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Business incubators for sustainable development in the SPECA subregion

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Business incubators for sustainable development in the SPECA subregion

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FOREWORD

Innovation – or the systematic experimentation with new ideas – is essential for the sustained economic growth and enhanced competitiveness of the seven SPECA countries (i.e. Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) to achieve sustainable development in line with the UN 2030 Agenda. Innovation will be critical for the long-term inclusive, sustainable and resilient recovery of economies worldwide from the COVID-19 pandemic, including those in the SPECA subregion.

The SPECA countries have increasingly prioritised innovation to drive their transition to a knowledge-based economy in recent decades and as a tool to meet national economic and societal challenges, including poverty alleviation and access to basic infrastructure and services, as well as the transition to circular economy principles.

Policymakers of the SPECA countries have worked to develop and strengthen their respective national innovation ecosystems, reforming policies, institutions and processes in the areas of research, education and entrepreneurship while more generally strengthening public sector governance and the framework conditions within which innovation takes place.

Innovation support institutions including incubators, technoparks, science parks and technology transfer offices, among others, play a specific role in delivering efficient innovation ecosystems: they are important places for experimentation with new ideas, the diffusion and commercialisation of new knowledge as well as helping create the culture of innovative entrepreneurship that is needed for economic transformation.

Business incubators are crucial elements of this innovation support infrastructure, supporting the initial stages of the innovation life cycle – pre-seed, seed, start-up, and scale-up – and providing the incentives, support, networks and enabling environment needed by would-be-innovative entrepreneurs.

This Handbook aims to guide policymakers in the SPECA countries, step-by-step, through the process of setting up, running, and evaluating business incubators to support entrepreneurship and catalyse innovation-led growth.

The Handbook is an important part of UNECE support to the SPECA countries to improve their innovation policies and achieve sustainable development in the framework of the United Nations Development Account project "Strengthening innovation policies for SPECA countries in support of the 2030 Agenda for Sustainable Development", carried out jointly with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).

Olga Algayerova

Under-Secretary-General of the United Nations
Executive Secretary of the United Nations
Economic Commission for Europe

PREFACE

The findings in this publication draw upon UNECE work in the SPECA subregion[1], and research by the International Business Innovation Association (INBIA), the Fund for the Development of Innovation and Business Incubation (FIBI) and the MGIMO Business Incubator. This handbook reflects upon the lessons learned from incubator practices from around the world and in transition economies, with examples of initiatives in the Russian Federation and Kazakhstan, including the respective roles of universities, government, and the private sector.

The recommendations and tools in this handbook target national and local governments, universities, as well as those developing and running business incubators (BIs) and similar institutions, such as pre-incubators, accelerators, and entrepreneurship support centres in the SPECA countries.

The handbook covers the key steps and considerations to set up, run, and evaluate business incubation programmes. **Section 1** outlines the defining characteristics of BIs and their effectiveness in transition economies. **Section 2** describes the stages of business incubator creation, namely: BI feasibility assessments based on environmental factors; setting the goals that determine the type or model of BI; developing a package of client services; designing a financial model and assessing BI's sustainability; detailing the BI's organizational structure; choosing a location and planning the premises; activities and events to attract residents to the BI; monitoring the activities of the BI and conducting impact assessment. **Section 3** presents two BI models: state and university BIs and their respective peculiarities, while **Section 4** deals with incubation programmes and also refers to the experience of the MGIMO "Business Incubator" and the business incubator located at Technopark Strogino (Annexes 2 and 3). **Section 5** outlines future perspectives for the development of additional BI services and programmes. Finally, **Section 6** provides some examples of BIs from Kazakhstan (NURIS, MOST).

ACKNOWLEDGEMENTS

The UNECE Policy Handbook on "Promoting Innovation for Sustainable Development through Incubators in the SPECA[2] Subregion" is part of the project on "Strengthening Innovation Policies for the SPECA countries in support of the 2030 Agenda for Sustainable Development" financed by the United Nations Development Account (UNDA) and implemented under the auspices of the SPECA Working Group on Innovation and Technology for Sustainable Development (SPECA WG on ITSD).

This publication was written under the leadership of Elisabeth Tuerk, Director of the UNECE Economic Cooperation and Trade Division and under the overall supervision and guidance of Anders Jönsson, Chief of the UNECE Innovative Policies Development Section. Christopher Athey, Economic Affairs Officer and Secretary to the SPECA WG on ITSD in the UNECE Innovative Policies Development Section, led on this project. Professor Yelena Kalyuzhnova, Vice-Dean (International), Henley Business School, was the lead author for the publication who coordinated the drafting process and ensured the coherence of inputs from co-authors. Other authors included Professor Olga Khotyasheva, Director, Moscow State University of International Relations (MGIMO) Business Incubator (Chapter 3 and overall coordination support), Maxim Slesarev, Manager, MGIMO Business Incubator (Chapter 2), Daniyar Medetov, Research Advisor, Association of Business Incubators in Kazakhstan (Chapter 1, Chapter 6), Anastasia Krasenkova, Manager, MGIMO Business Incubator (Chapter 4), and Lyudmyla Tautiyeva, UNECE consultant, Innovative Policies Development Section (introductory chapter on the potential of innovation to drive sustainable development in the SPECA countries, and contributions to Chapter 2 (stage 6 and 10)). Lyudmyla Tautiyeva also supported the review of the draft and coordination of the project while Ludmila Boichuk and Mijidgombo Oyunjargal provided administrative assistance.

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LIST OF ABBREVIATIONS

AI	Artificial intelligence
BA	Business Accelerator
B2C	Business to customer
BI	Business incubator
BPO	Business process outsourcing
CC	Competition Commission
CEO	Chief Executive Officer
CPD	Continuing professional development
EC	Expert Council
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FDI	Foreign direct investment
FIBI	Fund for the Development of Innovation and Business Incubation
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
GVC	Global value chain
HR	Human resources
ICT	Information and communication technologies
IESE	Instituto de Estudios Superiores de la Empresa
IFI	International Financial Institution
IHGE	Innovative High-Growth Enterprise
INBIA	International Business Innovation Association
IoT	Internet of Things
IP	Intellectual property
IPO	Initial public offering
IT	Information technology
JSC	Joint-stock company
KASE	Kazakhstan Stock Exchange
KPI	Key performance indicators
MBA	Master of Business Administration
MGIMO	Moscow State Institute of International Relations

MVP	Minimum viable product
NGO	Non-government organizations
NURIS	Nazarbayev University Research and Innovation System
OECD	Organization for Economic Co-operation and Development
PhD	Doctor of Philosophy
PR	Public relations
QTV	QazTech Ventures
R&D	Research and development
SDGs	Sustainable development goals
SMEs	Small and medium-sized enterprises
SPECA	United Nations Special Programme for the Economies of Central Asia
STI	Science, technology, and innovation
TP	Technopark
UKBI	United Kingdom Business Incubation
UN	United Nations
UNECE	United Nations Economic Commission for Europe
VC	Venture capital
WBG	World Bank Group
WIPO	World Intellectual Property Organization
YBI	Youth Business International

EXECUTIVE SUMMARY

Business incubators - a potent policy tool to foster experimentation with new ideas

As an innovation policy tool, business incubators (BIs) have great potential to catalyse innovative entrepreneurship by providing incentives, support, connections, and an enabling environment for people who want to develop and try out new ideas. Experimenting with ideas to create value and solve problems more systematically is essential to build the foundation for sustainable development and is prominent on the agenda among the transition economies of the United Nations Special Programme for the Economies of Central Asia (SPECA), i.e. Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. BIs are ever more popular: in 2019, there were more than 7,000 BIs around the world.

SPECA countries facing a number of common policy challenges...

While SPECA countries differ in their demographics[3] and levels of economic development, they nevertheless share a range of common features, opportunities, and challenges. Among the latter are a pressing need for economic and export diversification away from their heavy reliance on commodities, resources, and remittances; the challenges specific to landlocked countries and high costs of trade; insufficient connectivity and infrastructure; and the limited capacity of the private sector to absorb innovation systematically – all of which constrain the SPECA countries' ability to capitalise on the opportunities of an increasingly knowledge-based, technology intensive global economy.

...that may be addressed through more effective business incubators

Incubators have an important role to play. Along with broader structural and institutional reforms and investment into skills and infrastructure, they can help build and improve effective innovation systems and enable the innovation needed to deliver the Sustainable Development Goals (SDGs) in the SPECA countries. Business incubators can, if structured effectively and in coordination with other support measures, be one of the most important tools to support the initial stages of the life cycle of innovative initiatives – pre-seed, seed, start-up, and scale-up. In transition economies, the potential of business incubators to increase economic competitiveness and tackle various social challenges (e.g. unemployment, poverty) is enormous. At the same time, this potential is limited by a number of challenges associated with poor infrastructure development (including information and communication technologies - ICT), limited private sector research and development (R&D), lack of incentives to start a business, gaps in accessing finance and issues in human capital development that BIs face.

A number of policies have been adopted by SPECA countries to support innovative development...

While the SPECA countries have already set up several and are planning further enterprise and innovation support institutions (BIs, FabLabs, accelerators, innovation centres, etc.), significant gaps remain before this infrastructure can play a systematic, catalytic role in enabling and supporting broad experimentation with new ways of creating value, and developing the private sector absorptive capacities that underpin it (Table 0.3). In terms of innovation support instruments, most SPECA countries are in the process of introducing some key tools used in advanced economies such as innovation vouchers, credit guarantees for innovative small and medium-sized enterprises (SMEs) and support for industrial clusters (Table 0.4). These efforts highlight the SPECA countries' commitment to making innovation a driver of sustainable economic development.

...and building on these complementary support measures will benefit business incubators

However, further actions are required to accompany this positive transformation. BI effectiveness depends on a well-functioning market economy underpinned by a favourable business environment conducive to experimentation with new ideas - in other words, innovation. Building on the progress already achieved by the SPECA countries, enhanced structural reforms to further improve the business environment are a priority and would enable BIs to fulfil their potential to support the development of new ventures. To be effective, BIs also require skilled and suitably resourced staff with a solid understanding of the market and the nature of innovative ventures, as well as realistic and sustainable business model in line with incubator's goal.

A set of guiding principles could help establishing a successful business incubator

The key guiding principles to develop effective business incubator in the SPECA subregion are listed below, including guidance for the various stages of establishing a BI, different types of BIs and services provided. Following these principles may help build a more effective innovation support infrastructure through incubators in the subregion.

Guiding principles to develop effective BIs in the SPECA subregion:

1. **During the strategic planning process to develop business incubators in a country, city or area, it is essential to:**

- Analyse macro-economic factors and framework conditions (regulatory environment, entrepreneurship support institutions, economic constraints and opportunities, socio-cultural factors).
- Analyse micro-economic factors (economically active population, demand for local products, number of local entrepreneurs, business support infrastructure, access to finance, higher education institutions).

- Assess the capabilities and resources available to an organization that decides to create a BI (management motivation, availability of qualified personnel, sources of initial investment and revenue).
- Define a business model for the incubator and its sustainability objectives.
- Identify the objectives of the BI and intended impact on regional development to facilitate the monitoring of BI activities.
- Determine the sectoral specialisation.
- Define the type of BI (open or closed; industrial BI, innovative incubator, IT incubator, service BI, or mixed-type incubator).
- Develop the package of services to be provided.
- Determine the organizational structure and legal status of the BI.
- Choose a location and design the layout and premises.
- Develop a promotional campaign to attract potential residents[4].

2. **For state-supported BIs, the following aspects should be considered when formulating policy:**

- Admitting residents on a competitive basis.
- Complying with any applicable legal restrictions on the participation of SMEs of certain sectors in the incubator programme and ensuring relevant compliance standards are respected.
- Providing BI premises for lease (sublease) to residents on preferential terms.
- Limiting the duration of residents' stay in a BI.
- Setting special requirements for the BI premises (square metres, the share of the total area for residents, the number of equipped workplaces, etc.).
- Making sure that BI-managing organizations meet certain requirements and are equipped to fulfil a wide range of functions.
- Establishing a board of trustees.
- Ensuring that the financial model of a state BI is clearly defined and transparent.
- Carrying out an external assessment of a BI's performance annually by an authorised organization.

3. **For a university BI, the following specific aspects should be taken into account when formulating policy:**

- The legal status of university BIs depends on the status of the university (either state or private) and its internal regulations. A university will typically decide on the legal form its BI will take, while also considering possible additional external requirements in the case of public universities (e.g. public procurement rules, ownership of intellectual property (IP), restrictions on outside employment or entrepreneurship activities).
- According to the determined goals and resources available, a BI could be closed (accessible only for university students and teachers) or open to all start-up operators.
- In most cases, BI services, including office space and public laboratories, are provided for free.
- University BIs provide a certain package of functions and services (starting from project selection, training programmes, mentoring, assistance to attract funding, monitoring and support with first sales and scaling up).

- The management staff of a university BI is usually limited and include a director (manager), deputy heads, managers of work with residents, an administrator and subject specialists.
- A BI usually has a coordinating vice-rector to facilitate the functioning of the incubator (a decision that depends on the type of BI chosen).
- The financial model of a university BI will depend on the university's status. Often, the BI funds come from the university budget, grants, service contracts, sponsorship and university endowment fund.
- For greater efficiency and synergies, BI entrepreneurship programmes should be integrated into the university curriculum.

4. To build an effective BI programme, the following elements are important:

- Establishing a monitoring mechanism of the BI activity to systematically ensure that the BI meets the set objectives and the needs of incubatees (including potential incubatees).
- Determining the range of services to be provided depending on the type of BI. The service package can include lease/sublease, consulting services, educational, investor search and intermediation in contacts with potential business partners, prompt legal assistance, provision of co-working services, etc.
- Designing and providing effective support to incubatees on fundraising, mentoring, coaching and networking (supporting from start-up creation and first sales through to the maturity stage).
- Ensuring BI capacity (e.g. human and financial resources) to provide for effective pre-incubation programme and post-incubation support, if those make part of the BI activities.
- Building on the monitoring results of BI activities when deciding on strategic development of BI taking into account the potential impact on regional development.

Notes

[1] Including Innovation for Sustainable Development Review of Kyrgyzstan (2019), Uzbekistan (ongoing), Science, Technology and Innovation Gap Assessment of the SPECA subregion (2020).

[2] Special Programme for Economies of Central Asia (SPECA) comprises Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

[3] Uzbekistan is the most populous country of the subregion (33.3 million) followed by Afghanistan (31.6 million) and Kazakhstan (18.4 million). The least populous countries are Turkmenistan (5.8 million) and Kyrgyzstan (6.4 million). The largest workforce can be found in Uzbekistan (29.9% of the SPECA total with 14.2 million) while the smallest is in Turkmenistan (5.1% with 2.4 million).

[4] Residents of an incubator or, in other words resident companies, are companies that benefit from the incubator`s services (are part of the programmes offered) and are located within the incubator`s premises (physically or virtually).

