

FLANDERS INVESTMENT & TRADE MARKET SURVEY



INNOVATIVE LANDSCAPE OF ST.

PETERSBURG



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1. INNOVATIVE PROFILE OF RUSSIA

Innovation is the engine of progress in modern society. It is also an important factor in the global business environment. Innovation enables businesses to present new or improved products to the market before their competitors and thereby boost competition. So innovation creates competitive advantages for companies that generate it.

Innovation is also a strategy that companies use to produce things that nobody else can do, doing things better than everyone else or introducing superior, cheaper, and faster service. This strategy enables to promote long-term competition by gathering knowledge, competences, and experience in creativity and development. This has positive results not only for the company, but also for the entire national economy. In this way innovation contributes to achieving global competitive advantages.

Russia's innovative development is determined by the federal innovation strategy approved in 2010 for a period of 10 years (2010-2020). This strategy will expire at the end of this year, and a new innovation strategy has not yet been approved. In addition, innovative development is also supported by the digital economy development national program which has been in place since January 2019. This national program provides for regulations, staffing, infrastructure, technologies, information security and digital government services.

Russia is far behind the most innovative countries like South Korea, Germany, the USA and China. There are many barriers that hamper the innovative development of Russia, such as the economic recession, bureaucratic procedures and gaps in the technology commercialization process. There is often a disconnection between the research and development stage and the commercialization stage.

The innovative landscape of Russia is still taking shape. Russians are quite open to new technologies that make it easier for businesses to capture business opportunities. Big companies from key industries implement innovations to become more competitive and generate more revenues. They try to create their own R&D centers, invest in R&D activities and accumulate knowledge and innovations within the company. Medium-sized companies have fewer resources to generate innovations, but they also try to innovate.

10% of Russian industrial companies invest in innovative technologies. In the telecom industry, the share of companies investing in innovation is only marginally lower – 8%.

According to experts of the Higher School of Economics (https://www.hse.ru/), the Russian services industry has the largest concentration of innovations (15%). Service companies on average spend 2,3% of total revenues on research, while Industrial companies spend 1,8%.

Traditionally, the Russian IT industry is quite strong and innovative. In 2019, the TOP-100 IT companies increased their revenues to RUB 1566 billion, a 22% increase compared to the previous year. The IT industry is getting more service-based; IT services account for 78% of the total revenues. The biggest customers of IT companies are governmental bodies, banks and telecom companies. The main trends observed across the industry are advanced digitalization in manufacturing and power industries, government influence, insourcing, big data management, cloud computing, robotics and Internet of Things.

Cloud computing is certainly one of the main drivers in the IT industry. Big Russian industrial companies, banks and telecom companies upgrade their IT architecture and reconfigure their workflow to take maximum advantage of cloud solutions. That is why IT insourcing is now on the rise. Banks and industrial companies hire qualified technical specialists to do multiple IT tasks.

Russian software companies are quite active around the globe. About 35% of Russian software companies are export-oriented. In 2019, the software industry increased their revenues by 17,8% compared to 2018. Many Russian software exporters were able to generate more export sales than expected.

Big Russian banks, telecom and retail companies are now focused on platformization and support services. They introduce transaction platforms with an online infrastructure that supports exchanges between different parties. Russian Sber (https://www.sberbank.ru/) is a real trend setter in platformization.

In addition, Sber leads the way in digitalization in the Russian banking sector. In recent years it has become a huge technology company that has built a powerful business ecosystem and mobile banking system. Many Russians keep Sber accounts even if they bank elsewhere just to make use of Sber services. Deloitte Russia proves this idea in their last report 'Digital banking maturity 2020'. Deloitte includes Russia into the Top-10 leaders in digital banking. 3 of the biggest Russian banks including Sber are the highest ranked players called 'Champions'; 9 banks are ranked 'Smart followers' and 3 banks are ranked 'Adopters'. Indeed, in terms of technology, the Russian banking sector is one step ahead of the European market.

Besides, Sber in partnership with Mail.ru (https://mail.ru/) is developing food delivery and taxi services. Another partnership with Mail.ru aims at developing Al-driven products. Sber has a joint-

venture with Cognitive Technologies (https://www.cognitive.ru/) to develop AI systems for autonomous vehicles. So this company has become a real tech giant well beyond banking services.

With artificial intelligence (AI) and augmented reality (AR) technologies, industrial companies have a huge growth potential. They take advantage of AR and AI technologies to enhance employee experience, improve safety at work, optimize business processes and maintenance. Leading Russian companies install digital twins that integrate IoT. AI, machine learning and software analytics, namely Gazprom (https://www.gazprom.ru/), Sibur (https://www.sibur.ru/), Kamaz (https://www.sibur.ru/), RZD (https://www.rzd.ru/) and TransMashHolding (https://www.tmholding.ru/).

