through the U.S. Agency for International Development, USAID, it has granted a US \$ 9 million (nine) bank guarantee from the U.S. Treasury. This facilitates access to the financing needed to build the park's infrastructure."

## SOUTH CAUCASUS

### GEORGIA

#### Focus on international donors

In 2014 Georgia's Innovation and Technology Agency (GITA) was established under the Ministry of Economy and Sustainable Development as a main mediator and coordinator in the process of developing an innovation ecosystem in the country.<sup>42</sup> The Agency aims to promote entrepreneurship and innovation by improving a) the regulatory framework for innovation; b) entrepreneurial learning and technical assistance; c) access to finance for start-ups and innovation; d) infrastructure for innovation. Over the 6 years of its work, GITA has opened 3 Techparks: in Tbilisi, Zugdidi, and Telavi, and 2 Innovation Centers in Akhmeta and Rukhi.

Techpark is a physical space where the technological, educational, and professional resources are concentrated, and it aims to serve the development of a knowledge-based economy in Georgia. Through its infrastructure, Techpark facilitates the establishment and growth of high-tech businesses that are competitive in both local and global markets. While integrating intellectual resources and technological infrastructure, Techpark is one of the main elements of the start-up ecosystem of innovations, and its dynamic, renewable and developing nature makes it an epicenter of changes and developments. It combines incubators, training centers and laboratories, as well as offices and recreational spaces. Other than that, Techpark also provides access to training centers and showrooms.

Innovative centers are mini-Techparks that offer customers the same services as Techparks but locally and on a relatively small scale. With technologies and general infrastructure, as well as with international experience and knowledge shared by recognized mentors





Official opening of StrategEast EPAM IT Hub Tbilisi on February 22, 2020.  
Photo by Zurab Kartvelishvili

**Techpark is a place where a comfortable environment has been built to help people develop business ideas into a business model. In the near future, GITA plans to open two more Techparks in Tbilisi and Batumi, and two more Innovation Centers in the regions.**

Investments by the state and international donors have already borne fruit. According to Geostat, the ICT sector officially employed 21 thousand persons in 2018. There are 19 higher education institutes providing IT specializations with an average of around 560 graduates annually for the past five years. Besides higher education,

there are 46 vocational schools and certification institutions offering a variety of different courses in computer programming with 782 students graduating in 2018. In addition to formal education there are numerous IT training centers offering intense beginner programs. According to the USAID Georgia Annual report 2017, the total volume of the ICT market accounted to GEL 1.68 billion in 2015 and its share of GDP was 5.3%.

From the very beginning, the work on creating the Georgian IT industry was based on significant financial injections from international donors and they continue to support the industry now. The government of Georgia has secured support from the World Bank Group for the Georgia National Innovation Ecosystem (GENIE) Project in the amount of USD 23.5 million.<sup>43</sup> The main objective of the project is to increase innovative activities of firms and individuals in Georgia and their participation in the digital economy. The GENIE project includes 3 components: Innovation Infrastructure, Innovation Services, and Innovation Financing. By 2022 the Georgian government aims to train 3,000 IT specialists in internationally recognized certifications in the most in-demand skills (Project Management, Programming, Cybersecurity, Networking, AI, Data Science, etc.).<sup>44</sup>

In the spring of 2019, it was announced that the European Union will provide EUR 2.7 million for GITA through the Increasing Institutional Capacity for Innovation (IICI) project, which will be implemented by the World Bank. "Innovation increases SME competitiveness and creates jobs, and innovation policy is actually at the heart of the EU's own Europe 2020 strategy for growth and job creation," said Stig Kjeldsen, Cooperation Officer at the EU Delegation to Georgia. "Further assisting GITA in building Georgia's innovation ecosystem falls naturally in line with the EU's commitment to supporting business development in Georgia."<sup>45</sup>

The IICI project is financed by the EU in the amount of EUR 2.7 million and will be implemented by the World Bank. The overall objective of the project is to increase GITA's capacity to develop and implement innovation and entrepreneurship policies and programs with medium- and long-term strategies and results; test and demonstrate the viability of technology transfer between educational institutions and the private sector in Georgia; improve the flow of innovative start-ups ready for investment, and fund availability for early-stage companies.