Introduction

THE POTENTIAL OF INNOVATION TO DRIVE SUSTAINABLE DEVELOPMENT IN THE SPECA COUNTRIES

Innovation can help countries achieve economic growth and reach sustainable development in line with the UN 2030 Agenda for Sustainable Development

After the disintegration of the Soviet Union in the early 1990s, many SPECA countries embarked on a difficult transition to a market economy where rapid liberalisation coupled with the break-up of Soviet planning mechanisms and supply chains triggered a rapid slump in output from which it has taken decades to recover. In the early 2000s, the SPECA countries saw an economic uptake that was mostly driven by exports of hydrocarbons and metals at a time of buoyant commodity prices. Furthermore, remittances received, primarily from Russian Federation and Kazakhstan, played an important role in the economic growth of Kyrgyzstan, Tajikistan and Uzbekistan which experienced growth ranging from 10 to 44 per cent of annual gross domestic product (GDP) (World Bank, 2019) and helping to raise households' incomes, sustain domestic consumption, reduce unemployment and offset deficits in the balance of payments (OECD, 2018). Afghanistan, a country where questions of security and economic development are intrinsically linked, became heavily reliant on international aid[1] amounting to 50 per cent of its GDP in the late 2000s and the export of agriculture products.

A growth path based on low value-added resource and commodity exports is unsustainable in the long-term and in 2012-2013; as commodity prices started to fall, the SPECA economies experienced a significant economic slowdown due to declining remittances in some countries[2] and decreased international aid flowing to Afghanistan[3]. Even with the economic stabilisation that occurred in 2017[4] and the efforts already made in implementing structural economic and broader institutional reforms[5], the SPECA countries were not able to establish a path to sustained economic growth. One of the key reasons for this is their insufficient technological development, economic activities concentrated in low-value and low-technology intensive sectors (e.g. extractive industries and agriculture) as well as weaknesses in their institutional and governance frameworks needed for a robust market economy. As a result, the subregion still faces challenges in terms of limited economic diversification for both its productive sectors and markets, low productivity in non-resource sectors, poor connectivity, poor governance and institutional capacities as well as insufficient private sector development that would be needed to ensure sustained economic growth in a market economy.

The SPECA countries have committed to addressing these challenges both at national and sub-regional levels in economically, socially and environmentally sustainable ways under the UN Agenda 2030 on Sustainable Development. While joining efforts in tackling sustainable development challenges is important, achieving the ambitious goals of the Agenda 2030 will demand significant efforts. It will require innovative approaches to policy challenges, mobilising adequate resources and capabilities, as well as ensuring sufficient and transparent stakeholder engagement, none of which is straightforward given the aforementioned economic and policy challenges in the SPECA subregion. At present, and notwithstanding progress towards the SDGs, the SPECA subregion has seen insufficient progress towards sustainable development, with the reduction of poverty being one highly encouraging and notable exception (Table 0.1).

Table 0.1 SDG dashboard, SPECA countries, 2018

	Sustainable development goals	Afghanistan	Azerbaijan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
1	End poverty	●	●	●	●	●	●	●
2	Food security, sustainable agriculture	●	●	●	●	●	●	●
3	Hearlthy lives and wellbeing	●	●	●	●	●	●	●
4	Inclusive education, lifelong learning	●	●	●	●	●	●	●
5	Gender equality, women empowerment	●	●	●	●	●	●	●
6	Sustainable water and sanitation	●	●	●	●	●	●	●
7	Sustainable and modern energy	●	●	●	●	●	●	●
8	Inclusive and sustainable growth, full employment	●	●	●	●	●	●	●
9	Sustainable infrastructure and industrialisation, innovation	●	●	●	●	●	●	●
10	Reduce inequality within and among countries	●	●	●	●	●	●	●
11	Smart and sustainable cities	●	●	●	●	●	●	●
12	Sustainable consumption and production	●	●	●	●	●	●	●
13	Combat climate change and its impacts	●	●	●	●	●	●	●
14	Sustainable use of oceans, seas and marine resources	●	●	●	●	●	●	●
15	Sustainable use of ecosystems and forests	●	●	●	●	●	●	●
16	Peaceful, inclusive societies for sustainable development	●	●	●	●	●	●	●
17	Golbal partnership for sustainable development	●	●	●	●	●	●	●

● sufficient ● compatible ● insufficient ● highlt insufficient ● not applicable or data not available

Source: UNECE, Science, Technology, and Innovation (STI) gap assessment of the SPECA countries by Rumen Dobrinsky, 2020, as presented at the virtual sub-regional SPECA workshop on 26 November 2020.

In this context, the SPECA countries should embrace the role of innovation as a driver of technological progress and productivity growth as well as being a mechanism to conserve dwindling resources through sustainable production and consumption (UN, 2015). The region should leverage the potential of innovation to accelerate the implementation of the UN Agenda 2030, in particular, SDG 8 (decent work and economic growth), SDG9 (industry, innovation and infrastructure) and SDG17 (partnerships for the goals) and to respond to the underlying economic challenges present in the region.

Most of the potential for innovation to drive sustainable development lies in absorbing and adapting existing ideas, technologies, and business models that have proven their worth in other contexts

Considering innovation in a broad sense as changes in thinking, products, processes, organizations or new ideas which are successfully applied (Khalil M.A., Olafsen E., 2010), enables SPECA countries to tackle the most pressing economic (e.g. economic diversification, export sophistication, private sector development, connectivity), governance and development challenges (e.g. reducing poverty, improving energy and water use). Using innovation as a tool to advance sustainable economic development in countries that do not operate at the technology frontier, such as the SPECA countries, requires primarily the adoption and adaptation of existing cutting-edge technology (innovative goods, services, processes) to the local market.

However, for this type of innovation to take place, the SPECA countries need to ensure they have sufficient local capabilities for absorption, i.e. education and labour force skills, frameworks for technological diffusion and adaptation, as well as policies promoting demand for innovation at the national level (e.g. incentives to stimulate local innovative entrepreneurship, innovation enhancing public procurement, industrial innovation, etc.) (UNECE, 2019). Such adoption and adaptation of new products, services and processes into the local market have already proven to be instrumental in triggering private sector development, improvements in productivity, better working conditions, economic diversification, international economic integration and the growth of social capital in South East Asia (e.g. development of the business process outsourcing (BPO) sector in the Philippines). Such success could, with continued effort, be replicated throughout the SPECA countries and yield significant benefits.

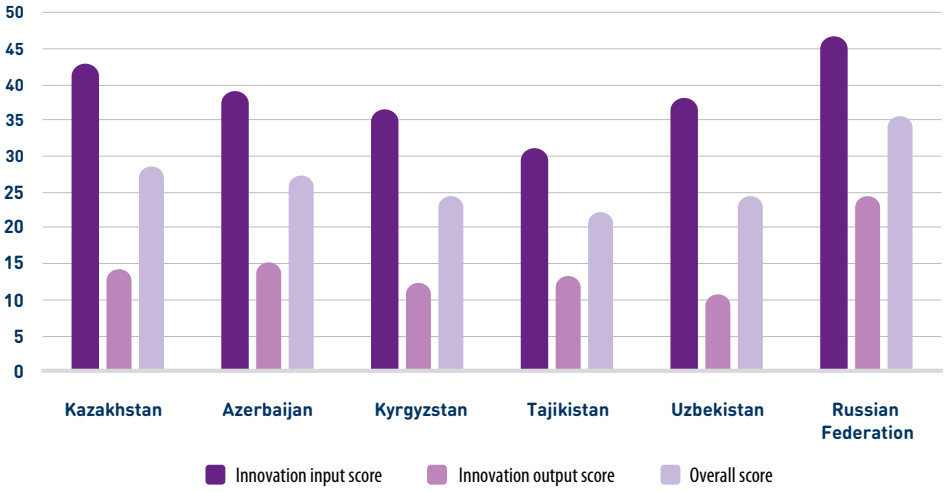
In this regard, the capacity of enterprises to absorb, adapt and disseminate knowledge is of paramount importance and fostering innovative entrepreneurship should be high on SPECA countries' political agenda. Innovative entrepreneurs can experiment with new ideas, create new markets and contribute to structural change in the economies in which they operate. However, for such entrepreneurs to emerge a number of preconditions are required. Governments should ensure an overall enabling environment for businesses of all types and sizes while simultaneously creating incentives for investments and entrepreneurial ideas to be realised. The SPECA countries need to develop strong and well-functioning innovation systems with functional industry-science linkages for the commercialisation and diffusion of knowledge, efficient support infrastructure to support innovative start-ups and enterprises. Finally, investment in human capital development will be equally important to foster innovative activity.

At present, and despite SPECA countries' efforts to strengthen their innovation systems, i.e. the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies, important challenges remain as the innovation performance of SPECA countries below shows.

The SPECA countries struggle to achieve high innovation performance and strengthening of their innovation systems is needed to address underlying challenges

The quality of a country's innovation system is reflected in its ability to systematically generate innovation, i.e. innovation performance. According to the World Intellectual Property Organization (WIPO) Global Innovation Index 2020 which assesses innovation performance, the SPECA countries struggle to a large extent to translate R&D results (innovation inputs) into concrete innovative outputs such as patents, utility models, creative goods and services. They therefore lose out on the potential economic benefits that come with increases in labour productivity, the entry and density of new firms and so forth (*Figure 0.1*).

Figure 0.1 · The SPECA countries' and comparator country performance, Global Innovation Index, 2020

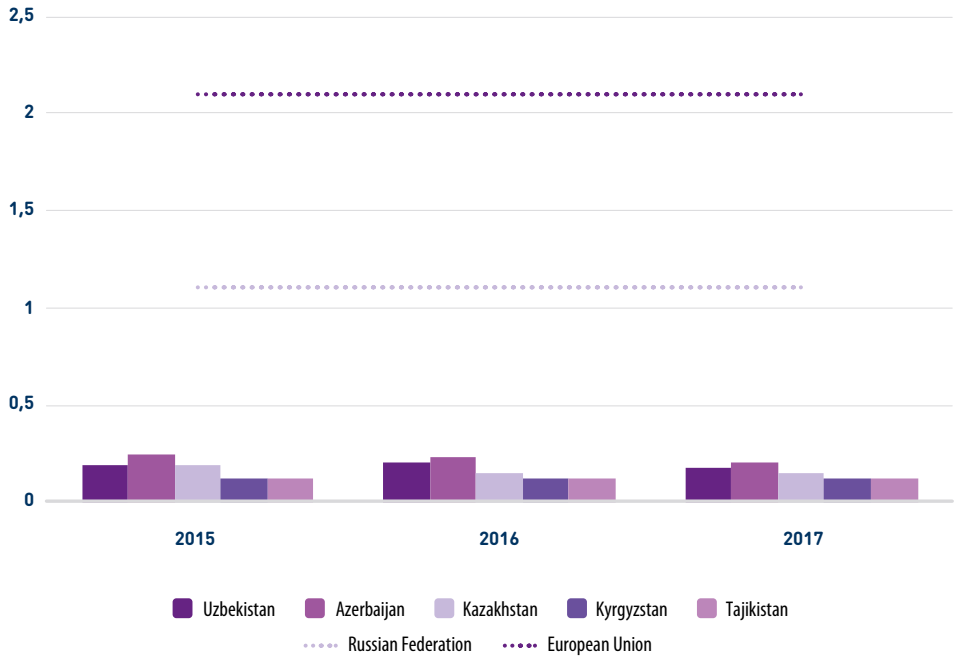


Source: UNECE analysis of (WIPO, 2020).
Note: Data for Afghanistan and Turkmenistan are not available.

The relatively high innovation input score is, to a large extent, due to the significant number of research institutions (e.g. national academies of science, institutes of fundamental and applied research) that many SPECA countries inherited from the Soviet period and kept operational. Since the 1990s, however, expenditure on R&D (as a share of GDP) declined and remained significantly lower than in Europe and neighbouring countries (*Figure 0.2*). This, combined with the subsequent emigration of researchers, weak industry-science linkages[6] and the lack of robust innovation infrastructure (e.g. technoparks (TPs),

incubators, accelerators, etc.), meant that SPECA countries did not manage to achieve high performance in terms of innovation outputs. In addition, low demand for innovative goods and services in local markets and limited integration into the global economy through foreign direct investment (FDI) and global value chains (GVCs) both hamper technology and knowledge transfer to local companies through learning-by-doing, learning-by-interaction and learning from the best (UNECE, 2019).

Figure 0.2 · Gross expenditure on R&D in SPECA countries (as a percentage of GDP)



Source: UNECE analysis of (World Bank, 2019).

Strong and well-functioning innovation infrastructure critical to support innovation and sustainable economic development is largely missing in the SPECA subregion

Promoting demand for innovation (e.g. through innovation enhancing public procurement), creating conditions for efficient industry-science linkages (e.g. via public-private partnerships) and attracting investments to enable the emergence and commercialisation of innovative ideas are all areas that would benefit from targeted government intervention.

However, to bridge the gap between science and businesses and to ensure effective technology transfer for innovative development requires well-functioning innovation infrastructure. The various elements of innovation infrastructure, such as TPs, start-up and innovation centres, BIs and technology transfer offices, all need to be in place alongside other essential *hard* infrastructure (e.g. transport links and ICT) and

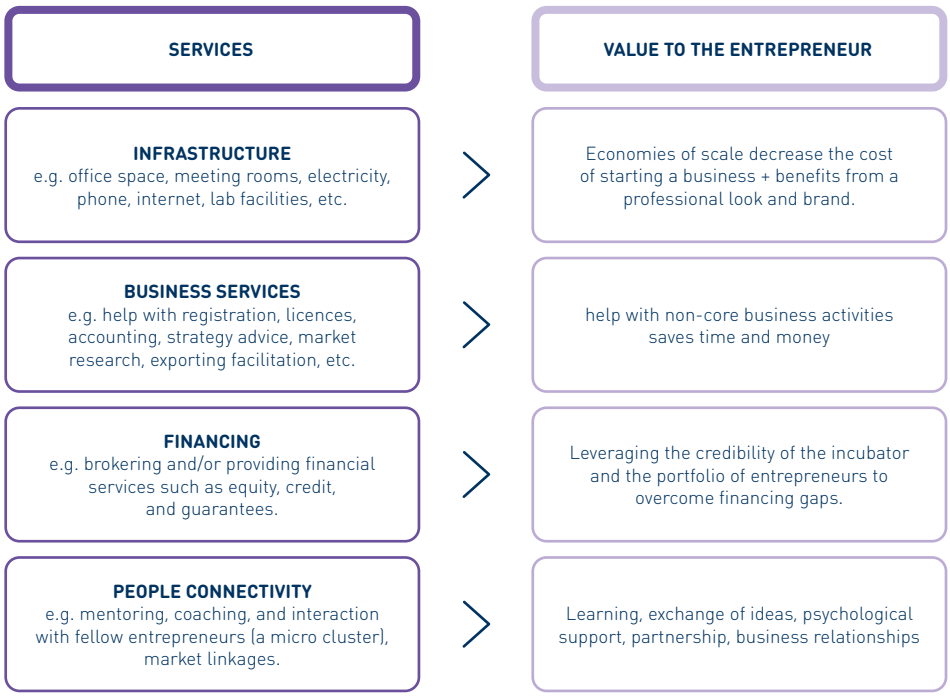
be supported by *soft* infrastructure that is comprised of individuals' skills, know-how, an entrepreneurial culture and interconnections within the innovation ecosystem. The right policy mix to support these enabling factors will be the key to success for the SPECA countries in achieving their desired structural economic transformation and sustainable development through innovation.