In general, innovation is certainly the main driver of all improvements in Russia. It creates competitive advantages for different industries and contributes to national competitiveness on the whole

2. INNOVATIVE LANDSCAPE OF SAINT PETERSBURG

The government of Saint Petersburg wants to make the city comfortable, safe, efficient and smart. The city government has developed programs to implement information and communication technologies for increasing operational efficiency, sharing information with people (open data portals) and improving both the quality of governmental services and the welfare of citizens. There are plans to develop a digital twin city model for Saint Petersburg.

In June 2019, the government of Saint Petersburg and Megafon (www.megafon.ru) introduced the first digital twin model of Kronstadt, a city district which is a test area for piloting smart city projects. It is a very powerful digital tool to visualize the city with structured data of buildings, urban infrastructure, utilities, businesses, movement of people and vehicles.

2019 marked an important milestone in the Russian telecom market with the introduction of a 5G network. 5G stands for the fifth generation of mobile network technology which is a hundred times faster than the current 4G technology. 5G enables a new kind of network that is designed to connect virtually everyone and everything including machines, objects and devices.

Last year, MTS (https://spb.mts.ru/) launched the first 5G network in Kronstadt, a city district of Saint Petersburg, in partnership with Huawei. It is a pilot project, and 5G Internet covers now the territory of Kronstadt. Initially 5G Internet will be available for businesses. A nationwide 5G coverage is still in question because 5G network requires the bandwidth above 3 GHz, preferably

3,4-3,8 GHz which is currently used by the Russian defense ministry and Roscosmos. So this fact clearly illustrates that Saint Petersburg is open to new technologies and innovation.

The innovative landscape of Saint Petersburg is rather diversified. The city has a large concentration of industrial clusters, research institutes, R&D centers, universities, and technology parks. A big IT cluster, a research cluster and a unique academic community make the city an important entrepreneurship center.

Saint Petersburg is a big industrial center famous for its diversified industrial landscape. It has 32 industrial zones and 16 industrial clusters. The sectors of excellence include ICT, biotechnology, automotive, power machine building, transport and logistics. The industry clusters will be given a special focus in a separate section.

Saint Petersburg Technopark (https://ingria-park.ru/) is a recognized partner for hi-tech companies and startups. It collaborates with all the clusters, universities, big companies, investors, venture funds, making them more connected and more efficient.

Saint Petersburg Technopark belongs to the government of Saint Petersburg; it provides expertise, mentorship and technical support to startup and scaleup companies. Saint Petersburg Technopark helps startup companies develop and test business ideas, helps them grow and explode in the end. It creates a creative environment and an innovative ecosystem.

Other support organizations, such as state, commercial and non-profit, include the following:

- Entrepreneurship and Support Center (https://www.crpp.ru/)
- Industrial Projects Support Directorate (http://dspp.cppi.gov.spb.ru/)
- Saint Petersburg Chamber of Commerce and Industry (https://spbtpp.ru/)
- Saint Petersburg Industry Development Fund (http://frp.spb.ru/)
- Saint Petersburg SME Development Fund (https://fond-msp.ru/)
- Technology park 'Ingria' (https://ingria-startup.ru/)
- Technology park 'LenPoligrafMash' (https://lpmtech.ru/).

Furthermore, ITMO University is now implementing a new large-scale development project together with its construction partner, Start Development (http://startdevelop.com/projects/high-park). ITMO Highpark is a megaproject that includes a new university campus, student dormitories and housing facilities, a huge technology park, production site and business center. The main campus and most laboratories will be within a short walk or bike ride from student dormitories. 5 innovative production sites and 50 sophisticated laboratories will be located at ITMO Highpark. 12 000 new

jobs will be created, and 3 600 undergraduate, graduate and PhD students will study at the new university. So it will be a new business district alongside with the Gazprom tower complex on the city map.

For more information, one can watch the video about ITMO Highpark:



https://www.youtube.com/watch?v=54npInSVXIU.

Saint Petersburg is an international knowledge hub with many strong research centers and universities. There are 295 scientific organizations and 73 universities; many of them enjoy worldwide recognition. For example, ITMO University (https://itmo.ru/ru/) is extremely successful in sports programming competitions (ACM ICPC). This year the university has become the world champion for the seventh time. Excellence in sports programming proves the fact that ITMO University holds a top position in computer science and trains strong computer coders.

All in all, Saint Petersburg is far ahead in terms of job creation, business and invest opportunities. Scaleups and startups find favorable business conditions here to lay the foundation for their success. The city is attractive to businesses in <u>creative and technology industries</u>.

3. RESEARCH INSTITUTES

Innovation requires three basic building blocks which are:

- fundamental research
- infrastructure
- human capital.

This study gives you a brief review of these building blocks.

Saint Petersburg has a wide network of research centers and a huge potential for research and innovation. The Russian Academy of Science (http://www.ras.ru/) was set up by Peter the Great in 1724. It was followed by the first university in Russia; so research and development activities have never ceased in the city. Nowadays Saint Petersburg accounts for 10% of the national scientific potential.

There are 295 scientific organizations and 39 000 researchers (PhD degree) in Saint Petersburg. It is a big talent hub full of researchers and PhD students.