In the fall of 2019, a Memorandum of Understanding was signed between the Ministry of Economy and Sustainable Development's GITA and the USAID Economic Security Program. The cooperation aims to stimulate Georgia's competitiveness and support the development of a knowledge-based economy. Within the framework of the memorandum, the plan is to stimulate cooperation by strengthening technological start-ups and increasing the popularity of Georgian business. The goal is to create high-value jobs facilitating investment in the businesses and engage them in the global value chain. Priority sectors such as intellectual services, creative industries, light industry, and tourism are identified for cooperation. The memorandum was signed by Avtandil Kasradze, Chairman of GITA and Mark McCord, Head of the USAID Economic Security Program.<sup>46</sup>

An unexpected new direction in the development of the country's IT industry has been "IT tourism." In June 2019, IT enthusiasts from Armenia, Ukraine, Belarus, Azerbaijan, Kazakhstan and other countries gathered at the Digital Hot international conference in Tbilisi.<sup>47</sup> Attendees included opinion leaders who create the digital industry, business

owners, start-up founders, civil servants, IT professionals, investors, and crypto enthusiasts. Georgia is in the Top 10 Doing Business 2019 list and attracts a large number of business travelers who want to explore the conditions for entrepreneurship in Georgia. Thirty bright speakers shared insights on the situation and trends in the world of digital technology. Representatives of crypto exchanges and project founders spoke about crowdfunding trends and the future of IEO / STO. The participants discussed the conditions for business in the country, project leaders from Georgia and other countries presented their digital products and guests had the opportunity to register their own company in Georgia in a couple of hours.

The event was organized by Digital Georgia, an international initiative to create conditions for the development of projects in the field of digital technologies in Georgia, and Crypto Tour Georgia, the official tour operator of digital business tourism.

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## ARMENIA

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### Development supported by the Armenian diaspora

"Armenia's burgeoning information technology (IT) industry dominated by software firms has grown by around 30 percent in 2019 and will double its output by 2024," – Minister of High-Tech Industry Hakob Arshakyan.

**The industry currently employing at least 15,000 people has been expanding annually at double-digit rates for more than a decade, making it the fastest-growing sector of the Armenian economy.**

Arshakyan cited government data that showed the sector's combined turnover increasing by 33 percent to USD 250 million in 2018. "Its average growth was around 28 percent from 2015 to 2018," said the minister.

Speaking about government efforts to spur its continued growth, the minister singled out tax breaks for IT start-ups that were first introduced several years ago. He said they benefited 230 firms and resulted in 1,200 new jobs in the course of this year alone.

Enterprise Incubator Foundation, a technology business incubator and information technology development agency based in Yerevan, reports that the ICT industry's total revenue, consisting of software and services, as well as Internet service providers, has reached USD 922.3 million in 2018, an increase of 20.5 percent since 2017.

Revenues in this sector make up 7.4 percent of the total GDP of Armenia (USD 12.4 billion). The creation of the Ministry of High-Tech Industry in Armenia (previously the sector was regulated by the Ministry of Transport, Communications and Information Technologies) is clearly a step forward in terms of consolidating resources in the IT industry.

In June 2018, the Prime Minister of Armenia, Nikol Pashinyan, noted that in Armenia there is a need for more than 4,000 IT specialists.<sup>48</sup>

Several local universities and organizations are taking initiatives to support growing tech talent and scientific research such as the American University of Armenia's BS in Data Science program, Yerevan State University's Applied Statistics and Data Science Master's Program, as well as machine learning and other related trainings, research and grants offered by Innovative Solutions and Technologies Center (ISTC), the Armenian Code Academy, YerevaNN (a machine learning research lab in Yerevan), Gate 42 (a quantum computing research lab in Yerevan), and others. Major tech companies are also committing to this process with experience and knowledge sharing programs.

In a 2018 review of the Armenian technology industry, SmartGate, a Silicon Valley venture capital fund, stated: "Today, Armenia's technology is a fast-grow-

ing industry in which there has been a huge transition from outsourcing to creating your own product."