At present, the SPECA countries cannot lay claim to having well-established and efficient innovation infrastructure able to systematically support the uptake of innovative ideas by firms (see the below section). Given that innovation support institutions (e.g. incubators, techno- and science parks, etc.) are important places of experimentation with new ideas, R&D commercialisation and cultivation of an innovative entrepreneurship culture, it is essential for the SPECA countries to ensure that these institutions effectively meet their set goals and are present in sufficient numbers to address the needs of innovative would-be-entrepreneurs.

A typology of innovation infrastructure: Solutions for the SPECA countries

BIs are important tools to help economic actors develop and bring new ideas to market, creating social and economic wealth (Khalil M.A., Olafsen E., 2010). They do this mainly through targeted services at the initial stages of innovative entrepreneurship[7], such as offering low-cost office space and facilities, coaching and training, networking, and support finding sources of finance *(Figure 0.3)*.

Figure 0.3 • Areas of BI support to innovative entrepreneurs



Source: UNECE, adapted from (World Bank, 2014)

BIs are not the only intermediary vehicles to support the development of innovative enterprises, as science and technology parks, innovation centres and business development centres also perform this function (Table 0.2). However, these institutions differ from each other based on their target audience and the type of support provided.

Specifically, BIs support entrepreneurs from idea generation to the establishment of start-up companies with the aim for resident companies to graduate, or leave the BI's premises, and grow further and become financially self-sustaining in the market. Science and technology parks play a different role in supporting innovative ventures by providing R&D facilities specifically to technology and science-based companies. Being much larger in size than incubators (tending to occupying large premises that house various corporate and government entities as well as university labs), they often serve the post-incubation phase of innovative company development and provide a platform for further growth (e.g. for university or corporate spin-offs) (UNECE, 2009). Indeed, BIs providing targeted support to innovative ventures are often hosted by science or technology parks and innovation centres (OECD, 1997).

Innovation centres pursue similar goals to science and technology parks as they promote cooperation between researchers and industry, provide information, technical and management training, while aiming to strengthen regional and international science as well as industry networks with positive spill-overs for regional development. Business development centres provide broad support to any type of business and may be useful at the pre-incubation stage but do not meet the specific needs of a potential innovative enterprise (Table 0.2).

State of innovation infrastructure development in the SPECA countries

While the SPECA countries have already set up several and are planning further enterprise and innovation support institutions, some significant gaps remain for this infrastructure to play a systematic, catalytic role in enabling and supporting broad experimentation with new ways of creating both value and the private sector's absorptive capacities to underpin it. Azerbaijan and Kazakhstan have used their resource revenue to advance the most in this regard, with relatively extensive networks of operational innovation support institutions, such as TPs (Azerbaijan has a number particularly focused on providing support to innovative SMEs), BIs (both public and private), accelerators and IT parks (e.g. "Astana Hub", QazTech Ventures – further referred to as QTV - in Kazakhstan). Several further initiatives are underway, such as university-based TPs and BIs in Kyrgyzstan[8] and Tajikistan, an Academy of Science-based TP in Turkmenistan and several private sector-run BIs. The below table presents a brief overview of the main innovation support infrastructure institutions available across the SPECA countries (Table 0.3).

The graphic below (Table 0.4) presents a selected range of tools that can be or are used to support innovation, including support programmes for innovative entrepreneurs (incubations and acceleration programmes), fiscal incentives and financing mechanisms in the SPECA subregion. It shows that some important instruments used in advanced economies such as innovation vouchers, credit guarantees for innovative SMEs and support for industrial clusters are still largely missing in many SPECA countries. This, alongside the heterogeneous development of innovation support institutions, highlights the underlying need to strengthen innovation systems throughout SPECA subregion.

Table 0.2 Types of innovation support infrastructure

Type of institution	Main features
Business Incubators	• Target growth-oriented start-up firms • Support from idea generation to start-up establishment • Supply services, including the provision of infrastructure (e.g. office space, etc.), training and coaching (various models providing packages of services tailored to companies' specific needs) • Networking opportunities • Support to access finance
Science and Technology Parks	• Target established innovation and technology-oriented businesses • Offer link to educational or research institution and are often large in size • Perform a technology transfer function • Often focus on a specific sector (e.g. biotech, information technology (IT)) • Provide office space, some advisory services, research facilities
Innovation Centres	• Target innovative start-ups • Focus on promotion of technology transfer and strengthening of collaboration between science and industry • Provide office space, research facilities, advisory services
Business Development Centres	• Target any type of business (often used by SMEs) • Ad-hoc, demand-driven assistance • Usually broad business support, including training and advisory services

Source: UNECE, based on (Khalil M.A., 2010), (UNECE, 2009), (OECD, 1997).

Table 0.3 Overview of selected innovation support institutions in the SPECA countries

Country	Business Incubators	Techno Parks and Innovation Centres
Afghanistan	Ibtikaar Incubator (for technology start-ups)[a]; Founder Institute Kabul (incubation programme); TechNation (business incubation and accelaration)[b] ; Ibtikaar [c]	TASEES Center for Innovation and Entrepreneurship[d]; Business Innovation Hub of the American University of Afghanistan[e]; StartUp Grind[f]
Azerbaijan	INNOLAND Incubation and Acceleration Centre; Social Innovation Lab (SIL), BBF, Youth Inc, Idrak Technology, the Innova Startup Factory; Lotfi Zadeh Technology Centre	High Technologies Park (under the National Academy of Sciences); Techno Park of the Baku Engineering University; Techno Park of the West Caspian University, the Eazi Startup Centre at the Azerbaijan State Oil and Industry University; ADA University Innovation Lab (ADAIL); Barama Innovation & Entrepreneurship Centre
Kazakhstan	QazTech Ventures, Astana Hub (incubation and acceleration programmes); Nazarbayev University Research and Innovation System (NURIS); MOST	International Techno Park of IT Startups "Astana Hub"[g]; Park of Innovation Technologies "TechGarden"[h]
Kyrgyzstan	Business Incubator (private); John Galt; Accelerate Prosperity in Kyrgyzstan (accelerator); Innovation Center of Kyrgyzpatent (to open in 2021); 11 university-based BIs	TP of the State Technical University of Rassakov[i]; TP of the State University of construction, transport and architecture; TP of Technical University of Osh [j]; Innovation Centre of KyrgyzPatent;
Tajikistan	State Business Incubator[k]; Accelerate Prosperity in Tajikistan (accelerator) [l]	"Fanovar" TP of the State Technical University[m] (Dushanbe); TP of State Technical University of Academic Osimi[n]; Technopark of Russian and Tajik University
Turkmenistan	USAID-supported programme of incubators development "Start-up ecosystem"[o]	Centre of Technologies (Ashgabat)
Uzbekistan	Incubation centres within four universities in Tashkent, i.e. Polytechnical University, State Economic University, Inha University, and Amiti University[p]; IT Park Uzbekistan; Business Compass	Yashnabad TP (Tashkent); IT Park Uzbekistan

Source: UNECE, based on the desk research and national Science, Technology and Innovation (STI) gap assessments of the SPECA countries (prepared by local consultants), 2020[q].
Note: The above table does not present an extensive and complete list of incubators and technoparks across the SPECA countries but rather provides a brief overview of key relevant institutions.

[a] http://ibtikaar.gov.af/
[b] https://technation.af/#
[c] http://ibtikaar.gov.af/pages/about
[d] https://www.coworker.com/afghanistan/kabul/tasees-center-for-innovation-and-entrepreneurship
[e] http://198.12.151.33/centers-of-excellence/business-innovation-hub/
[f] http://startupgrind.af/
[g] https://astanahub.com/en/
[h] https://techgarden.kz/en/
[i] https://kstu.kg/technopark
[j] All three techno parks were developed with the support of the UNDP project and with engagement of expertise from Estonia
[k] https://bizincubator.tj/#location
https://asiaplustj.info/ru/news/tajikistan/society/20201005/novie-vozmozhnosti-dlya-tadzhikskogo-biznesa-pri-goskominveste-otkrilsya-gosudarstvennii-biznes-inkubator
[l] https://tj.accelerateprosperity.org/
[m] https://tut.tj/?page_id=3100&lang=ru
[n] https://www.technopark.tj/
[o] https://www.usaid.gov/ru/turkmenistan/press-releases/oct-22-2020-usaid-empowers-turkmenistan-startups
[p] https://uz.sputniknews.ru/society/20201202/15521016/Poshlo-delo-na-lad-pri-vuzakh-Uzbekistana-sozdayutsya-biznes-inkubatory.htm
[q] https://unece.org/speca/events/science-technology-and-innovation-sti-gap-assessment-speca-countries

Table 0.4 Available tools to support innovation activity in the SPECA countries

Policy instruments	Afghanistan	Azerbaijan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Grants for innovative start-ups		●[a]	●	●	●[b]	●	●
Innovation vouchers			●[c]				
Coaching programmes for innovative start-ups		●	●	●			
Competitions for innovative start-ups		●	●	●	●	●	●
Incubation and acceleration programmes for innovative start-ups	●	●	●	●	●	●	●
Entrepreneurship support programmes	●	●	●	●	●	●	●
Credit guarantees for innovative SMEs							●
Equity investment in innovative SMEs (venture financing)			●			●	●
Grants for full cycle STI projects (from R&D to market)					●		●
Support to industrial clusters	●	●			●		
STI grants from international donors (World Bank, Asian Development Bank, etc.)	●		●	●	●	●	●

Source: UNECE, based on the STI gap assessment of the SPECA countries, led by Rumen Dobrinsky (consultant), 2020.

[a] Exists as a policy option but is temporarily suspended

[b] Not regular and mostly from private sources

[c] Exists as a policy option but has not been applied yet

Notes

1 The official development assistance (ODA) to Afghanistan amounted to US$6.2 billion in 2010 rising from US$ 136 million in 2000 (WB data https://data.worldbank.org/indicator/DT.ODA.ALLD.CD?locations=AF).

2 Kyrgyzstan, Tajikistan and Uzbekistan recorded a decrease in remittances flows as the main receiving economy - Russia, experienced currency depreciation and introduced strict migration requirements for the residents of non-Eurasian Economic Union countries particularly affecting migrant workers from Tajikistan and Uzbekistan.

3 In Afghanistan, the progressive withdrawal of troops, initiated in 2011, and decreasing international aid during 2012-2016 contributed to a sharp decline in GDP growth from 12.75% in 2012 to 2.26% in 2016 (World Bank, 2019) against the backdrop of an increasing number of security incidents.

4 This was driven primarily by increases in commodity prices and export volumes (e.g. hydrocarbons for Azerbaijan and Turkmenistan in 2018, and an increase in gold production in Kyrgyzstan), higher household consumption (Kazakhstan, Uzbekistan), fiscal deficit management and the expansion of industry, agriculture, and services in all SPECA countries (EBRD, 2019).

5 Progress was made in the area of fiscal policy, banking sector, regulatory environment, judicial system, and privatization (EBRD, 2019).

6 E.g. contract research, partnerships between public research institutions and enterprises, technology and knowledge transfer through staff interchange or science-based startups, etc.

7 Acceleration programmes helping new enterprises to scale up can either be offered directly by the incubator or separately by accelerators.

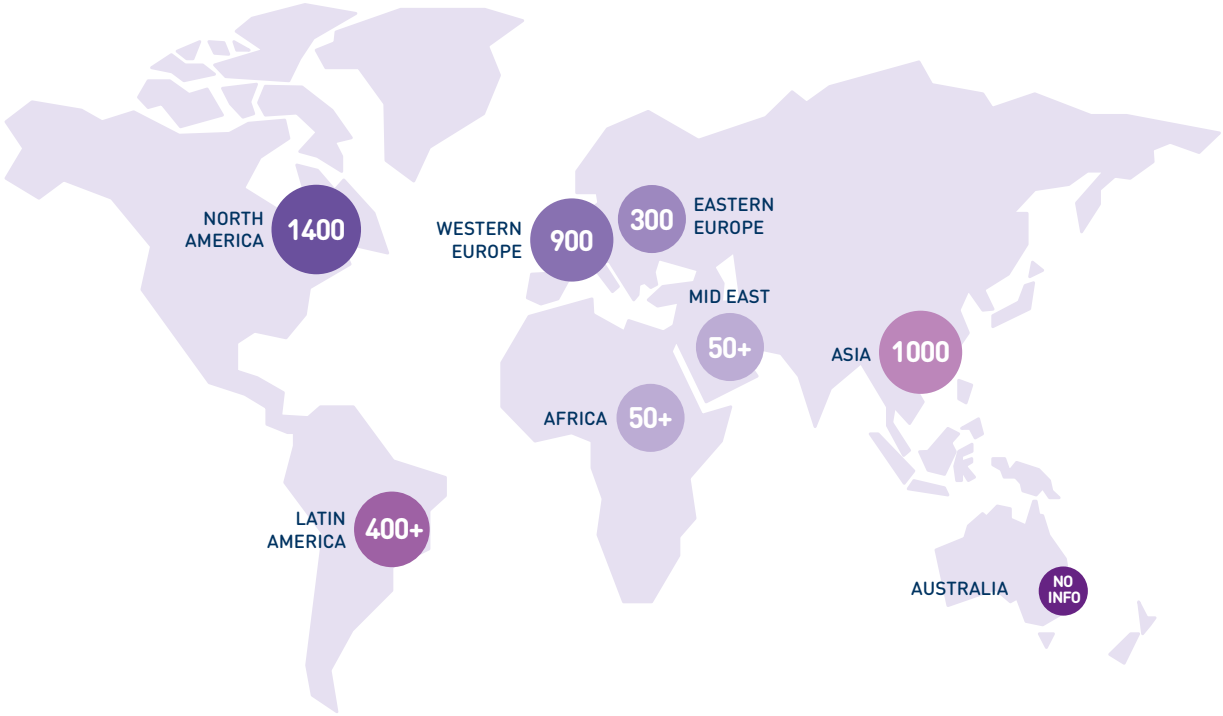
8 Upon the recommendation of the UNECE Innovation for Sustainable Development Review of Kyrgyzstan and with the UNECE support, an innovation centre within KyrgyzPatent (the state-run intellectual property agency) was established in 2020. The centre will provide facilities for R&D and support the development of technological start-ups. It hosts a Fablab, Youth iLab and co-working space along with a conference centre and offers dedicated services for innovators (e.g. Front Desk for Innovators; state patent fund, database of advisors, etc.).