The main research institutes are listed in the table below.

Table 1. Main Research Institutes in Saint Petersburg

Name	Website
Russian State Scientific Center for Robotics and Cybernetics	https://rtc.ru/
Institute of Physics and Technology	http://www.ioffe.ru/
Polzunov Scientific Center for Power Machines Engineering	http://english.ckti.ru/
Arctic and Antarctic Research Institute	http://www.aari.ru/
Khlopin Radium Institute	http://khlopin.ru/
Research Institute of Hydrotechnics and Water Engineering	www.lhp.rushydro.ru/
Institute of Experimental Medicine	https://en.iemspb.ru/
Russian Research Center of Applied Chemistry	http://giph.su/en/
Research Institute of Electrophysics and Electrical Engineering	https://ieeras.ru/
Research Institute of Structural Materials 'Prometey'	http://www.crism- prometey.ru/en/
VniiOkeangeologia (Ocean Geology Institute)	http://vniio.ru/en/

All leading research institutes try to partner with big industrial companies and top universities. But many industrial companies set up their own research centers and sophisticated laboratories to accumulate knowledge and boost internal innovation (FosAgro, Sibur, Kirov Plant). Centralized

R&D units are managed and financed by the parent company. It enables a targeted approach to innovation.

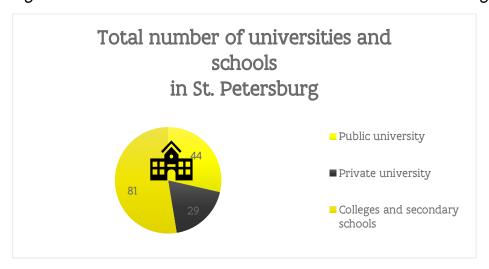
4. LEADING UNIVERSITIES

There are 73 state and private universities in Saint Petersburg. They train students in the following areas:

- Mathematics and natural sciences
- Engineering and technical sciences
- Public health and medical sciences
- Agriculture
- Social sciences
- Education
- Human sciences
- Arts and culture

As for secondary education, there are 81 vocational education and training providers (VET) in the city. They employ about 15 500 teachers and mentors and train about 80 000 young people. Below, one can see the total number of universities and secondary schools in Saint Petersburg.

Figure 1. Total Number of Universities and Schools in Saint Petersburg



Nowadays 395 000 people are employed in the field of science and professional education. It accounts for 16% of the economically active population of Saint Petersburg. So the education sector remains an important industry in the city economy. It is rather competitive and dynamic which is important in the context of Russia's transition towards a strongly digitalized knowledge economy.

Higher education in Russia is constantly changing to adapt to global challenges and labor market requirements. International university rankings showcase this trend in the sector. They identify best performers and measure university performance across teaching, research, knowledge transfer and international outlook.

There are 28 Russian universities that are featured within international university rankings: the Times Higher Education (THE) World University rankings, QS World University rankings and Academic Ranking of World Universities.

Russia is now making progress in international science and technology rankings. According to THE rankings, five Russian universities have reached top 100 positions in recent subject rankings. Moscow Institute of Physics and Technology and ITMO University joined the top 100 universities in computer science in 2020. Higher School of Economics and Kazan Federal University made their debuts in the top 100 of the business and economics rankings. Lomonosov Moscow State University remained in the top 100 of the arts and humanities ranking.

One can use the following link to find out about top universities in Russia:

https://studyinrussia.ru/en/why-russia/world-university-rankings/

Saint-Petersburg-based universities hold good positions in international university rankings. Over the period 2016-2019, 15 local universities were included into top university rankings. See the TOP-15 list below:

Table 2. Top-15 Universities in Saint Petersburg

University	Website
St. Petersburg University	https://spbu.ru/
Peter the Great St. Petersburg Polytechnic University	https://english.spbstu.ru/
ITMO University	https://news.itmo.ru/en/
St. Petersburg Mining University	https://spmi.ru/
St. Petersburg Electrotechnical University	https://etu.ru/en/university/
St. Petersburg State Institute of Technology	http://technolog.edu.ru/
Herzen State Pedagogical University	http://www.herzen.spb.ru
St. Petersburg State Economic University	http://en.unecon.ru/
State University of Aerospace Instrumentation	http://suai.edu.ru/
Financial University, campus in St. Petersburg	www.fa.ru/
European University in St. Petersburg	https://eusp.org/en
Higher School of Economics, campus in St. Petersburg	https://spb.hse.ru/en/
Russian Academy of National Economy and Public Administration	https://spb.ranepa.ru/
Emperor Aleksander I St. Petersburg State Transport University	https://www.pgups.ru/en/
Rimsky-Korsakov St. Petersburg State Conservatory	https://www.conservatory.ru/en

Source: http://studyinspb.ru/

The main universities that are regularly assessed and ranked by THE and QS are:

- ITMO University (https://news.itmo.ru/en/)
- Peter the Great St. Petersburg Polytechnic University (https://english.spbstu.ru/)
- Saint Petersburg University (https://spbu.ru/)
- St. Petersburg Electrotechnical University (https://etu.ru/en/university/)
- State University of Aerospace Instrumentation (http://suai.edu.ru/).