The main area that local start-ups have focused on is machine learning. For example, Krisp is an application that reduces background noise during phone calls. According to David Baghdasaryan, CEO and co-founder of 2Hz, who created Krisp, their solutions are revolutionary in audio technology. "In just two years, our research team has created a technology that has no analogues in the world. Our team has 12 specialists, most of whom have a doctorate in mathematics and physics," says Baghdasaryan. Krisp was recognized by Product Hunt as an Audio & Video Product of the Year.

There are a number of other growing start-ups using machine learning that make Armenia the center of machine learning in the region. For instance:

- Renderforest for creating animated videos, websites and logos;
- Teamable, a platform of recommendations for employees (also known as a "tender for hiring," which allows you to select qualified personnel and reduce time costs);
- Chessify, an educational application that scans chess moves, visualizes next steps and much more.

These start-ups are important not only because they use machine learning to provide business services, but also as creators of scientific value for the technology world.

Armenia's enormous diaspora means that there are 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.

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,” The Next Web columnist wrote.<sup>49</sup>

According to the Minister of High-Tech Industry Hakob Arshakyan, representatives of the Armenian Diaspora opened 45 start-up companies in Armenia.<sup>50</sup> 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 five thousand 12–18 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.<sup>51</sup>

Former Twitter Vice President and current Uber CEO Raffi Krikoryan is a member of the TUMO Board. He is actively involved in areas where support for new start-ups is required. “Honestly, if you are Armenian, I will probably want to help you,” he said during an interview to Itel.am.<sup>52</sup>

Entrepreneurs also benefit from a new emergence of enterprises such as the Center for Entrepreneurship and Executive Development (CEED), which launched the Armenia–US IT Acceleration Program with the Enterprise Incubation Foundation, the Government of Armenia, and the World Bank and aims to help connect new start-ups with global markets.

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## AZERBAIJAN

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### The state invests in start-ups

The main problem of Azerbaijani IT, as in most other Eurasian countries, is the lack of qualified personnel. Azerbaijani authorities have undertaken to popularize IT education, even among schoolchildren. In September and October 2019, in three cities of Azerbaijan, within the framework of the Digital Skills project and with the organizational support of the Ministry of Education, a global campaign “Code Hour” was held. As part of the Code Hour, participants were given the opportunity to solve problems in a game format in the Scratch environment. The main goal of the initiative is to popularize programming and the profession of a programmer among schoolchildren,

to draw the attention of students and their parents to professions related to information technology.<sup>53</sup>

The International Bank of Azerbaijan funded the mass re-training of students with technical specialties in IT. Here they launched a project to create an IT Academy as part of the Corporate Social Responsibility program. The project aims to support the training of IT professionals, taking into account the needs of the labor market.<sup>54</sup>

The Academy operates with financial support from the International Bank of Azerbaijan and offers free training. Young people aged 20–34 years who want to gain knowledge and skills and build their careers in information technology have the opportunity to study at the Academy. When selecting candidates for the project, preference is given primarily to students in their final stage of higher and secondary specialized educational institutions.

This social project, first implemented among local companies by the International Bank of Azerbaijan, was implemented jointly with the DAN.IT education training center. The Supervisory Board of DAN.IT Education includes CISCO, WiX, SIGMA, and other global companies. Since the activities of the center are based on the experience of Israel, the new IT Academy is based on the Israeli IT education system and the popular TELEM method. This method allows students to discover and develop their strengths, and also motivates them to learn.

Intensive bootcamp trainings cover key areas of front-end and back-end development; In addition, students study Mobile Application and Business Intelligence. Each program consists of 300 academic hours and lasts 2.5 months. Candidates for the program go through 4 stages of selection: registration, assessment of motivation in the IT industry, technical testing, and individual interviews.

Students are also expected to participate in online workshops and meetings with experts in the field of Mobile Application, Business Intelligence, Product Management, Data Science, etc. Due to the high demand for graduates in the labor market, all necessary measures are taken to increase the reputation and ensure quality education at the IT Academy.



## **As a whole, the IT industry in Azerbaijan is developing with the direct participation of the state. In 2012 the State Fund for Development of Information Technologies was established by decree No. 2095 by the President of Azerbaijan.**

It operates under the Ministry of Communications and High Technologies, to stimulate innovation and development in the field of information and communication technology, as well as providing financial assistance for applied scientific research in the field. Financing is provided through investment, low-interest loans, and grants.