Section I

DEFINING A BI AND ITS ROLE IN THE PROMOTION OF INNOVATION AND ECONOMIC GROWTH

Researchers and practitioners have proposed a wide range of definitions and classifications of BIs over the years. The National Business Incubation Association is a leading organization in business incubation with more than 50 years' experience supporting BIs and innovative high-growth enterprises (IHGEs)[1]. As of 2017, there were more than 7000 BIs worldwide, including more than 1000 incubators in Asia[2] (*Figure 1.1*). This network is growing as an increasing number of countries begin to more clearly recognise the value of BIs as tools to stimulate economic growth.

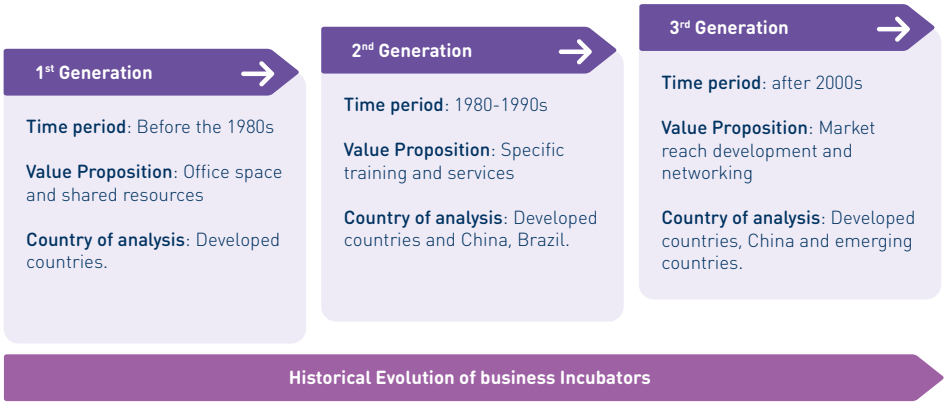
Figure 1.1 · Number of BIs worldwide, 2017



Source: UNECE, adapted from https://inbia.org/

For the purposes of this handbook, a BI is defined as an "organization whose purpose is to support the creation and growth of new businesses…" (Bergek & Norrman, 2008), "…with tangible (e.g., premises, shared equipment and administrative services) and intangible (e.g., knowledge, network access) resources during a flexible period and are funded by a sponsor (e.g., government or corporation) or fund themselves by taking rent (or less frequently equity) from incubatees" that delivers its value proposition through the BI process (Hausberg & Korreck, 2018). Although there is no universally accepted definition of a BI, BI managers, governments and other interested parties should consider how the concept of BIs has developed over time (*Figure 1.2*) in conjunction with the basic description of BI functions and services that were detailed above (*Figure 0.3*).

Figure 1.2 • Historical development of BIs



Source: UNECE, adapted from (Bruneel, Ratinho, & Groen, 2012)

Why may BIs fail to support business growth in transition economies?

Establishing an environment conducive to innovation is a priority in many market economies. The establishment of such an environment, however, depends on the overall framework conditions for doing business and the underlying government policy on innovation. Similarly, the success of BIs providing targeted support to new and innovative ventures also depends on this broader business environment and the incentives and mechanisms in place to promote innovative entrepreneurship.

In transition economies, the challenges associated with establishment of a well-functioning market economy often undermine the effectiveness of BIs in their efforts to support the growth of new firms. Frequently - and often in order to address these challenges - the governments of transition economies, including those of the SPECA countries, rely heavily on BIs to create a *safe haven* for new ventures struggling to develop in challenging business environments. While governments correctly view BIs as intermediaries able to facilitate or assist with interactions between new ventures and commercial institutions (Dutt, et al., 2015), incubators alone are unable to overcome the underlying issues related to the transition to a market economy (The World Bank, 2011).

While BIs are not new in most developed economies where they generally function well, they face specific challenges in transition economies. As many countries look to the USA as a country with a strong track record in business incubation from the beginning, key lessons from that success story have been well-established financial institutions, strong property rights and regulatory frameworks conducive to systemic experimentation with new ideas, business creation and growth. The lack of such a favourable business environment coupled with weaknesses in innovation systems is among the reasons why BIs in transition economies are not as successful as in the USA or certain European countries.

In the SPECA subregion, a number of entry points for improvement with regard to BI effectiveness can be outlined. First, further development of infrastructure in the fields of ICT, energy and transport could help ensuring connectivity within individual countries and across the region and contribute to the success of innovative business ideas through increased interactions and facilitated access to skills, equipment, resources, etc. (The World Bank, 2011). Second, facilitating access to R&D, industry practices and market exploration activities (UKBI, 2010) could support the demand for BI support of innovative ventures. Third, providing the right incentives for entrepreneurial innovation would encourage systemic experimentation with new ideas and the growth of new businesses. For example, in the SPECA subregion, suitable tax incentives did not exist in certain countries up until recently. In addition, and as mentioned in the previous section, introducing instruments such as innovation vouchers, credit guarantees for innovative SMEs, and support to industrial clusters that are still largely missing in SPECA countries (Table 0.4) would encourage innovation activity. Further strengthening of the national innovation systems of the SPECA countries, including through regional cooperation efforts under the SPECA Innovation Strategy for Sustainable Development, could contribute to the better performance of BIs (e.g. human capital development through education; promoting an innovation and entrepreneurship culture; commercialisation of innovations; etc.).

Lastly, and as in many transition economies, in SPECA countries access to finance remains an important issue for innovative ventures with action required to match the supply and demand for financial support for innovative start-ups (Guerrera, 2005; Chandra & Chao, 2011). Enhancing the skills and knowledge of entrepreneurs when it comes to obtaining funds (e.g. from international financial institution (IFIs), domestic banks and venture capital (VC) funds, etc.) through dedicated training programmes could help boost demand, while introduction of appropriate financial instruments would ensure availability of adequate means to support potential innovative businesses.

Considering the above, efforts to improve the business environment and strengthen national innovation ecosystems with a focus on promotion of innovative entrepreneurship in SPECA countries would enable BIs to successfully fulfil their role in supporting the development of new ventures.

In the SPECA subregion, ongoing policy efforts to support new and innovative companies have yielded some positive results, such as the case of QTV in Kazakhstan (Box 1.1). However, this dynamic is yet to become systematic across the region, as some initiatives to establish BIs have not achieved the intended results, and this is further reflected in the SPECA countries' innovation performance (Figure 0.1).In addition to the issues outlined above, factors that may have contributed to this include:

- *A lack of understanding of the nature of innovative ventures, skills and the capacities of BI staff to support these types of ventures.* Often, the BI services are limited to the provision of free or cheap office space and some basic advisory services, whereas the more comprehensive support required by innovative ventures is lacking;
- *Gaps in human capital and skills development, entrepreneurial mindset and innovation culture* are symptomatic of weaknesses in innovation systems. In the SPECA countries, the residents of innovation focused BIs are often not innovative, i.e. a new or significantly improved product/service/process does not lie at the core of their venture;

- *Sustainability issues related to unrealistic financial models, a lack of understanding of the market, unstable or insufficient financial support.* For an incubator to be successful, it should have experienced staff and operate based on a realistic and sustainable financial model. Often incubators in the SPECA subregion rely heavily on state or donor financing which, once interrupted, leads to the disruption of incubator activity. The knowledge and experience of the management team in supporting new and innovative ventures also plays an important role in the success of BIs in supporting potential innovative businesses.

Addressing the above issues undoubtedly requires a sustained effort to improve the business environments and strengthen the innovation systems in the SPECA countries. However, having a sound understanding of the nature of a BI as well as the necessary steps for its effective establishment and operation as a mechanism to support innovation and experimentation throughout the SPECA countries, is as important as undertaking structural reforms.

The subsequent sections of this handbook provide a step-by-step guide for policymakers and cover BI creation, key aspects related to BI activity, BI programmes and services, all of which are supplemented with examples of the experiences of Kazakhstan (section 6) and Russia (Annexes 2 and 3).

Box 1.1 Business incubation policies in Kazakhstan: the example of QTV

In Kazakhstan, high-technology entrepreneurship is a central feature of the "Digital Kazakhstan" programme which aims to enable and promote digitisation through, inter alia, start-ups and stimulating VC financing (MOST, 2019). The programme's measures should increase both the number of technology start-ups and their ability to scale up and internationalise.

Kazakhstan has already spent almost two decades developing its technology entrepreneurship, a workable business incubation policy, VC market and so forth. In this regard, a range of institutions and dedicated programmes have been put in place, such as the National Innovation Fund, Domestic Venture Fund of Kazakhstan, the State Programme on Industrial and Innovative Development as well as the National Agency for Technological Development that was renamed "QazTech Ventures» (QTV) joint-stock company (JSC) in 2019.

The agency is responsible for guiding the business incubation programme for Kazakhstani BIs. Governmental funding began in 2018 when the first Business Incubation Development Programme was launched with the purpose of strengthening the competencies of BIs and creating conditions conducive for the growth of high-quality start-ups that can develop into large technology companies.

QTV, charged with the implementation of the incubation programme, is focusing on the promotion of technology entrepreneurship through venture financing and technology consulting tools and is, for now, the only governmental entity supporting BIs. Below some detailed information on QTV is presented to highlight its key activities.

QTV value proposition for BIs:

There are three major value propositions: financial, non-financial and incubatee benefits.

Non-financial: Attracting a large strategic partner with experience in managing an incubator, creating acceleration programmes..

Box 1.1 Business incubation policies in Kazakhstan: the example of QTV (Continued)

The strategic partner of the incubator would provide the following at no cost:

1. Consultations on improving the quality of business processes within a BI.
2. Increased competence of BI employees, including in the field of seeking, selecting, training, and managing potential entrepreneurs.
3. Intensive development programmes through mentoring, training, networking, access to investors and providing expert support.
4. Setting up procedures for an effective work format for each BI.

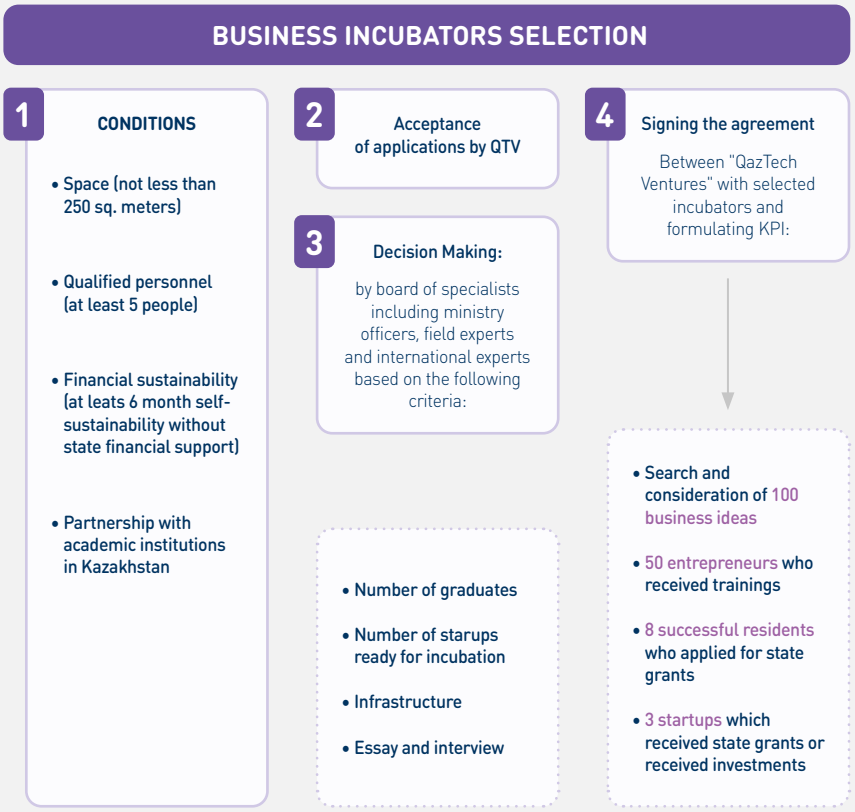
Formation of a package of services from the examination of incubatees to individual consultations

Financial: Reimbursement of up to 50% of the operating costs of the BI, but no more than 35 million tenge per year for a period of up to 3 years to expand its activities

Incubatee benefits: An additional source of funding for start-ups in the form of grants up to 50 million tenge for the development of technology to meet the estimated costs (to receive a grant requires 20% co-financing from the founders or private investors in the project) to create a new or significantly improved product, service or business process.

In addition to the above-mentioned process, there is a set of selection criteria for any prospective beneficiary incubator:

Figure 1.3 • A typical BI's selection process



Source: (Qaztech, 2020)

Box 1.1 Business incubation policies in Kazakhstan: the example of QTV (Concluded)

QTV draws on the knowledge and lessons learned from past policy experiences and evaluations when offering support or designing incubator and accelerator initiatives. When offering such assistance, Qaztech emphasises pre-incubation support as well as network and community. QTV staff undergo training programmes, and public-sector support is tied to clear performance indicators and continuous monitoring and evaluation. In 2018, three agencies received support for three years:

1. The privately-owned regional BI MOST;
2. The BI BelnTech Disruptive Developers;
3. Smart Point, a first-generation incubator (see Figure 1.2 for the type of incubators).

As a result of this governmental support and based on two selected indicators, such as survival rates and job creation, the number of incubatees in all three BIs increased 4.6 fold and the number of events (e.g. pitching, training sessions and so forth) increased more than 10 fold (Qaztech, 2020).

Source: Authors' analysis for UNECE

Box 1.2 Financing of innovative ventures in Kazakhstan and implications for business incubation

Despite progress in the establishment of BI, the existing regulatory environment still constrains effective business incubation measures in Kazakhstan (Mashaev, 2018). The Global Competitiveness Index ranks Kazakhstan 102nd in the world on accessibility to VC funding (Schwab, 2018). This relatively low-ranking stems to a large extent from the lack of mechanisms to incentivise and enable legal protection for VC investors. In developed countries, such as the United States and Singapore, private capital is the main source of investment for new firms and the governments of both countries support this trend through various tax breaks[a]. Despite several improvements in Kazakhstan, public concessional financing mechanisms are often not suited to innovative start-ups (MOST, 2019) and emerging financing instruments such as loan guarantees, crowdfunding, peer-to-peer lending and business angel investment are a better match to the high-risk nature of innovative ventures and should complement traditional financial sources. It is also important that policy makers introduce appropriate policy actions to extend the reach of these mechanisms.