ITMO University is a real leader in computer science and innovation. It is a top university in computer science in Russia and 74th in the world. With over <u>120 years of research experience</u>, ITMO is a trailblazer in IT, quantum science and photonics. The university's main research areas include the following:

- IT and information security
- Smart technologies and robotics
- Photonics and quantum computing
- Life sciences and translational medicine
- Natural sciences and smart materials
- Art and science, lighting design
- Ecology and urban science.

Peter the Great Saint Petersburg Polytechnic University is a major technical university in Russia providing courses in engineering, physics, economics, humanities and information technology. The university was established in 1899 to advance industrial progress in Russia at the turn of the XIX and XX centuries.

Nowadays the university trains more than 33 000 students including 8 000 international students from 80 countries. It has strong partnership relations with 300 universities, 130 scientific and research institutions and 150 companies.

Peter the Great St. Petersburg Polytechnic University has shown significant growth in this year's ranking of The Times Higher Education compared to 2019. This year, the university is ranked between 301st and 350th places among 1527 universities.

Saint Petersburg State University is the oldest institution of higher education in Russia. It was established in 1724 on the initiative of Peter the Great.

The university trains more than 30 000 students including 3 500 international students from 100 countries. It maintains strong partnership relations with 485 universities from 80 countries worldwide. The university has representative offices in China, South Korea, the USA, Spain and Turkey.

The university's main research areas include the following:

- Nanotechnology and materials science
- Biomedicine and human health
- Information technologies and security
- Ecology and environmental management
- Social research and technologies
- Human resource management and technologies.

Saint Petersburg State University is ranked among the top 300 universities around the world and is No.3 in Eastern Europe and Central Asia according to QS rankings. Furthermore, the university comes second in the QS Graduate Employability Ranking and is the best for Employer-Student connections in Russia.

Saint Petersburg Electrotechnical University (LETI) is one of the leading technical universities in Russia with focus on electrical engineering, radio engineering, electronics and computer science. The university was founded in 1886 and became the first university in Europe specialized in electrical engineering.

Today Saint Petersburg Electrotechnical University consists of seven faculties:

- Radio Engineering
- Electronics
- Computer Science and Information Technologies
- Industrial Automation and Electrical Engineering
- Information Measurement and Biotechnical Systems
- Economics and Management
- Humanities.

The university maintains partnership relations with many foreign universities including Artevelde University College Ghent (https://www.artevelde-uas.be/) and University of Mons (https://web.umons.ac.be/).

State University of Aerospace Instrumentation is a popular high-ranking university that was founded in early 1940s. Currently the university has 13 institutes and faculties and 40 different departments. More than 12 000 students from 39 countries study at the university. The university

has strong partnership relations with universities from the USA, Canada, Italy, France, Finland and China.

The university consists of 9 faculties:

- Aerospace instrumentation and systems
- Radio engineering and electronics
- Electromechanics and robotics
- Computer science and programming
- Information systems and information security
- Technological innovations
- Humanities
- Entrepreneurship
- Law.

Early this year, the State University of Aerospace Instrumentation **and** Peter the Great St. Petersburg Polytechnic University set up student "energy clubs" in association with Gazprom Neft (https://www.gazprom-neft.ru/). Gazprom Neft acts as a sponsor and supervisor of this project. Energy club is a meeting place for young talents interested in entrepreneurship and innovation in the energy sector. This project provides opportunities for discussion and action, develops students personally and professionally, enables to promote career development and employment.

Expert (https://expert.ru/), Russia's leading business magazine, measures scientific productivity and entrepreneurship annually. The major outputs from research are publications, citations, patents, and inventions. According to Expert, top Russian universities invest heavily in fundamental research and infrastructure. They try to generate more significant publications increasing the number of citations and competition in science. In general, they focus rather on research and publications than product development and patents. In 2019, the TOP-5 Expert university ranking for entrepreneurship and research productivity included 2 universities from Saint Petersburg: Saint Petersburg State University and ITMO University.

So Saint Petersburg is a student city and home to several prestigious universities. It is ranked in the QS Best Student Cities ranking for affordability with low tuition fees and affordable living costs (66^{th})

5. INDUSTRIAL CLUSTERS

Saint Petersburg has 16 industrial clusters which are listed in the table below.