The resources of the Fund are directed at the financing investment and competition in the development of the information and communication technologies sector. The Fund uses the following mechanisms in the financing of its projects:

- Capital investment in companies operating in the ICT sector;
- Loans through authorized bank and non-bank credit institutions, with concessional credits;
- Grant financing of innovative and operative scientific-technical start-up projects.

The State Fund regularly holds contests for funding among local start-ups. More than a thousand start-ups have already taken part in such contests, and more than 100 have received investments from the State Fund.<sup>55</sup>

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. In the future, such investors become co-owners of projects.

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 an upgrade to the industry regulatory authorities, liberalization of the telecommunications market, extension of the range of e-services, and formation of an e-government.

The document also provides for greater 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).

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.

A High Technology Park was established by the Decree of the President on November 2012. According to the Decree, 50 hectares of land in the Pirallahi district of Baku was allocated to the Park. The main purposes are to stimulate ICT development in the economy and increase the competitiveness of national technological markets and to create modern infrastructure for further pursuit of research and development, and implementation of new technologies in the country.

In November 2018, on the basis of the State Fund for Development of Information Technologies and the High-Tech Park Limited Liability Company, a single IT development center was established in the country - The Innovation Agency, which is part of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan.

Azerbaijani state efforts to develop the IT industry has produced results: Azerbaijan's IT sector is expected to grow by an average of 12.3 percent annually from 2018 to 2022, according to Trend Reports with reference to Marketing Analysis Azerbaijan 2019.



In the IT services and software sectors, an average growth of 16 percent per year is expected. A corresponding increase of 11.3 percent in IT equipment is forecast. The whole IT industry market could reach USD 1.6 billion in 2022, compared to approximately USD 0.9 billion in 2018.

## CENTRAL ASIA

### KAZAKHSTAN

#### IT industry has grown from state-owned corporations

According to official figures, Kazakhstan's IT sector is becoming more attractive for business. At the end of August 2019, 7,700 companies were registered in Ka-

zakhstan's IT sector; that is 11.8% more compared to the same period in 2018 (6,900 companies). Almost 99% of IT companies are small enterprises. The share of medium-sized companies is 0.7% and the share of large ones is 0.5%. In the first half of 2019, the volume of computer programming and consultation services in the sector comprised USD 280 million having increased by 46.1% against the same period in 2018.

The Kazakh IT sector, unlike all other countries of Eurasia, is developing not due to export, but due to domestic demand, mostly from the state or large state-owned companies. In a sense, the formation of the Kazakh IT sector has become a "side effect" of the development of the state mining industry.

Zerde National Infocommunication Holding is an integrator of information systems and the project office of the state program Digital Kazakhstan, a large program of digitalization of the economy for 2018–2022.

Pavel Koktyshhev, deputy chairman of the Zerde holding explained: "Here everyone spills up the local market, and the state - state and quasi-state organizations are on top. Besides the fact that it issues a framework like the Digital Kazakhstan program, it is also a key customer. It so happened that 70% of the economy is the state and quasi-state sector, there is the Samruk-Kazyna National Welfare Fund, and in it, like in a basket, all national assets are combined, from the railway and Air Astana airline to oil assets and energy. The bulk of IT serves this sector. Nearby, almost no intersection, and the venture capital market is only 3-5% of the entire industry."<sup>56</sup>

And yet, in addition to the market for servicing state corporations, the direction of start-ups and venture financing is also developing in Kazakhstan. In 2017, Nursultan Nazarbayev ordered the creation of an international start-up hub in Astana (now Nur-Sultan), and it was immediately described as the "core of an innovative ecosystem." The official opening took place at the end of 2018 and was led by Joseph Ziegler, an entrepreneur from the United States who worked on developing a start-up ecosystem in Singapore, Australia, and other countries.

Astana hub, the "daughter" of Zerde holding, is located in one of the pavilions of Expo-2017, an international specialized exhibition that Kazakhstan has been hosting for several years. The Expo complex pushed the borders of the capital deeper into the steppe, towards the airport.