The development of a business incubation policy in Kazakhstan, as in any other country, cannot be carried out without the appropriate capital being made available to entrepreneurs and support organizations being in place. However, financing opportunities for the real and innovative sectors of the economy are quite different. Thus, high growth firms that create intangible products often lack sufficient collateral to obtain a loan (MOST, 2019). A series of governmental interventions culminated in the establishment of several institutions and agencies among which are a number oriented towards entrepreneurship financing. Thus, agencies such as the Enterprise Development Fund "Damu", the National Chamber of Entrepreneurs «Atameken», the International Financial Centre in Nur-Sultan and QTV operate initiatives under the Government's "Business Roadmap 2020" programme that provides comprehensive business support in four areas, i.e. subsidising the interest rates of loans, guaranteeing loans, awarding grants and ensuring training is available to improve the competencies of entrepreneurs. In 2018, the Global Entrepreneurship Monitor (GEM) noted that the state of entrepreneurial financing in Kazakhstan improved in 2016 compared to the previous years. However, important room for improvement in few areas remains, including equity funding and initial public offering funding (IPO), both of which were at the nascent stage at the time of writing.

The GEM and other assessments have shown that Kazakhstan has huge investment potential in the field of entrepreneurship. According to the Kazakhstan Stock Exchange (KASE, 2020), 110,547 individual businesses were listed and 2,389 of these have a gross annual turnover of 12.7 billion tenge while Wealth-X World Ultra Wealth Report statistics (2018) show that approximately 12 thousand people living in Kazakhstan have more than US$5 million capital each. In the same year, QTV JSC issued grants to the amount of 4.67 billion tenge (Ventures, 2018). The business angels operating in Kazakhstan have also started to form informal associations that search for high growth firms; however, even though such initiatives have a positive impact, angels invest in a very limited number of companies and do so away from public scrutiny. A relatively weak entrepreneurial culture, quasi non-existent incentives and the lack of legal framework regulating business angels' activity makes this type of investment less attractive and less frequent with the market for this type of services struggling to develop. Overall, despite some clear progress in entrepreneurial financing to date, equity and IPO funding remain weak against the background of stringent collateral requirements imposed by banks on new and growing firms.

Source: Authors' analysis for UNECE.

[a] For example, the tax rate on investment income in United States is half that of normal income tax rates, while the tax rate on investment income is zero in Singapore (compared to the income tax rate of 17%).

Notes

1 Research on IHGEs includes the UNECE handbook on "Supporting Innovative High-Growth Enterprises in Eastern Europe and South Caucasus" (forthcoming, 2021)

2 https://inbia.org/

Section II

CREATION OF A BI: FIRST STEPS

This chapter presents the concrete steps the SPECA countries can take to establish a well-functioning incubator, covering micro-and macro-economic factors and framework conditions, different types of incubators, and defining locations, objectives and programming.

Stage 1: Analysis of macro-economic factors and framework conditions

Macro-economic factors and framework conditions enable and determine economic and, in particular, entrepreneurial activities. They include:

- *A regulatory framework* that takes into account two elements. On the one hand, it looks at regulation of business activities (the forms of registration of legal entities, tax regimes, administrative barriers to starting a business (World Bank, 2020), equity financing regulations, etc.). On the other, it considers the impact of regulations on the type of support a business can get (e.g. legal status defining the type of support an enterprise is eligible for), including with regards to a specific industry (e.g. legislation supporting an industry sector in particular), as well as the degree of legal protection (IP rights, property rights, employment legislation requirements, etc.) for entrepreneurs and investors, all of which is extremely important.
- *Entrepreneurship support institutions* and government programmes to stimulate entrepreneurship (grants, subsidies, competitions)[1].
- *Demographic factors* such as population size, age and gender structure.
- *Economic factors,* including the volume of aggregate demand, the intensity of competition, the stability of the monetary system, the level of income and its distribution, the level of savings of the population, tax policy, fluctuations in exchange rates, inflation, unemployment rates, the cost of attracting financing and so forth.
- *Socio-cultural factors* that shape the entrepreneurial culture include historical background and cultural considerations, the level of education, the general attitude of the population towards entrepreneurship as a phenomenon, type of predominant economic activity and so forth.

Stage 2: Analysis of micro-economic factors

- The size of the *economically active population* in the region willing to engage in entrepreneurial activity. This indicator is calculated both in absolute and in relative terms (based on the survey[2] results): if at least 3% of this group have their own business or want to start their own business, this is considered as an indicator of a high demand for BI services.

- *The actual and potential demand* for innovative products and services of local entrepreneurs.
- *The level of development of infrastructure and services* that enable physical supply chains: suppliers of raw materials, prototyping laboratories, workshops and factories, logistics companies and centres, warehouses and distribution centres as well as retail outlets.
- *The access to and availability of financial sources* in the market: bank loans, leasing, VC, business angels, stock exchanges, etc.
- The presence of *large companies and state-owned corporations* in the region, which can become the main customers of innovations produced by local entrepreneurs.
- The presence in the region of *large higher education institutions* that are interested in the commercialisation of technologies and in developing applied components of economic education programmes; at the same time, universities supply BIs with qualified personnel who possess the necessary level of expertise and knowledge in key industries.
- The presence in the region of *successful entrepreneurs* who can serve as role models for other start-up projects and at the same time provide them with mentoring and expert support.

Micro-economic factors also relate to the capabilities and resources available to an organization that decides to create a BI. Among these capabilities and resources are:

- *Motivation of the management team* (whether a private company, a higher education institution or other entity).
- *Availability of qualified personnel,* necessarily including persons with experience in running their own business:
  - The head of a BI, possibly a former or a practising entrepreneur who is aware of the specifics and main difficulties of doing business in the region.
  - Full-time or freelance specialists who can provide the residents of a BI with consulting support on a number of important aspects of entrepreneurial activity: business planning and modelling, building a financial model, legal issues of doing business (registration, tax accounting, patenting and protection of IP), accounting, marketing and Internet marketing as well as the art of presenting projects to potential investors.

- *Infrastructure opportunities:*
  - Available space for common premises (meeting rooms, auditoriums for training sessions and consultations).
  - Workplaces for residents and individuals with administrative functions.
  - Laboratories with specialised equipment (a printing and copying centre, 3D printers and so forth).

- *Funding to ensure incubator's sustainability*
  - Defining the cost and income model (e.g., public or private funding; mixed funding; sources of income, etc.) allowing for incubator's effective operation.

Assessment methodology

To assess the feasibility of creating a BI, we recommend using Table 2.1 , in which a policymaker or the potential BI manager needs to rate each criterion from 1 (very poor) to 5 (very good), and then calculate the weighted average result. If the result is at least 30 points, then the creation of a BI can be deemed a viable prospect.

Table 2.1 Feasibility of creating a BI – assessment table

#	Criteria	Rating from 1 to 5	Weight[a]	Result
Macro-economic factors				
1	Regulatory framework		0,8	
2	Economic factors		0,8	
3	Entrepreneurship support institutions		0,6	
4	Socio-cultural factors		0,6	
5	Demographic factors		0,4	
Micro-economic factors				
6	Demand for innovations by local entrepreneurs in the market		1,0	
7	Percentage of the economically active population already or desiring to operate a business		1,0	
8	The presence of large stakeholders in the region (large business, state-owned companies, universities)		1,0	
9	The level of development of infrastructure and services		0,8	
10	Availability of financial sources		0,8	
11	The presence of successful entrepreneurs in the region		0,6	
Incubator-related factors				
12	Infrastructural capabilities		1,0	
13	Availability of qualified personnel		0,8	
14	Management motivation		0,8	
			Total	

Source: Authors' input for the VI International Forum on Business Incubation (Moscow, MGIMO-University, 2016).
[a] The weight of the criteria presented in the table is an average expert assessment and can be adjusted depending on the specifics of the region.

Stage 3: Defining the goals of a BI

At the initial stage, one should determine the objective(s) when deciding to create a BI. Even though the primary task of any BI is to help entrepreneurs, typical objectives include the following:

Table 2.3 Goals based on BI type

University BIs	Intracompany BIs	State BIs	Private BIs
• Support student entrepreneurship • Provide applied education • Commercialise applied research results • Offer an additional source of revenue	• Develop intracompany entrepreneurship • Promote image of an innovator • Facilitate crowdsourcing • Diversify activities	• Implement national and regional entrepreneurship support programmes • Develop new clusters and increase competitiveness • Contribute to economic diversification	• Make profits through renting out premises • Make profits through equity participation in start-ups

Source: Authors' analysis for UNECE.

Often, a BI is created by regional authorities to *implement business support programmes*. In such cases, it is important to remember macro-environment factors, the absence of which can doom an attempt to create a BI to failure. State policy measures in the field of small business support should be comprehensive and stimulate the development of fundamentally important elements of the regional market and infrastructure (infrastructure of BIs and TPs, taxation regimes, subsidies and grants, access to loans and so forth) without which the existence of a BI is challenging.

In a number of universities, BIs are created as *an element of applied business education* which complements the main programme. This increases the attractiveness of such universities in the eyes of prospective applicants by making them more competitive and relevant when it comes to meeting modern consumer needs in the educational services market. For technology universities, a BI that focuses on the commercialisation of inventions can become an additional source of income.

There are cases when a BI was created as a production company to positively shape the public perception of an innovator, to implement the principles of social and ethical marketing (for example, a BI focused on supporting socially significant projects or working with certain groups in a population) or as a tool attracting creative personnel and crowdsourcing fresh ideas (for example, within the framework of open innovation competitions, case competitions, hackathons and so forth). The presence of a BI is often an element in an organization's PR efforts, which justifies the need for its constant financial support while not diminishing the requirements for the effectiveness of its activities in the context of the goals set.

One of the goals of creating a BI can be profit-making and such incubators can be created as a way to diversify activities or as independent business projects. It is important to bear in mind that the focus on maximising profit almost always leads to a transition from the usual BI model into the one more focused on business courses or business acceleration programmes. Business courses do not require the physical presence of the entrepreneurs and simply provide paid information and educational services, and sometimes these are referred to as virtual BIs. However, this does not change the essence of what the BIs are. As for business accelerators (BAs), their distinctive features are described in more detail in Annex 4.

Determination of industry specialisation and legal status of a BI

Based on the analysis of the macro- and micro-environment factors, as well as the main goal of creating a BI, the following parameters also need to be clearly defined when establishing a BI:

- Target market and its basic needs;
- Industry specialization;
- Presence/absence of social orientation;
- A set of services to be provided;
- Key required competencies of employees;
- Necessary technical means and infrastructure capabilities;
- Legal status;
- Location.

Stage 4: Defining the type of BI

Select the type of BI: open or closed (Table 2.4).

Table 2.4 Open and closed BIs, key differences

	Open BI	Closed BI
Target audience	Any, including those not affiliated with the founder of the incubator being established	1. "Internal" clients: for example, only employees of a given company or students of a given university 2. Mixed teams with members of the "internal" client group
Benefits	1. Greater audience coverage 2. Greater involvement in the regional business system	Greater strategic direction to target specific goals set by the BI

Source: Authors' analysis for UNECE.

University incubators are often closed-type structures whereas BIs at TPs can be either open (if the priority is to diversify activities, expand the audience and attract new projects to the TP) or closed (if the main task is to expand the list of services for existing residents).

Decide what your BI will be like *in terms of industry:*

- Industrial BI;
- Innovative incubator;
- IT incubator;
- Service BI;
- Mixed-type incubator.

There are also more "exotic" varieties, such as kitchen incubators (incubators focused on food-oriented start-ups and suitable shared infrastructure). The choice of industry specialization is determined by both the needs of the target audience and the resources of the organization itself. Thus, a mixed-type incubator makes the process of recruiting residents more flexible but at the same time requires the formation of a wider and more diverse pool of experts and mentors who can provide qualified support to a project with almost any orientation. However, of particular relevance in this regard is that more complex projects usually gravitate towards highly specialized incubators since they often have the necessary technical equipment and concentration of specialists and entrepreneurs who can help create opportunities in a particular market better (for example, biomedicine).

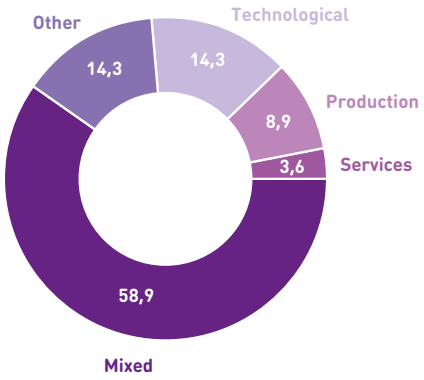
The next step involves deciding whether the BI will fully or partially target specific social groups. For example, such groups can be university students, schoolchildren, women, unemployed, pensioners or any other segment of society. In some cases, offering programmes for certain social groups could contribute to broader coverage of the BI's activities in both offline and online media and facilitate the receipt of state or private sector support.

By their legal status, BIs can be:

- Governmental organizations;
- Private organizations;
- Structural units within or subordinated to other institutions (for example, a university BI or a TP under the university).

The degree of the BI autonomy plays an important role in the development of business support services since, on the one hand, it is directly related to the dynamism of development and the ability to respond quickly to a rapidly changing market, and on the other hand, it is inextricably linked to financing and other organizational issues. For example, being an internal entity within a university means a BI may experience a number of financial and organizational constraints – but at the same time can enjoy a number of advantages, such as:

Figure 2.1 · BI specialization in Russia, 2018 (Per cent)



Source: 2nd Russian business incubation survey, Fund for Innovation and Business Incubation (FIBI), 2018

- Sharing the image and brand of the educational institution;
- Being able to access the scientific potential and IP of the university;
- Use of existing research laboratories;
- Free use of infrastructure needed for various BI activities;
- No need to employ auxiliary personnel (accounting, back office, etc.) for many day-to-day functions.

Stage 5: Development of a package of client services

Once the target audience and internal capabilities of the BI were defined, the next step would be to develop the list of services that will be provided to future residents. These will help to attract potential clients and may be a source of additional income.

The following services can be considered:

- Lease (sublease) to small businesses the non-residential premises of the BI;
- The technical operation of the building (part of the building) of the BI;
- Postal services and administrative support;
- Preparation of constituent documents and registration of legal entities;
- Centralized accounting for start-up entrepreneurs;
- Marketing and advertising services;
- Assistance in marketing research;
- Assistance in obtaining loans and bank guarantees;
- Help in searching for investors and mediation in contacts with potential business partners;
- Support in solving administrative and legal problems (drafting model contracts);
- Purchase and provision of information on topical issues (specialized printed materials).

In addition to the above list, the following types of services are recommended for *industrial and innovative BIs*:

- Help with attracting orders for production scaling of small industrial enterprises;
- Provide information and resource support for the processes of introducing new technologies;
- Provide information and resource support for existing and newly created small enterprises which introduce green technological processes, while ensuring the conditions for compliance with established standards and rules for environmental management are met;
- Provide the customer and consumers with information about the quality of products and the stability of its supply to the market;
- Provide information and resource support for technology transfer, export-import operations and the soft landing of goods in foreign markets.