Table 3. Industrial Clusters of Saint Petersburg

Cluster	Establishment year	Website
IT cluster	2012	https://russoft.org/
Biomed and medtech cluster	2011	http://www.clustermedtech.ru/
		http://21mpp.ru/
Automotive cluster	2016	http://nwasz.ru/
Composite cluster	2015	http://www.cclspb.ru/
Tool making cluster	2012	<u>www.ns-ksp.ru</u>
Cleantech cluster	2014	https://spbcleantechcluster.nethouse.ru/
Powertech cluster	2015	https://www.energomarket.spb.ru/
Touristic cluster	2019	http://tourclusterspb.ru/
Electronics cluster	2017	http://compcluster.ru/
Translational medicine cluster	2015	http://www.almazovcentre.ru/?page_id=22337
Logistic cluster	2020	http://www.logistics-cluster.ru/
Marine robotics cluster	2017	
Transport machine building	2010	www.metrodetal.ru
cluster		
Fashion cluster	2019	
Arctic cluster	2020	
Innograd cluster	2016	

In the XXI century Saint Petersburg has changed the face of its industry and started creating new industries and clusters: IT cluster, automotive cluster, biomed and pharmaceutical cluster and

electronics cluster to name but a few. Today the IT and biomed clusters are the most dynamic and innovative. These clusters benefit from a strong system of technical universities, major research centers and a pool of talented people.

The IT cluster is a very important fast-growing cluster. It unites about 170 IT companies including software companies, R&D centers, IT distributors and system integrators. Leading software companies grow steadily and increase export sales annually: for example Jet Brains (https://www.jetbrains.com/), 1C North-West (http://www.1c-nw.ru/), Nexign (https://nexign.com/) and Alee Software (https://alee.ru/). This year, irrespective of the coronavirus pandemic, local software companies have increased their export sales by 11% for the year to date. IT exporters are very active in Scandinavia and Finland.

Hardware exports have shown a substantial decrease for the year to date, because business activity slowed down, and there was no opportunity to visit customers and promote sales. Besides, Russian computers and hardware components are not competitive in pricing. Production costs are much higher in Russia than those in China, and the production scale is very small. Russian hardware producers pin hopes on public procurement, public orders placed by army and law enforcement agencies.

VKontakte (https://vk.com/), otherwise known as VK, is a Russian social networking service, the second biggest social media in Europe after Facebook. VK is mainly used by Russian-speaking users. Subscribers come from Russia, Belarus, Ukraine, Moldova, Israel, Azerbaijan, Armenia. VK was founded by Pavel Durov in 2006 in Saint Petersburg, and is still headquartered in the city. With new services and features, the platform is growing very fast and is now used as a driving marketing channel.

The Automotive cluster is another strong industrial cluster which was founded in 2016. The automotive cluster covers two jurisdictions – Saint Petersburg and Leningrad oblast. Leading automotive producers include Nissan Manufacturing RUS (https://www.nissan.ru/), Hyundai Motor Manufacturing RUS (https://www.nissan.ru/), Toyota Motor Manufacturing Russia (https://www.nagna.com/), and Magna Cosma International (https://www.magna.com/).

This year automotive companies are facing difficult times because the coronavirus pandemic has hit the industry hard. Some workplaces were closed down since workers were self-isolated and assembly lines were put on hold. In Russia, vehicle sales fell down considerable in spring but in October vehicle sales went up 7% compared to October 2019. With -13% YoY sales, the annual gap versus the last year is getting smaller, and vehicle sales are picking up again.

Biomed is a very important established cluster. It also covers two jurisdictions – Saint Petersburg and Leningrad oblast. The biomed cluster unites 178 companies including pharmaceutical companies, top research institutes and medical schools.

Saint Petersburg has a solid research base that includes many well-known research institutes.

Table 4. Leading Research Institutes in Healthcare and Biomed

Research institute	Website
Smorodintsev Research Institute of Influenza	https://www.influenza.spb.ru/en/
Research Institute of Childhood Diseases	http://niidi.ru/about/
Pasteur Research Institute	https://www.pasteurorg.ru/
Ott Research Institute of Obstetrics and Gynecology	https://ott.ru/
Blood Research Institute	http://www.bloodscience.ru/
Kirov Military Medical Academy	https://www.vmeda.org/
Almazov Medical Research Center	http://www.almazovcentre.ru/
Petrov Research Institute of Oncology	https://www.niioncologii.ru/
Turner Research Institute of Children's Orthopedics and Traumatology	https://www.rosturner.ru/
Vreden Research Institute of Traumatology and Orthopedics	http://www.rniito.org/
Research Institute of Ear, Throat, Nose and Speech	https://lornii.ru/
N. Bekhtereva Institute of Human Brain	https://ihb.spb.ru/
Albreht Research Institute of Rehabilitation of the Disabled	http://www.center-albreht.ru/

The given scientific centers research different complex diseases and treat patients from Saint Petersburg and North-West Russia. The medical research cluster needs to strike a proper balance between topics related to public health and medical research since both are equally important for improving public health and promoting innovation.

Saint Petersburg is home to many biotech and pharmaceutical companies. Among leading companies we find: Biocad (https://biocadglobal.com/), Cytomed (https://cytomed.ru/), BCC Pharm (https://bsspharm.ru/), Novartis Neva (https://www.novartis.ru/), Alkor Bio Group (https://alkorbiogroup.ru/), Polysan (https://www.polysan.ru/), Geropharm (https://geropharm.ru/) and SamsonMed (https://samsonmed.ru/).