Astana hub has 4 floors and spans 10 thousand square meters. On the ground floor, educational events are hosted; on the second and third there are coworking spaces and a media studio; the administration and a conference room are on the fourth floor. About 150 start-ups were supported by the Astana hub: some through the acceleration program created by the hub's employees, and some through the incubator program. About 50 start-ups were eliminated as non-developing, so about 100 remained. Start-ups that got into the hub and operate full-time are provided with free office space and PR support. Those who fall under the priority areas are promised tax benefits (10-year exemption from VAT,

corporate income, individual income, social and other taxes). The corresponding decree of the President of Kazakhstan was signed in December 2018.

Representatives of Microsoft, Huawei, Cisco, and IBM hold public events in Astana hub. Many have their head office in Almaty, but they also opened representative offices in the Astana hub. Currently such companies occupy space in the hub on the basis of an exchange: they don't pay money, but together with start-ups they must conduct collaborations, provide equipment, software, and mentoring services.

In the first two months of 2019, about USD 790 thousand was invested in Astana hub projects – more than for the entire previous year (USD 750 thousand). The state supports business angels with its own co-financing: the state responds with a grant for the same amount of money invested by business angels. According to the Astana hub development plan, USD 206 million should be invested in start-ups by 2022.

Joseph Ziegler, Director of Astana hub, evaluates the Kazakhstan start-up ecosystem as being at the initial stage and does not make grandiose plans. First of all, he suggests concentrating on developing the start-up ecosystem as a whole, supporting entrepreneurial initiatives, as well as training potential investors in venture financing.

Joseph Ziegler explains his approach: "I worked in different Asian countries and I know their cultural characteristics: respect for elders, hierarchy. A long tradition of centralized decision making can be a challenge in Kazakhstan. When to take responsibility, becoming an owner is risky, and the task of the entrepreneur is to reduce their risks as much as possible. But for the development of a startup environment, a different mentality is needed. Startups, by definition, contradict the established order. They are created by people who reason independently: I know this thing should work like this, and I will try to do it. And this mentality should develop."

Kazakhstan start-ups that experts describe as successful include:

- Smart wallet Senim;
- Naimi.kz: a service for searching for specialists;
- ChocoFamily: a holding company with a set of e-commerce projects;
- Nommi: a wi-fi router that allows you to use cheap Internet abroad;
- Tastamat: a smart network of terminals for courier services;
- Smartsatu: an electronic ordering system for outlets and suppliers;
- Oborotka.kz: a loan system for small shops;
- Clockster: a biometric system of accounting of working hours.

BelnTech is a bright representative of the corporate IT segment. In 2018, a large investment and construction holding company of Kazakhstan BI group created a subsidiary specifically for digitalization of the holding and development of IT projects. It already has 300 employees. Another subsidiary, BelnTech Ventures, is a venture capital fund that invests in industrial technology start-ups. The fund has its own start-up incubator in Nur-Sultan and a representative office in Silicon Valley. The portfolio contains about 20 invested projects: both Kazakhstani and foreign. These include Parametrica, a program for the automatic design of new facilities; Opera Build, a platform for operational construction management; Uber Remont, a platform for ordering turnkey apartments online; and Connected Home, a smart home system.

Amirkhan Omarov, Managing Partner of BelnTech Ventures explained the development of the sector: “We have a large oil industry, a large quasi-state sector, there was a successful banking sector – IT was born there. That is, vendors came, saw a large solvent market, and began to supply hardware and software. And since they could not bring a large number of foreign specialists here, they began to grow local companies. Some of them remained just distributors. But others, starting with resale, gradually switched to the provision of software support services, and then the development of new technologies. Having implemented the ERP system in a large national company, such players gained experience and continued to do the same on open source solutions. Already without SAP, HP or Microsoft.”

## UZBEKISTAN

### Tax and currency benefits for 10 years

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.<sup>57</sup>

Currently, hundreds of companies already have a status of residence at the Innovation Center and this number will reach 600 units by 2021. IT industry exports are expected to grow to USD 30 million by 2021 – that is, it will double in 4 years. As a result, the share of ICT in Uzbekistan’s GDP can reach 4% by 2021.