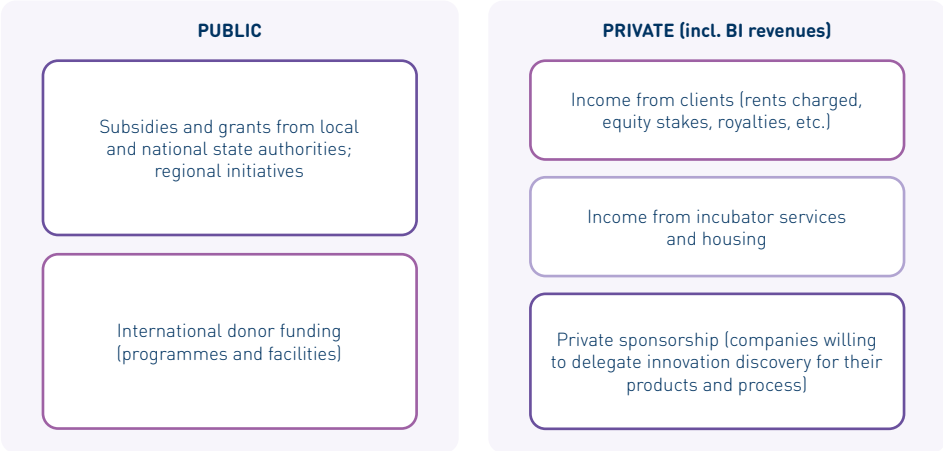
Stage 6: Defining the business model of an incubator

BIs may be defined according to the set of key characteristics which are discussed below.

Types of funding

A BI may have public (state or donor), private (own revenues, contributions from businesses) or mixed (both public and private) sources of funding. This will depend on the type of BI and its objectives (*Figure 2.2*).

Figure 2.2 • Sources of BI funding



Source: UNECE, based on (European Commission, 2010).

For example, an incubator within a public university can be predominantly state-funded or have mixed sources of financing if the legal framework allows for the attraction of external funding and generation of its own revenues. An incubator can also have predominantly private funding, e.g. a company establishing and funding a BI to experiment and grow businesses related to its field of operation, or even be a self-sustained BI operating on its own revenues.

Financial support to a BI from the state can take various forms, such as long-term grant support commitment (e.g. 10 years), grants in successive funding phases (e.g. 3, 5, 8 years), or annual grants covering the cost of the facilities and/or staff costs. Beyond such measures, special arrangements may be put in place to allow incubators to administer certain type of services for incubatees, e.g. grants for pre-incubation programmes, R&D grants through private sector or donor programmes (e.g. banks, enterprises, IFIs), etc. Participation in such funding opportunities would require meeting often rigorous eligibility requirements in terms of the quality of BI initiatives and proven capacity in effective implementation of such grant programmes.

At the initial stage of an incubator's establishment, public sector funding is often critical to ensuring it becomes operational. This is particularly true for economies in transition that lack strong support mechanisms and initiatives for private sector development, or in cases involving key social objectives, e.g. inclusion of specific social groups, addressing societal challenges and so forth. Evidence suggests, however, that incubators are most likely to succeed when supported by a partnership of public and private sector sponsors and when cooperation between stakeholders at both the local and national level occurs[3] (InfoDev, 2010).

Once established and operational, an incubator – depending on its objectives and legal status – will either continue to receive external support, e.g. from the public sector, or have this support decline or even cease. The choice of a BI's financial model and sustainability targets, as well as the maturity of the wider innovation system, will be the key determinants in this dynamic.

Financial sustainability

Financial sustainability is an important element to consider at the conception stage of a BI and during its early years of operation. This involves the ability to maintain or generate a positive cash flow in the future without the need for substantial external funding. As such, a BI may be considered sustainable if it manages to effectively continue its operations without state or donor funding. Thus, BIs can be broadly categorized as (Chase & Webb, 2018):

- self-sustainable, i.e. their operations are not discontinued and maintain at similar levels of activity without state funding or subsidies;
- partially self-sustainable, i.e. they combine self-generated revenue with public funding (subsidies) to remain operational (this is the case for the majority of BIs worldwide)[4]; and
- self-unsustainable, i.e. relying heavily on long-term state support (often in the form of subsidies) for ongoing operations.

Financial sustainability considerations push BI management and/or BI owners to identify sustainable and flexible revenue streams for their organization's survival and performance (InfoDev, 2010) which is then reflected in the BI's business model. Below are some examples of business models that may be used by incubators (Table 2.5).

The rent or property-based BI model is the most common around the world (e.g. representing 93 per cent of BIs in the USA). It relies on free buildings (no obligation to pay capital costs; heavily subsidised rental) with long-term arrangements and at sufficient scale, so that the rent and the associated facility and office fees charges to tenants cover all or a large portion of the BI's operating costs. In such instances, business support is typically tied to the rent and is not charged separately (Chase & Webb, 2018). However, the rent model has important shortcomings that should be taken into account. First, the scale or size of the incubator must be considerable for this model to work. Second, BIs operating under this model typically employ fewer staff members than those that rely on state subsidies and must compensate for this by depending on significant voluntary assistance from quality mentors and business professionals. Such voluntary assistance is typically available in well-developed innovation systems in high-income economies but may be hard to find in economies in transition with less mature innovation systems (Chase & Webb, 2018).

Table 2.5 Incubator business models

Business model	Description
Rent model	Rental charges to clients can be a source of funds but incubators need to be of significant size before this becomes a major income source. Rent in many incubators in the USA, China, Brazil and other countries is their main income source (up to 40%) and can make incubators self-sustainable if large enough.
Equity model	Incubators can take minority stakes (2-6%) in incubated businesses, often in return for free and low rent periods, providing future income from dividend payments. An additional equity stake (e.g. 1-2%) may be further added for additional periods spent in the incubator. The relatively low share of the incubator's shareholding means there are many opportunities for it to liquidate its position. To work, the equity model requires both scale and portfolio quality.
Royalty model	This model involves a portion of the revenues earned by clients being paid as a royalty payment to the incubator. Usually, the royalty is at around 5% of the client revenue and is limited in time (5 years on average).
Deferred debt model	Under this model, services provided to the client are valued in conjunction with incubator overheads and then included in the incubation fee. The incubatee has up to 10 years to pay back the debt to the incubator. Once the incubatee has left the incubator and/or when it has reached an agreed financial target, the total debt due to the incubator is fixed and repayment starts (lump sum or payment in instalments).

Source: UNECE, adapted from (InfoDev, 2010).

Learning from experience

When it comes to the SPECA countries, most BIs rely on state funding to a greater or lesser extent as BI revenues are generally insufficient to cover core operating costs. While reliance on state funding is not an issue in the short-term and is in fact widely practised throughout many countries, it creates risks for BIs in the long term as reductions in state funding can potentially disrupt or terminate their operations. Therefore, the diversification of a BI's funding sources should be a priority to ensure its sustainability. Such diversification is also important to ensure that limited state funds are spent wisely, with state support intervening in the areas where things wouldn`t have happened otherwise (e.g. creation of new innovative firms).

Among the reasons for the lack of such diversification of BI funding sources could be:

i. A government's perception of the BI as a tool for continued intervention to address market failures[5];

ii. The lack of incentives for BIs to develop self-sustainable financial models; and

iii. Gaps in legislation allowing for more flexible modalities for return-on-investment BI business models (e.g. taking minority stakes, royalty payments, etc.).

Stage 7: Building the organizational structure of a BI

The staff of the BI can be divided into 3 groups: full-time employees, freelancers and an Expert Council (EC). Key staff members of the BI are:

- Director;
- Managers of educational programmes;
- Managers working with residents;
- PR-manager;
- Event-manager;
- Administrator.

One employee can fulfil several roles, taking into account skills, competencies and workload. One or more lawyers, consultants and business trainers often work as freelancers in BIs. Employees must have profound expertise in related business industries and should understand industrial specifics while also being flexible, open-minded and innovative.

It is considered good practice to form an EC which includes the founders of the BI, investors as well as business and banking representatives. This council can meet several times a year for an expert assessment of the most successful and well-developed projects within the framework of investor pitches.

Stage 8: Choosing a location and design of premises

Location

When choosing the location of a BI, it is important to take into account the availability of real estate for the placement of the organization (government-subsidized or at commercial rates) or the possibility of building premises of the required configuration. However, in order to harmoniously "fit" the BI into the entrepreneurial ecosystem of the region, choose a location that meets one or both of the following criteria:

1. A location that is easily accessible by public transport (many start-up entrepreneurs do not have their own vehicle and cannot spend a lot of time on the road) from anywhere in the urban area the BI is situated in.
2. The BI is located in proximity to the main "core" of entrepreneurial activity or the relevant resource centre of the given region or urban area, which can be a university, business district, main shopping centre or a city-forming enterprise.

If the location of the BI does not meet any of the specified requirements, its services will most likely not be in demand due to the high transaction costs of the resident companies.

For a public-sector BIs, one of the determining factors in planning the premises will be compliance with legislative requirements at the federal and regional levels. For example, in accordance with the Order of the Ministry of Economic Development of the Russian Federation dated 04.24.2013 No. 220, the total area of non-residential premises of a BI should be at least 900m^2, where at least 85% of the usable area should be allocated for the placement of small businesses, and the area leased to one company should not exceed 15% of the total available rental area.

Premises

The law also regulates some other characteristics related to the infrastructure and layout of BIs' premises: the minimum number of workplaces equipped with a computer, telephone and Internet access, the availability of office equipment for individual or collective access, the presence of meeting rooms, etc.

In addition to rental space for residents, there should also be shared laboratories, co-working spaces, prototyping centres, equipped rooms for educational training, pitch presentations, conferences and so forth.

Stage 9: Promotional activities to attract BI clients

An important aspect of a BI's operation is the promotion of its activities among the target audience. Depending on the type of BI established and its purpose, consider the following options:

To assist with the above, a form is provided in Appendix 1 that serves to highlight the main characteristics of the BI allowing a reader to quickly grasp its value.

Stage 10. Impact assessment and monitoring of BI activity

As previously described, BIs play a catalytic role in innovative entrepreneurship that, through experimentation with new ideas and the introduction of new products, services or processes into the local market, helps address economic and social challenges. Assessing how well BIs fulfil their function is thus critical not only for BI sustainability but also for sustainable development policy considerations at the local and national levels.

This assessment of BI activity includes monitoring and benchmarking exercises based on a clear methodology and a set of indicators.

Monitoring involves systematic observation and recording of BI activities and results. It is instrumental in understanding the extent to which BI objectives are being met and in adjusting these activities to achieve desired outcomes.

Benchmarking entails a process of comparing the quality, performance and efficiency of one BI to another BI in a region or country and may also draw on international best practices and experiences.

Table 2.6 BI services promotion tools

University BIs:

- Promotion of the incubator during educational lectures or seminars with economic topics.
- Participation in events for first-year students.
- Inclusion of the BI's activities on the official website of the university (news articles, a page with relevant information).
- Placement of information materials (stands, posters) around the university campus.
- Conducting open lectures and master classes with the participation of well-known entrepreneurs.
- Placing information about BI in the social accounts of all the university's departments and student organizations.
- Conducting idea competitions for university students.

Targeted advertising campaigns on social media such as Vkontakte (targeting by age, location and interests, as well as activities in university or near-university social groups) as well as Facebook and Instagram (targeting by geography, age and interests).

Intracompany BIs:

- Placement of information materials (stands, posters) inside the company's offices.
- Conducting open lectures, masterclasses and training courses for the company's employees.
- Conducting idea competitions for employees.

When working with an external audience – consider posting information on the social media account of the company and its partners as well as paid advertising on social media: targeted advertising campaigns (targeting by geography, interests and activity in corresponding groups) coupled with posts in corresponding groups.

Independent BIs:

- Placing information on social media and the portals of regional departments related to entrepreneurship support.
- Advertising on social media: targeted advertising campaigns (targeting by geography, interests and activity in corresponding groups) as well as posts in corresponding groups.
- Contextual advertising in popular search engines with limited geography for those search queries that are entered by people interested in creating and developing their own business. For example, "business from scratch", "business how to start", "how to write a business plan", "small business support" and so forth (popular search queries can be found in the Google Ads Keyword Planner tool).
- Conducting open lectures and masterclasses inside the BI attended by well-known entrepreneurs.

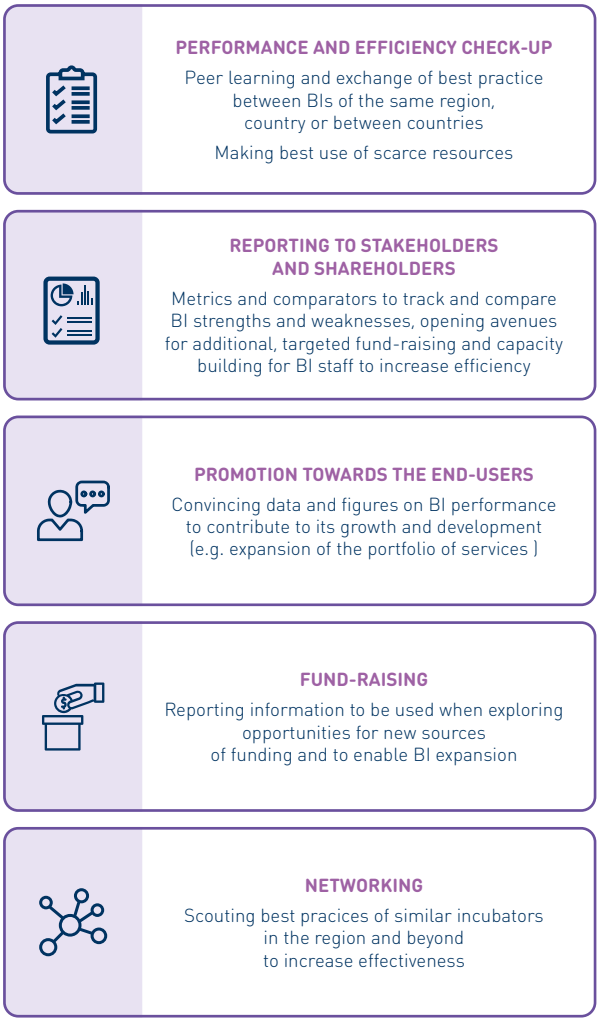
Participation in regional events related to business development (forums, conferences, exhibitions and trade fairs).

Source: Authors' analysis for UNECE.

Thus, monitoring and benchmarking help measure the extent to which a BI is contributing to regional development and assessing whether the process, methodologies and tools it uses are the most appropriate to achieve the set objectives (European Commission, 2010). The benefits of monitoring and benchmarking of BI activities can be summarised across five main areas (*Figure 2.3*).