Biocad is Russia's leading innovative biotechnology company. It includes a large research and development center, sophisticated production facilities and preclinical and clinical research infrastructure compliant with international standards. The company portfolio includes biological and chemical medicines and original products, particularly for the treatment of cancer and autoimmune diseases. Biocad employs about 2700 people, 30% of whom are researchers.

In recent years, Biocad has launched a sophisticated production facility in Turku, Finland. This city holds a leading position in the Finnish life science sector. Biocad is committed to strengthen its position on the European market. Apart from that, Biocad is present in Belarus, India, China and the USA.

Cytomed, Russia's leading biomed company, is also present in two jurisdictions: Russia and Finland. Cytomed launched its production facility in Lappeenranta, Finland, in 2012. The company also aims to strengthen its position on the European pharmaceutical market.

These Russian biomed companies are successful export-oriented companies. They implement digital tools and advanced production technologies. Cloud technologies and automated business processes are well in place among market leaders.

In general, the Russian pharmaceutical market is a growing market heavily dependent on imports. 80% of all imports come from EU countries, primarily Germany (21%), France (10%) and Italy (6%). Many pharmaceutical producers are just making plans to implement advanced accounting solutions (SAP, CRM), cloud technologies and digital tools.

6. BUSINESS INCUBATORS AND TECHNOLOGY PARKS, BUSINESS ACCELERATORS AND CORPORATE ACCELERATORS

This section reviews the results of our desk research on business incubation, acceleration and scaling.

According to the National Business Incubation Association (http://www.nbia.org/), business incubators are facilities that provide shared resources for startups, such as office space, consultants, equipment and personnel. They may provide access to financing and technical support. For new businesses, these services provide a more protected environment in which they can grow before they become self-sustaining.

Both incubators and accelerators can offer a wide range of networking opportunities, including meetups with mentors and prospects. They also run startup pitch events to connect startups with investors including venture capitalists, private equity firms and others.

The most prominent business and technology incubators of Saint Petersburg are the following:

1. Business incubator 'Ingria'

https://ingria-startup.ru/ Address: Saint Petersburg Pros. Medikov 3, liter A T: +7 (812) 670 10 85 startup@ingria-park.ru

Profile: IT, IoT, retailtech, edtech, foodtech, digital marketing

2. Technology park 'ITMO'

http://technopark.ifmo.ru/ Address: Saint Petersburg Birzhevaya line 14-16 ivlvova@itmo.ru

Profile: IT, IoT, edtech, optics & photonics

3. Business incubator 'Polytechnichesky'

https://www.spbstu.ru/structure/tekhnopark_politekhnicheskiy_tekhnopark/

Address: Saint Petersburg

Ul. Gzhatskaya 27, liter A, building 12

T: +7 (812) 248 93 55

bi@spbstu.ru

Profile: powertech, IT, materials science, nanotechnologies

4. Technology park 'LETI'

https://etu.ru/ru/nauchnaya-i-innovacionnaya-deyatelnost/administrativnaya-struktura-nauchnogo-bloka/ofis-kommercializacii-razrabotok-okr/tehnopark-spbgetu-leti

Address: Saint Petersburg

Ul. Prof. Popova 5 T: +7 (812) 234 17 03 tmageeva@etu.ru Profile: powertech, IT

5. Saint Petersburg State University Research Park

https://researchpark.spbu.ru/en/

Address: Saint Petersburg Universitetsky pros. 26 T: +7 (812) 363 60 00 a.e.losev@spbu.ru

Profile: biomed, nanotechnologies, materials science, IT, environment

6. Business incubator of Saint Petersburg State University of Economics

http://inc.unecon.ru/

Address: Saint Petersburg Ul. Marata 27, office 201

T: +7 (812) 602 23 03 (ext. 7173)

inc.unecon@bk.ru

Profile: edtech, fintech

7. Pervy Gorodskoy Incubator

https://start-mybusiness.ru/

Address: Saint Petersburg

Ul. Sedova 37, liter A T: +7 (812) 448 56 65

info@start-business.ru

Profile: creative industries, digital marketing, social projects

8. Business incubator 'Smolenka'

http://techno-smolenka.ru/

Address: Saint Petersburg V.O. Maly pros. 57, building 3

T: +7 (812) 303 92 20

info@techno-smolenka.ru Profile: hi-tech, foodtech

9. Swiss technology park 'MOBAHAUS'

http://www.moba.haus/

Address: Saint Petersburg

Ul. Sedova 46 hp@moba.haus

Profile: IT, machine building, tool making

10. Technology park 'LenPoligrafMash'

https://lpmtech.ru/

Address: Saint Petersburg

Reki karpovki nab. 5 T: +7 (812) 234 85 94

info.lenpoligraphmash@gmail.com

Profile: IT and gaming, biomed, creative industries, digital marketing

All successful startups have had the backing of business incubators and accelerators. Startup incubators and accelerators form a powerful launchpad for entrepreneurs who want to establish

robust and scalable businesses. They provide access to office space, equipment, investment, mentorship, expertise and many more.