The Center operates on the basis of 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 extended.

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 the necessary organizational, technical, financial, and economic conditions for expanding the interaction between commercial entities and higher educational institutions in connection with the production and sale of information technology products on the domestic and global markets.
2. Providing assistance to residents of the Innovation Center to attract foreign investments for the implementation of competitive ICT projects on domestic and global markets.
3. Participating in providing employment for graduates of higher educational institutions and professional colleges specializing in information technol-



ogies, including by providing support to talented young people involved in start-up projects.

4. Organizing advanced training and retraining of personnel in the ICT field through short- and medium-term specialized courses, including invitation of foreign specialists.
5. Providing support to aspiring entrepreneurs in the implementation of innovative projects aimed at the development of promising ICT products.<sup>58</sup>

Residents of the Center 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 salaries 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.

In January 2019, a government decree was issued on the opening of an IT park in Tashkent. The park was opened on July 24 of that year. Farkhod Ibragi-

mov, former head of the Mirzo Ulugbek Innovation Center, became the director of the IT Park.<sup>59</sup>

By the Decree of the Cabinet of Ministers of Uzbekistan dated December 3, 2019 "On measures for the further development of the Technological Park of software products and information technologies", two centers for the development of the IT industry of Uzbekistan were, in fact, merged. Mirzo Ulugbek Innovation Center has been legally abolished, and its residents have been transferred to the new IT Park with all the benefits guaranteed to them by the state.

Farkhod Ibragimov explained the opportunities residency in the IT park can provide: "I saw many guys who have a desire to start their own business, but this does not always work out. We can collect enough mentors from the republic and from the outside to bring the product to mind and bring it outside the country."

Financing of projects, according to the head of the tech park, will be carried out at the expense of venture funds. "While projects are being finalized, say, from three or more months, we will create a fund where funds will be accumulated. The specifics of this fund will be that we will not be able to finance the project on our own. We finance only if our partner organization – another venture fund or a private investor – is also interested in financing, as it calculates its risks."

Farkhod Ibragimov stressed that in parallel with the activities of the IT Park, the legislative framework in the field of venture financing will be improved.<sup>60</sup>

It was the IT Park that was authorized to implement the Digital CASA project by the World Bank. The World Bank Digital CASA program aims to expand access to a more accessible Internet, attract private investment, and increase the capacity of participating governments to provide digital public services in Central Asia and parts of South Asia by developing a regionally integrated digital infrastructure and enabling environment. Part of the project implemented in Uzbekistan is estimated by the World Bank to cost up to USD 300 million.<sup>61</sup>

Today, the government of the country has set the task of attracting local youth to work in the local IT industry.

In November 2019, the One Million Uzbek Coders project was launched in Uzbekistan, within the framework of which free online courses were organized to train one million Uzbek programmers. The program's launch ceremony, held at Inha University in Tashkent, was attended by Prime Minister Abdulla Aripov. He emphasized that the implementation of the project will encourage the involvement of the general population in the development of new professions in the field of information and communication technologies employing youth, including people with disabilities.<sup>62</sup>

During the first stage, training will be conducted in the Uzbek language and will focus on four areas: Data Analysis, Android Programming, Full-Stack Development, and Front-end Development. All these specialties are in demand in the IT market. The general course is designed to be 120 hours long.

**The Uzbek authorities have big plans for the republic's transition to a digital economy: "We need to develop a national concept for transition to digital economy. On this basis, it is necessary to introduce the 'Digital Uzbekistan - 2030' program," President Mirziyoyev has said.**

Mirziyoyev added that the world is changing rapidly and work must start in this direction. "We set big goals: we need to bring the share of the digital economy to 30 percent."

## KYRGYZSTAN

### The first task is to build an education system

"The development of digital skills and competencies among the population is one of the most important areas of the Sanarip Kyrgyzstan 2019-2023 digital transformation concept<sup>63</sup> and is a key condition for the development of the digital economy," said Bakyt Omurzakov, director of the project implementation department of Digital CASA–Kyrgyz Republic under the State Committee for Information Technology and Communications.<sup>64</sup>

Perhaps the main problem in the development of the Kyrgyz IT industry is the lack of qualified personnel for the industry.