Monitoring would require agreement on a set of indicators to be used for reporting on BI performance, allowing comparison with other BIs. These indicators could be both process- and performance-oriented, as well as include cost-benefit or cost-effectiveness ratios. Identifying a minimum set of indicators, i.e. key performance indicators (KPIs) that would be sufficiently specific, measurable, realistic and time-bound is an important step in this process.

Figure 2.3 • The benefits of monitoring and benchmarking for a BI



Source: UNECE, adapted from (European Commission, 2010).

An example of possible KPIs is provided below (*Figure 2.4*). Indicators should be chosen carefully, based on the type of BI and its objectives while ensuring that the indicators themselves are realistic and can be tracked.

Most importantly, to achieve the objectives set by the BI and given the scarce resources it typically has, along with information asymmetries and limited capacities of BI staff, summarizing key lessons learnt from BI activity over a certain period of time (or cycle) in a separate document could also help guide further development of the BI while avoiding a repetition of mistakes and building further on the positives that worked. This exercise of "learning from experience" could be done systematically (e.g. aligned with BI work cycles) and, in the short term, could substitute for cumbersome and often costly ex-post evaluation procedures, the results of which may come too late to improve BI performance in real time. Results from "learning from experience" exercises may also be shared between BIs. In the longer-term (e.g. towards the end of the funding cycle of a BI), however, a full evaluation of a BI's activities should be carried out to guide decisions on the future of the incubator.

Figure 2.4 • Indicators to measure and track BI performance

PROCESS INDICATORS	PERFORMANCE INDICATORS	COST-EFFECTIVENESS RATIOS
• Number of events organized to promote innovative enterpreneurship • Number of training events organized • Number of people attending training and promotional events • Number of contracts • Number of projects selected for feasibility studies • Number of incubatees • Number of patent and utility model applications	• Number of business plans produced • Number of start-ups • Number of jobs created in start-ups • Enterprise survival rate three years after graduation • Number of patents and utility models granted • Number of spin-offs graduate incubatees were involved in	• Public financial contribution per job created • Average number of start-ups created per 100,000 of BI income • Average number of business plans created per 100,000 of BI income • Average number of business plans per FTE (full time equivalent) employee of the BI • Average number of companies assisted per FTE BI employee

Source: UNECE, adapted from (European Commission, 2010).

Notes

1 UNCTAD Entrepreneurship Policy Framework and Implementation Guidance https://unctad.org/fr/node/31737

2 2nd and 3rd Russian business incubation survey, Fund for the Development of Innovation and Business Incubation (FIBI), 2018, 2020.

3 For example, in the majority of EU countries, a funding mix based on the matching of national funding – usually up to a maximum of 50% of an operations overheads – and other sources such as regional/local public and private funding is the most common funding structure of business incubators (InfoDev, 2010).

4 For example, for the 150 incubators in the European Business and Innovation Centre Network (EBN), public subsidies provide for 68% of revenues and rental fees (housing) accounts for a total of 58% of the remaining 32% of revenue (Chase & Webb, 2018).

5 Effectively addressing market failures in this context often requires broader structural reforms that would contribute to enabling an environment more conducive to doing business and innovation; BIs alone cannot fully address these failures but could serve as a short-term remedy with longer-term solutions still under development by the government.

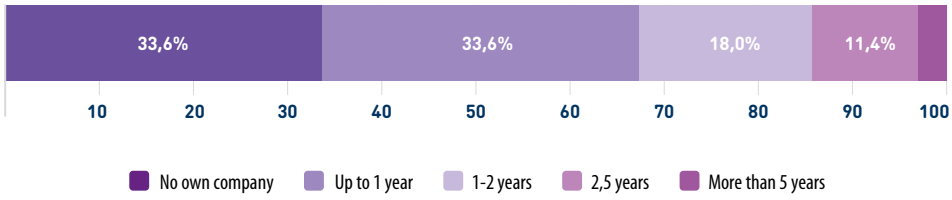
Section III

ASPECTS OF BI ACTIVITY

Regulatory norms and specificities of business incubators at the national level

A BI of at national (country-specific level) aims to support entrepreneurs starting from the early stages of their project development. The entrepreneur may or may not wish to become a part of BI. In some countries like the Russian Federation, small business entities might be required to become residents of a BI at an early stage of their activity (according to Russian legislation, within three years from the date of their state registration).

Figure 3.1 · Age of BIs (as approx. % of total number) in Russia, 2018



Source: 2nd Russian business incubation survey, FIBI, 2018.

Residents are supported by being able to lease premises on preferential terms and are provided services necessary for doing business, including consulting, accounting and legal services as well as taking part in educational training and seminars.

At the national level, the BIs could be of several types, depending on the services they provide and characteristics of their target audience:

- Industrial (availability of industrial space and the necessary equipment provided to residents engaged in production activities);
- Office;
- Mixed;
- Focused (on a particular industry/field of activity).

Lease

The provision of BI premises for lease (sublease) to small businesses should be offered after a competitive process. The rules for holding such competitions are approved by the relevant regulations of state authorities. Russian legislation, for example, precludes SMEs engaged in a number activities being admitted to such competitions, namely those involved in retail or wholesale trade; the services of lawyers; notarial activities; pawnshops; household services; repair services, the maintenance and washing of vehicles, medical and veterinary services, public catering, real estate transactions, production of excisable goods, mining and the sale of minerals and finally, gambling. The provision of BI premises for lease (sublease) to residents on preferential terms is carried out for a certain period (e.g. maximum of three years according to Russian legislation; general terms afterwards).

When concluding a lease agreement, the rental rates for premises in a BI for small businesses are set as a percentage of the current market value of the annual rent for 1 square meter of a non-residential area – this figure is established by the conclusion of an independent appraiser at the time of the tender. In Russian legislation, this percentage is a time-based sliding figure, meaning in the first year of a lease it is 40%, in the second year it is 60%, in the third year it rises to 80% of the market value.

Premises

Requirements are established for:

- The total area of the BI (e.g. according to Russian legislation, not less than 900 m^2).
- Percentage of the total area for residents' use (e.g. according to Russian legislation, at least 85%).
- The area of the premises leased to one resident (e.g. according to Russian legislation, no more than 15% of the total area of the BI and up to 40% for industrial-type BIs and agro-industrial BIs).
- The minimum number of workplaces (e.g. at least 70 according to Russian law) equipped with a computer, printer, telephone and Internet access.
- Availability of office equipment for collective access, meeting rooms, halls for conducting training sessions.

Managing company

The functions of the BI managing company include:

- The search, evaluation and selection of projects for placement in a BI.
- The development of a strategy for residents to exit the BI.
- Assist in the development of the project and the provision of consulting services.
- An analysis of the performance of resident companies.
- The creation of an expert community to evaluate projects.
- Assisting with advertising and educational activities in the field of entrepreneurship.
- The creation of a partner network of service organizations and venture capital institutions.
- Maintaining a database of residents of the incubator.
- Interaction with organizations providing state support to small and medium-sized businesses.
- Work with young people to develop youth entrepreneurship.
- Assuming responsibility for the technical operation of the BI building.
- Providing information coverage of BI activities on specialized platforms.

The head of the company selected to manage the BI's activities must:

- Have citizenship of the country where the BI is domiciled.
- Have a tertiary education in economics.
- Have experience in leadership positions.

The staffing table of the managing organization should include resident relations managers, a lawyer, an accountant, a head of educational programmes, a system administrator, a head of public access laboratories (if any) and a head of the economic department.
The managing company must, on a permanent basis, post general information about the official BI website, provide information about residents and reports on BI activities for the years since its creation.

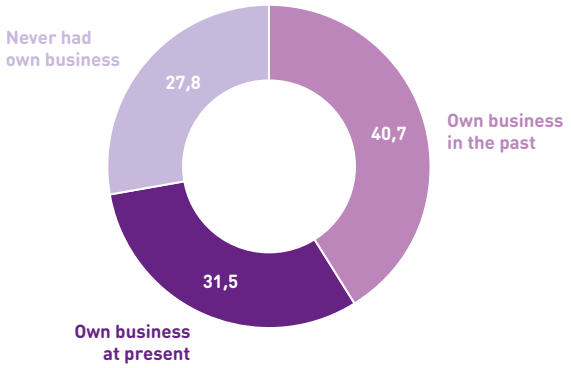
Board of Trustees

A BI can have a board of trustees (e.g. 24% of BIs in Russia have such a board). Most often, the size of these boards is 6 to 7 people, and primarily composed of experienced entrepreneurs, representatives of the regional department for economic development, the top managers of corporations, representatives of regional governments and financial institutions. Among the main issues in the purview of the board of trustees are the evaluation of the effectiveness and the means to improve the BI, determining the BI's development strategy, coordinating interactions between the BI and government authorities, supervising financial and economic activities, supporting the competition of business projects and so forth.

Performance monitoring

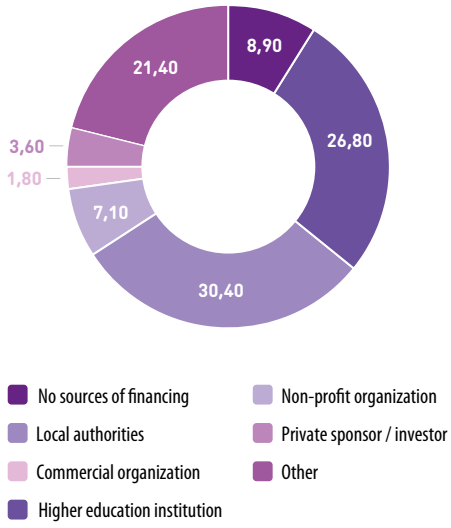
An external assessment of any BI's performance should be carried out annually. To assess the activities of a BI, various performance indicators are used, including the financial indicators of the BI itself and its resident companies, the number of realised projects and created jobs, as well as the amount of taxes paid. In addition to the above, indicators such as the level of occupancy of the areas of the BI, the survival rate of resident companies along with a number of other auxiliary indicators are taken into account.

Figure 3.2 · BI heads' experience in entrepreneurship in Russia, 2018 (Per cent)



Source: : 2nd Russian business incubation survey, FIBI, 2018

Figure 3.3 · Main sources of financing for BIs in Russia, 2018 (Per cent)



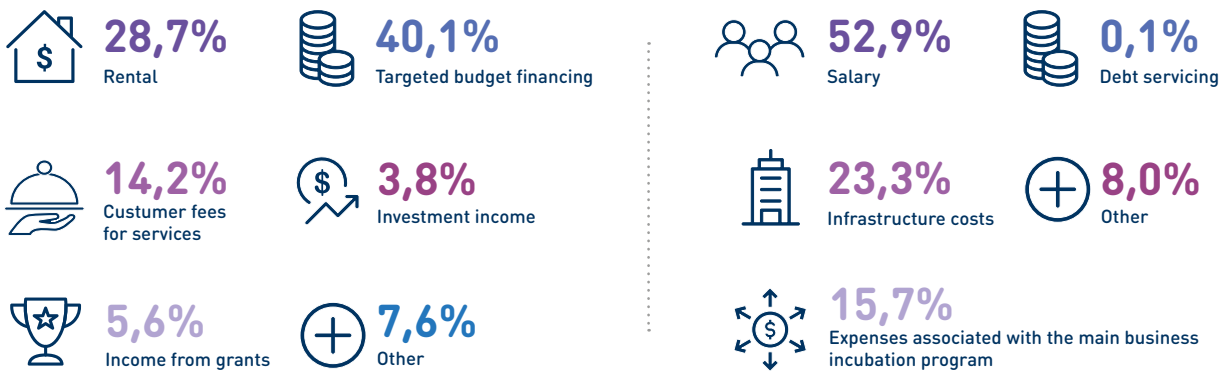
Source: 2nd Russian business incubation survey, FIBI, 2018

Table 3.1 Financial model

Main sources of financing	Main items of expenditure
1. National budget financing 2. Rental payments 3. Income from services provided 4. Grant income 5. Investment income (royalties, dividends)	1. Salaries 2. Infrastructure costs 3. Costs incurred for the main business incubation programme

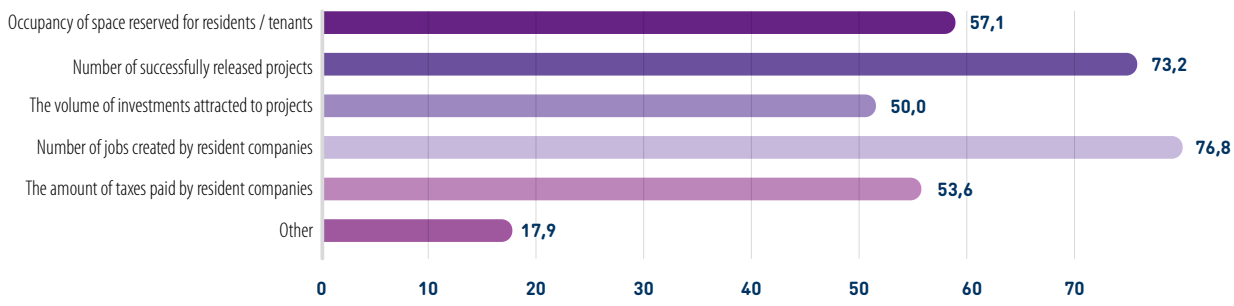
Source: Authors' analysis for UNECE

Figure 3.4 · Approximate shares of the sources of total revenue structure (left) and expenses incurred (right) in Russian BIs, 2018



Source: 2nd Russian business incubation survey, FIBI, 2018

Figure 3.5 · KPIs used by Russian BIs, 2018 (Per cent)



Source: 2nd Russian business incubation survey, FIBI, 2018
Note: The percentages represent the share of BIs who indicated in the survey having used the indicated KPIs

Specificities of a university BI

Legal status and form

A university BI is usually created in the form of a structural unit, often an educational one, and operates based on an internal university regulation.

The regulation of a BI determines its legal status, tasks and functions, the financing model, organization of work, reorganization and liquidation.

A BI can be an entrepreneurship centre, a training or design laboratory, an innovation centre or take on several other manifestations.

A BI can be closed or open. Only students and graduates of the university can be residents of a closed . An open university BI accepts residents from outside the university, usually regulating restrictions on age (for individuals) and in time from the moment of registration (for legal entities).

A BI is created by a decision of the Academic Council of the university. A BI's activity is coordinated by an overseeing vice-rector and its staffing table is approved by the Rector of the University based on the proposal of the overseeing vice-rector. A BI should have its own website which is integrated into the website of the university.

Purpose and function

A BI's goal is to support youth entrepreneurship and the development of applied business education within its associated university. In public sector universities, most of the closed-type BI services, including the provision of a workplace and public laboratories, are provided for free.