Many business incubators and universities provide business acceleration programs. Some of them are listed below.

Ingria accelerator – Startup Lynch

https://ingria-startup.ru/ Address: Saint Petersburg Pros. Medikov 3, liter A T: +7 (812) 670 10 85 startup@ingria-park.ru

ITMO accelerator - Future Technologies

https://accel.itmo.ru/

Address: Saint Petersburg

Birzhevaya line 14 T: +7 (812) 458 92 01

Peter the Great St. Petersburg Polytechnic University accelerator - Polytech Strascheg

https://research.spbstu.ru/department/rossiysko_germanskiy_centr_innovaciy_i_predprinimatelstv a_politeh_strascheg/

Address: Saint Petersburg Ul. Politekhnicheskaya 29

T: +7 (812) 591 65 28 a.efimov@spbstu.ru

Ideal Machine is a private venture fund and business accelerator. It has already curated and backed 22 startups.

Ideal Machine accelerator

http://www.idealmachine.ru/ Address: Saint Petersburg

Ul. Chaikovskogo 11/2 info@idealmachine.ru

Many big Russian corporations get interested in startups and build their own corporate accelerators. For corporations, a startup accelerator is a new strategic business tool which is agile and fast-paced. It helps big companies stay innovative and competitive in the long run.

The most prominent corporate accelerators in Saint Petersburg are the following:

Kirov Plant Accelerator

https://kirovgroup.vc/

Contact: Ms. Elena Morozova

GSM: +7 905 83 22 630

Elena.Morozova@kirovplant.ru

Profile: industry 4.0, IoT for industry, agritech, energytech, big data and machine learning

Gazprom Neft Accelerator – Startup Drive

https://startupdrive.ru/

Address: Saint Petersburg

Vilensky per. 14

accelerator@startupdrive.ru

Profile: transportation, supply chain management, logistics, mobility, retail and e-commerce

Lenta Accelerator

https://lenta.generation-startup.ru/

Address: Saint Petersburg

Ul. Savushkina 112B T: +7 (812) 380 61 31 innovations@lenta.com

Profile: supply chain management, logistics, digital marketing

Many other Russian corporations have built their own startup accelerators including Sber, VTB, MTS, Megafon, Severstal, RZD, X5 Retail Group.

7. ANGEL INVESTORS AND VENTURE FUNDS

Viable startups have to look for later stage funding and further support. They have to raise funds to further develop their projects and scale up business. Entrepreneurs often seek for angel investors who invest in startup companies in exchange for a stake in the company. Angel investors understand that startups have a high risk of failure. So they need to feel confident that the potential upside from investing is worth the downside risks.

In Saint Petersburg, there is one association of business angels that helps startups attract investments and grow – SOBA. SOBA has already been operating for 11 years. The association offers mentorship, expertise, pitch competitions and networking events to connect startups with investors and prospects.

SOBA – Association of Business Angels

https://soba.spb.ru/

Saint Petersburg Aptekarskaya nab.18

info@soba.spb.ru

Contact: Ms. Luisa Aleksandrova, Business Development Director

On top of that, there are several venture funds in the city that invest in early stage startups and help them become self-sustaining. The venture fund is usually managed by a venture capital firm and/or investors. Venture funds identify invest targets, innovative business models and technologies for investing.

North-West Technology Transfer Center

http://nwttc.ru/

Saint Petersburg Ul. Novoroschinskaya 4, liter A, office 1323 T: +7 (812) 456 70 96

mail@nwttc.ru

Profile: nanotechnologies, additive manufacturing

Agate Fund

https://spb.agatefund.ru/

Saint Petersburg Kaluzhsky per. 3 T: +7 (812) 740 50 40

Info.spb@agatefund.ru

Profile: retail, creative industries, food sector

Leorsa Fund

http://leorsa.ru/ Saint Petersburg Maloohtinsky pros. 45A T: +7 (812) 448 41 41 info@leorsa.ru

Ideal Machine Venture Fund

http://www.idealmachine.ru/ Address: Saint Petersburg Ul. Chaikovskogo 11/2 info@idealmachine.ru

Profile: Al, IoT, machine learning

So the combination of business incubators and technology parks, academic institutions and big hi-tech companies, startups and investors create an environment rich in knowledge-sharing, collaboration and innovation. The figure below shows all business incubators, technology parks, startup and corporate accelerators as well as angel investors and venture funds.



Figure 2. Business Incubation and Acceleration in Saint Petersburg

8. LEADING INNOVATIVE COMPANIES

Most companies that are strong at innovation are technology companies. They are active in IT and manufacturing. The most dynamic and innovative sector across the IT industry is software development.