Azis Abakirov, chairman of the Kyrgyz Association of Software and Services Developers, says:

"We initiated the creation of a High-Tech Park. We wrote this law, promoted. This law is now working safely. In 2018, in the ICT Export ranking of the Global Innovation Index, we jumped from 93rd place to 35th. High-tech park shows tremendous results. Our programmers sit here and work for America, for Europe, not to mention Asia. We are now on the rise, but we cannot find people for ourselves. We say that we urgently need to reform the education system. We need to make it closer to business.

Over the years, we have generated 1.5 billion soms [about USD 25 million] Despite the fact that we are given preferences, we have small tax payments, but at the same time we paid social contributions and income tax of 50 million soms [about USD 1 million]. This is despite the fact that we had three companies working there, then seven, then 16, and now about 40 companies work. 450 jobs created.

If earlier we exported services to Kazakhstan and Russia, then in 2017 the United States took the first place in exports. We export there 39% of the products.

Each programmer generates 1 million soms per year [about USD 15,000]. This is all brought to the country, this is export. We have 80% – this is export. This

despite the fact that the state did not spend anything on the creation of a High-Tech Park. Now we have to make a breakthrough, but everything is breaking into the educational system.<sup>65</sup>

Our task is to create 50 thousand jobs by 2030. To do this, you need to grow 50 thousand programmers. For this we need them at 4 thousand a year.”

One of the tasks of the joint project of the World Bank Digital CASA and the government of the Kyrgyz Republic is to educate the population in the digital skills that will help local youth join the number of IT specialists. As part of the project, Kyrgyzstan will also build its own data center. The construction of the Data Center in Kyrgyzstan will be carried out under the Digital CASA project with financial support for five years from the World Bank. The cost of the project is USD 50 million, half of which are grants, and the other half are loan funds. It consists of three components: providing infrastructure to increase public access to broadband Internet, building and equipping the data center itself and improving the legislative framework of Kyrgyzstan for the development of the digital economy

But until the state is able to provide the industry with the required number of specialists (local universities only prepare a few hundred a year instead of the required 4,000 engineers needed<sup>66</sup>). Moreover, one project of the Kyrgyz Association of Software and Service Developers – “IT Academy” – conducts one-year programming courses for the certified IT program HTP Academy of Belarus.<sup>67</sup>

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## TAJIKISTAN

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### IT development is mostly on paper

In recent years, Tajikistan has approved a number of laws and regulations that open the country to a path of digital transformation:

- The concept of E-Government has been adopted;
- The ICT Council under the President of the Republic of Tajikistan has been established;
- Standards for maintaining the state information resources have been adopted;

- Relevant legislation has either been adopted or is under development;
- Pilot projects are being implemented in the public service sector.

At the same time, the state of the telecommunications industry, without the development of which no digital transformation is possible, is described by the World Bank as a sector beset by overregulation, lack of competition and conflicts of interest. The World Bank report, which was published in late August 2019 and details the country’s economic prospects, notes that the Tajik telecoms industry was in blooming health in the 2000s, until it was squelched by the state communications regulator.

The state telecommunications service, which has since 2009 been headed by Beg Sabur, a relative by marriage of President Emomali Rahmon, is more than just a regulator, however. It has a monopoly on the provision of online data and runs the state telephone and Internet services provider. With the government unwilling to yield its hold over the data spigot and throwing up barriers to competition, the quality of service has stagnated.

“Despite modest improvements to international bandwidth (to about 6-8 Gbps), Tajikistan’s data transmission speeds remain the slowest among regional peers and other small, landlocked countries,” the World Bank report stated. “Such slow international bandwidth speeds cannot support significant increases in trade in services, the development of a knowledge economy, or reposition Tajikistan as a regional hub.”<sup>68</sup>

Though Tajikistan’s difficult geography is a factor in constraining technological development, this is no alibi. “For years, the communications service has prevented companies from connecting across the border into Afghanistan and has blocked a fiber-optic connection to China, which would have dramatically reduced connection costs and improved quality and speed,” the World Bank found.

If today the IT industry in Tajikistan is developing, this is due to the efforts of individual enthusiasts. Alif Sarmoya, a fin-tech start-up, came onto the market in Tajikistan six years ago. The company started as an organization that brings financial, retail, corpo-

rate, and private banking services to people using informational technologies. It was launched by three young Tajiks educated in the United Kingdom and United States. Today the company boasts over 250 employees and is expanding regionally. At its core, Alif Samoya's business is a revolution in the Tajik banking sector. The company wants Tajikistan to go cashless and provide the technological infrastructure to achieve that ambition. In addition, the company also contributes to the development of the country through the launch of Alif Academy, where it teaches skills such as coding and programming to youths.<sup>69</sup>

Beyond human capital, access to financing is incredibly important for start-ups. Currently, start-ups in Tajikistan have the opportunity to raise funds only through channels such as accelerators, start-up events, or, when possible, bank loans. High interest rates for accessing loans, ranging from 18 percent in foreign currency to about 35 percent in local currency, in connection with collateral requirements, make it very hard to access funding.

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## TURKMENISTAN

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### Getting ready to make the first step

The latest initiatives of the Turkmen authorities indicate that the country is ready to take the first step

towards digital transformation and development of its own IT industry. From the beginning of 2019 Turkmenistan started to implement the concept of development of the digital economy, designed for the period of 2019-2025.<sup>70</sup> The concept, approved by the decree of President Gurbanguly Berdimuhamedov, is aimed at improving the efficiency of all sectors of the economy and the public sphere through the use of information technologies.

"Without the creation of a digital economy, it is impossible to imagine the development of our state, the promotion of innovation, ensuring competitiveness and high rates of economic progress," President Gurbanguly Berdimuhamedov said in his speech at a meeting of the Supreme Council of Turkmenistan. He first acknowledged that "the fourth industrial revolution is already beginning to exert its influence on the political, economic and social systems of the country."

The President took the initiative to provide for the establishment of the Information Technology Center of Turkmenistan.<sup>71</sup>

At the same time, the reality of the country is such that only 18% of the 6 million people of Turkmenistan use the Internet and only 42 thousand people use social networks.<sup>72</sup>

# EURASIAN COUNTRIES NEED HELP – FROM GLOBAL TECH LEADERS

In the Eurasian 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 High-Tech Park that employs nearly 50,000 and exports USD 2 billion in products. Internet and smartphone penetration are high and Western social media sites are popular in many Eurasian 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 the Internet has 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 global IT industry has much to gain by spreading values of transparency, accountability, and entrepreneurship.

First, they can inspire, by sending leaders to the Eurasian 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, start-ups, and governments could help develop local tech sectors and are more valuable in some places than millions in investments.

Second, they can educate. Local entrepreneurs need to understand how Western IT industry 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 US. 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.

# RECOMMENDATIONS FROM STRATEG EAST

## POLICY RECOMMENDATIONS FOR THE US AND EU

1. To set up and implement dedicated programs promoting the development of the IT sector in Eurasian states for:
  - raising awareness among local governments on the positive impact that IT has on social and economic development in their countries;
  - encouraging global tech leaders to start their R&D operations in the Eurasian region;
  - developing engineering and technical education in these states.
2. To increase the share of high-tech projects in cooperative programs between international financial institutions and the Eurasian states.
3. US and EU agencies responsible for IP protection should support the legislative initiatives related to the enforcement of the IP protection system on the territory of Eurasian states.
4. Government agencies responsible for IP protection, primarily USTR, internationally support the legislative initiatives related to the reorganization of the IP protection system on the territory of Eurasian states.
5. International aid and financial institutions, such as USAID, the World Bank, EBRD and others, should explore the possibility of co-funding special programs for tech education.

## POLICY RECOMMENDATIONS FOR EURASIAN STATES GOVERNMENTS

1. To create a favorable environment for the development of the IT sector: to introduce special legislation that eases doing business for IT companies.
2. To adopt all necessary laws and regulations for the protection of intellectual property in Eurasia, and take all necessary measures to enforce these laws in close cooperation with US and EU institutions for the protection of intellectual property rights.
3. To develop a special education system that meets the growing needs of the local IT industry.



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Mr. Motkin is a successful technology investor with years of experience in political consulting and media entrepreneurship in the Eurasian region.

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