Leading IT companies headquartered in Saint Petersburg include the following:

Intransition

https://www.itransition.ru/

Saint Petersburg Nevsky pros. 32-34

T: +7 (495) 640 89 37

info@itransition.com

Profile: software company

Sigma

https://www.sigma-it.ru/

Saint Petersburg Sverdlovskaya nab. 4, liter B T: +7 (812) 602 27 72

Profile: IT system integrator

Speech Technology Center

https://speechpro.com/

Saint Petersburg Vyborgskaya nab. 45, bld. E T: +7 (812) 325 88 48

Stc-int@speechpro.com

Profile: voice, speech and face recognition technologies

Jet Brains

https://www.jetbrains.com/

Saint Petersburg Primorskiy pros. 68-70, bld. 1 T: +7 (812) 380 16 41, 380 16 42 Profile: software company

Nexign

https://nexign.com/

Saint Petersburg Ul. Uralskaya 4 T: +7 (812) 326 12 99

office@nexign.com

Profile: business support systems provider

Alee Software

https://alee.ru/

Saint Petersburg Ul. Krugovaya 14, liter B

T: +7 (812) 309 78 59

info@alee.ru

Profile: software company

Saint Petersburg has the highest density of IT companies in Russia. However, the city is short of IT specialists; even Moscow has a lack of qualified technical specialists, application developers and data scientists. The total number of ICT personnel in Russia is 1,8 million which is very low compared to global innovation leaders. Saint Petersburg employs about 75 000 IT specialists of different qualifications and skills. So this figure does not meet the labour market demand, and IT companies try to attract talents from other Russian regions.

Another promising and dynamic sector is fintech, technologies for banking and financial services. It includes payments and remittances, financing, insurance and wealth management. Many innovative products and services are developed by Russian fintech companies and startups. Local fintech companies include the following:

М3

https://rg.ht/ Saint Petersburg Ul. Mytninskaya 12/44 T:+7 (812) 649 21 87

ok@rg.ht

Profile: fintech company

Koshelek.ru

https://www.cashelec.ru/ Saint Petersburg Ul. Bolshaya Posadskaya 12 po@cashelec.ru

Profile: fintech company

Beskontakt

https://cardsmobile.ru/ Saint Petersburg ul. Lodeynopolskaya 5, liter A support@cardsmobile.ru

Profile: fintech company

Over the past few years, digitization has become an important topic within retail. This trend will continue over the coming years across all retail sectors, from fashion to food, from pharmacy to DIY. The increasing popularity of AI and IoT opens up new business opportunities for retailers and makes them develop a digitalization strategy. These breakthrough technologies can help retailers address the changing consumer expectations in a better and more effective way.

There are two local retailers that are really good at implementing digital solutions. These are Lenta (www.lenta.com) and Petrovich (www.petrovich.ru). They install smart devices, cameras, beacons and automatic cash registers to improve the customer's journey through the store. Besides, they use big data and advanced analytics algorithms to offer personalized customer services. They invest in and develop online channels to increase sales and keep pace with the retail market trends.

Lenta

https://lenta.com/

Saint Petersburg
Ul. Savushkina 112, liter B
T: +7 (812) 380 61 31

Profile: food retailer, No. 4 food retailer in Russia

Petrovich

https://petrovich.ru/

Saint Petersburg 6 Verkhny per. 12, liter A T: +7 (812) 329 01 95

info@petrovich.ru

Profile: DIY retailer, No. 2 DIY retailer in Russia

No business, industry or economy has been spared from the devastating effects of the coronavirus pandemic. Some industries have taken the impact much harder than others. Each industry is experiencing its own set of challenges that are modifying businesses. Companies that have turned to digital platforms and tools at the right time have started reaping benefits. In fact, the pandemic is an eye-opener for many businesses that considered digitalization to be optional.

In general, digitalization creates many new business opportunities. Digital data can improve financial and operating performance; it is the main driver for innovation and productivity growth.

9. BUSINESS OPPORTUNITIES FOR FLEMISH COMPANIES

Flanders is a tech-driven region famous for its biomed, chemical and logistic clusters. The region has a very strong and internationally recognized biomed cluster. So Flanders could offer cooperation opportunities in research and development. It could also share its knowledge and expertise in smart city projects.

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info@itransition.com

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https://www.sigma-it.ru/

Saint Petersburg

Sverdlovskaya nab. 4, liter B

T: +7 (812) 602 27 72

Profile: IT system integrator

Speech Technology Center

https://speechpro.com/

Saint Petersburg

Vyborgskaya nab. 45, bld. E

T: +7 (812) 325 88 48

Stc-int@speechpro.com

Profile: voice, speech and face recognition technologies

Jet Brains

https://www.jetbrains.com/

Saint Petersburg Primorskiy pros. 68-70, bld. 1 T: +7 (812) 380 16 41, 380 16 42 Profile: software company

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https://nexign.com/

Saint Petersburg Ul. Uralskaya 4 T: +7 (812) 326 12 99

office@nexign.com

Profile: business support systems provider

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https://alee.ru/

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info@alee.ru

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https://rg.ht/

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https://www.cashelec.ru/

Saint Petersburg Ul. Bolshaya Posadskaya 12 po@cashelec.ru

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info@petrovich.ru

Profile: DIY retailer, No. 2 DIY retailer in Russia

Disclaimer

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Date of publication: December 2020

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