The functions of a university-based BI include:

- Selecting student projects for BI residents.
- Conducting educational training on various aspects of entrepreneurship.
- Integrating educational products into the academic programmes of the university (joint training programmes, defence of projects as master's thesis, attracting students and graduate students to applied research, preparing articles as well as teaching aids and so forth).
- Collecting and providing residents with access to the necessary information resources.
- Organizing individual mentoring sessions for residents.
- Consulting student business projects on all issues related to business creation and development.
- Assisting in the commercialization of new technology and inventions created by the students and staff of the university.
- Involving teachers and researchers of the university as experts.
- Organizing student competitions for business projects.
- Attracting successful entrepreneurs, business angels, industry experts and other participants to join the entrepreneurial ecosystem as mentors.

- Monitoring of student's work and control over the observance of BI rules and procedures.
- Search for and attraction of service companies to provide residents with services.
- Assisting in attracting funding for the residents' projects.
- Assisting in the entry and promotion of BI start-ups to the market, assistance in the creation of a partner base
- Helping start-ups in finding suitable labour resources, including students and graduates of the university.
- Consulting on issues of interaction with state support bodies.

Management and staffing table

A BI is headed by a leader (director, manager) appointed to the position by an order of the Rector. The manager forms a draft staffing table, makes proposals for hiring, transferring, dismissing and encouraging BI employees. The BI's staff may include deputy heads, managers for work with residents, an administrator and various specialists (system administrator, head of research and production laboratories and so forth). The role of a BI director focuses on:

- Directly supervises the activities of the BI and is responsible for the implementation of the tasks and functions assigned to the BI.
- Ensures the observance of the charter and regulations of the university in the BI's activities.
- Acts in agreement with the overseeing vice-rector, determines plans for educational and other activities of the BI as well as makes proposals for further development and improvement of the BI's efficiency.
- Solves issues related to the financial and logistical support of the BI.
- Represents the university to support entrepreneurship in external organizations.
- In accordance with the established procedure, submits an annual report on the results of BI activities to the university's management.

Financial model

Possible sources of funding of university BIs are:

1. Funds from the university budget allocated to finance the activities of the BI.
2. Funds received from participation in grant programmes.
3. Funds from income-generating activities within the framework of service contracts with individuals and legal entities (in the case of a separate account or sub-account of a separate legal entity).
4. Targeted sponsorship and donations from legal entities and individuals provided to the university for the provision and development of the BI.
5. Funds from the University Endowment Fund.

Section IV

DEVELOPMENT OF BUSINESS INCUBATION PROGRAMMES

Overview of services provided through BIs

The range of services provided by BIs is extremely wide and can range from leasing premises to financing the projects of their clients. The range of services provided is determined by the specifics of each BI, including the duration of its existence, industry affiliation, personal characteristics of the management and many other factors. The most demanded service among residents is assistance at the initial stage of project implementation, especially in connection with help in writing a business plan, developing a business concept and so forth. Slightly less in demand but not less relevant services are assistance in the commercialization of innovative outputs, the provision of administrative and office services, as well as training and staff development. In addition, services such as assistance in finding partners and providing high-speed Internet access are also very important among residents of BIs.

The main types of services provided at different stages of business incubation:

- Lease/sublease of BI premises to SMEs;
- Postal services and administrative support;
- Consulting services, educational services (general and specialized);
- Preparation of constituent documents and registration of legal entities;
- Centralized accounting for start-up entrepreneurs;
- Marketing services, internet marketing;
- Assistance in marketing research;
- Search for investors and mediation in contacts with potential business partners;
- Organization of business events, networking, presentations, conferences;
- Support in solving administrative and legal problems (drafting model contracts);
- Purchase and provision of information on topical issues (specialized printed materials);
- Structuring investment transactions;
- Prototype testing - testing an idea or MVP of a future product using potential customers;
- Prompt legal assistance;
- Provision of coworking services;
- Provision of licensed types of educational services.

BIs for industrial and innovative purposes also provide extra types of services for existing companies such as:

- Merchandising expertise; services for the introduction of export-oriented start-ups to foreign markets (soft landing);
- Franchising services;
- Assistance in organizing and optimizing production processes and so forth;
- Evaluation of start-ups by the BI's Expert Council;
- Search for accelerators, including foreign entities;
- Conducting a technological audit;
- Microfinance assistance;

- Business and property valuations;
- Preparation and packaging of projects to join local and international accelerators;
- Assistance in obtaining loans and bank guarantees.

As previously mentioned, BIs could also have an additional focus on specific social groups, e.g. women-entrepreneurs, youth or disabled people and conduct dedicated events to support them. To be truly successful, i.e. have its residents grow, develop and eventually exit, a BI needs to ensure that the channels of communication remain open between residents and business communities, venture investors, business angels, service companies providing services to businesses as well as other organizations forming a part of the entrepreneurship support infrastructure.

BIs are encouraged to consider introducing paid services such as entrepreneurship courses and services for large businesses and expanding their range of technological services to include video conferencing, assistance in organizing crowdfunding/crowdsourcing/ crowdinvesting, software testing and so forth.

Tailoring services to the company growth stage through dedicated programmes

When developing the services the BI will offer, it is important to take into consideration the different needs entrepreneurs have at various stages of their firms' development. Thus, services an entrepreneur requires at the business idea development stage is different from the support needed at the prototype development stage.
As a general rule, the incubation process in any type of incubator – be it a university, private or public sector BI, can be divided into two main stages corresponding to the stages of company development: pre-incubation and incubation. The third programme corresponding to the post-incubation stage is often optional and depends on BIs capacities and goals:

1. **Pre-incubation programme** – involves general activities to support the aspiring entrepreneur aimed at increasing the chances of survival of the would-be start-up. Usually, university BIs of this type are called pre-incubators. The presence of a pre-incubation programme allows the incubator to work with residents who may not even have a business idea but who are determined to establish a business in the future. The first stage usually includes:

    - Creation of business ideas;
    - Team building and leadership;
    - Learning the basics of entrepreneurship;
    - Business planning.

2. **Incubation programme** – revolves around providing support from the initial establishment of a business to its initial stages of growth. This programme involves working with residents who already have a business idea/business plan as well

as with entrepreneurs who have completed the pre-incubation programme. By the end of the pre-incubation programme, most of the residents have already formulated and conducted some initial testing of their business ideas and have a sufficient knowledge base to begin their implementation. As a rule, the incubation process lasts for the first 2-3 years of the company's activity, a period that is sufficient to determine whether a company has become stable and independent. This stage usually includes:

- Training;
- Coaching and mentoring;
- Registration of a legal entity;
- Accommodation (renting out working space);
- Financing;
- Commercialization.

3. **Post-incubation programme** – offers a set of tailored support services to companies at the active development or maturity stage. Services include training on team building, registration of intellectual property (IP), product promotion etc., mostly through business support centres organised in BIs.

Below, details on each of the three programmes are provided.

Pre-incubation programme

The pre-incubation period covers everything from business planning and business modelling to developing a business plan. It starts with an introductory interview with a potential resident where the initial analysis and evaluation of the idea takes place, and the very first "filter" of attracting residents is applied. During this interview, the ideas, team potential and innovation component are assessed while the BI's capabilities in terms of the availability of the necessary resources are simultaneously evaluated. After the interview, the following steps are taken:

Training:

- Management, team building, time management and so forth;
- Training on different topics.

Navigation:

- A detailed assessment of a business idea, crash tests;
- Business modelling.

Assessment of novelty and market potential:

- Using "internal" experts;
- Through external specialized commissions.

Business planning:

- Completion of the business plan;
- Financial modelling and forecasts.

The incubator should offer residents a series of one-to-one meetings aimed at helping the team formulate an idea and value proposition. In the process of evaluating projects, a BI must determine the presence of an innovative component in a business idea and assess the performance of the team in terms of its competence and motivation.

This stage involves working with potential residents who may not even have a business idea and includes providing services such as:

- Learning the basics of business rules and business plan;
- Career guidance for future entrepreneurs;
- Testing the would-be residents' understanding of the basic principles of doing business;
- Conducting brainstorms and business games to generate creative business ideas;
- Assessment of business ideas and assistance in building project teams;
- Carrying out events aimed at promoting entrepreneurship (youth business forums, meetings with successful entrepreneurs).

Preincubation activities are a very important link between BIs and those entities that are less involved in the entrepreneurial ecosystem but still have potential in terms of creativity and business activity (schools and similar). For example, some schools have mini-incubation programmes for children where they can create products (draw a picture, make something out of modelling clay and so forth) and sell these things at school fairs to their parents, teachers and friends thus getting their first taste for sales and entrepreneurship.

Incubation programme

The incubation phase, which lasts from the time a start-up is created until it reaches maturity, is a very delicate period. BI services should be highly customized and in line with both the current stage of the resident development and its business plan. Below, some of the main elements of support BIs need to provide are presented.

Start-up creation

- Access to funding opportunities in the early stages - organizing access to seed funds, working with business angels, access to grants at the regional and national levels.
- Legal and administrative support - a BI, like any organization supporting SMEs and should offer solutions to simplify the company registration process.
- Office and industrial premises, fully equipped with technical means for joint use by residents. Sharing space allows a BI to reduce the associated costs (postal services and administrative support , conference/meeting rooms, printing and so forth).
- IP - patenting of innovative products and services, IP protection.

Early-stage development

This stage begins after the company has been established, makes its first attempts to enter the market and ends when the company has reached maturity and becomes self-sustaining. To accompany the firm through this process, the following support is often offered through a BI:

- Fundraising - organizing meetings with venture investors.
- Mentoring and coaching - a BI must always have an operational consultant ready to answer questions from residents as soon as they arise. To ensure continuous work, it is recommended to hold monthly meetings to assess the results and take stock of resident's progress.
- Networking - thematic events and business meetings aimed at developing partnerships and business ties.
- Technology transfer - some technologies require support at the stage of implementation into production.

Expansion stage

At this stage of its operations, a company must have sufficient experience and funds to spin-off the incubator. The focus at this point is determining an exit strategy from the BI - the phasing out of support services to facilitate the start-up assuming full autonomy without "artificial" support. At this stage, the BI should define the main KPIs relevant for this particular company in order to monitor its performance during the first 1-3 years of independent development. These KPIs usually include sales growth, profitability, data from financial statements, changes in business structure (business combination, discontinued operations), stock prices, risk management, earnings releases, operational information and so forth.

Post-incubation programme

This programme is offered to companies at the active development or maturity stage.

The most demanded services in the post-incubation stage are the following:

- Training in sales tools;
- Team building;
- Protection of IP;
- Transfer of technology;
- Innovative transformations;
- Promoting further development and continuous market testing;
- Consulting on marketing matter, providing a soft landing and so forth.

These services are provided to companies after they have spun-off but still need support (assistance in increasing sales, optimizing production processes and the like). To this end, a BI should have a *business support centre* which can provide legal (including patenting)

and accounting services, as well as lease premises and workplaces, perform the functions of a personnel service (selecting the necessary specialists at the request of companies), organize crowdsourcing events, run innovation contests and case championships. Another area of the BI's activity can, or should, be considered is the creation of co-working spaces – a common area with workplaces rented out to self-employed people and freelancers.

Often, export support centres are created under the auspices of BIs to provide business assistance in exporting products to foreign markets, offer legal support for such transactions, help with the adaptation of products to foreign markets and in negotiations with foreign BIs and business partners for rapid and widespread promotion and marketing of products. These set of services acting in concert are said to provide the so-called soft-landing.

For a more detailed consideration of the types of services and stages of business incubation, the experience of two fundamentally different types of BIs from the Russian Federation is presented. First is a public sector university business – the MGIMO Business Incubator, and the second is the BI operating out of the TP "Strogino" (see Appendixes 2 and 3).

Section V

EXPANDING THE RANGE OF BUSINESS INCUBATION SERVICES

Business incubators can offer additional services that ensure work can proceed smoothly at both the pre-incubation and post-incubation stages and, as a result, increase the synergy of the organization's resources and overall financial efficiency.

Pre-incubation services

This category of services is aimed at external clients (pupils, students, self-employed and so forth) and involves all aspects with potential to future entrepreneurs who currently do not even have an idea for a business project. These services include:

- Training on business plan development;
- Training on prototyping;
- Career guidance for students;
- Conducting brainstorming sessions and business games to generate creative business ideas;
- Assessment of business ideas and assistance in building project teams;
- Carrying out events aimed at promoting entrepreneurship (youth business forums, meetings with successful entrepreneurs and so forth).

As previously stated, pre-incubation activities are a very important link between BIs and those entities that are less involved in the entrepreneurial ecosystem but have good potential in terms of creativity and business activity – for example, schools. In this regard, the MGIMO BI annually invites school students to host a special educational event, including start-up pitches, brainstorming and business games on creativity.

Acceleration programmes

A *business accelerator (BA)* is a type of commercial business support organization focused on maximizing financial results. While not complete, the following list of features can be identified (for more details see Appendix 4):

1. The competitive selection of a project with a wide range of criteria, describing their potential for more success to derive greater benefit from their strong financial performance. BAs rarely accept projects at the idea stage (usually at least a prototype is required).
2. Narrow industry specialization to save resources (for example, inviting only specialists in a certain narrowly defined field of activity) and finding synergies in the use of resources in the pool of selected projects.
3. A focus on project teams which must have the necessary competencies to successfully complete their project.
4. The availability of their own financial resources (usually a fund) for investment in projects in the early stages, accompanied by securing a holding in the company's equity.

5. Tighter time frames for the business acceleration programme, which also requires dividing the programme into specific stages that are common for all participants and the monitoring of KPIs at the end of each stage. It should be noted here that the average duration of business acceleration programmes is usually only a few months, which is significantly less than the average duration of start-up projects in conventional BIs.

An acceleration programme built on these principles can become an addition and the next step for the main business incubation programme, providing the BI with an additional source of income. Naturally, the transition to the acceleration programme in such cases must be left to the discretion of entrepreneurs.

To implement an acceleration programme, it is necessary to:

1. Select a narrow area of specialization for the acceleration programme that will expand or supplement the main business incubation programme.
2. Create a phased plan for the implementation of the acceleration programme, including the stages of training ("pumping"), development and commercialization, and where each stage should be tied to a specific time frame.
3. Develop a criteria matrix for selecting the most viable projects for the acceleration programme.
4. Think over the terms of interactions between projects and the BA in case of project closures, their scaling as well as the conditions for projects to exit the BA.

Please see below for an example of a business acceleration programme (Table 5.1).

Services for existing companies

Another good opportunity for a BI to diversify its activities and generate additional sources of income can be services for existing companies, and for residents who graduated from the main business incubation programme. To this end, a business support centre can be opened at the BI to provide legal (including patenting) and accounting services, as well as lease additional premises and workplaces, perform the functions of a personnel service (select the necessary specialists at the request of companies), organize crowdsourcing events, run innovation contests and case championships. Another area that a BI can use to diversify its activities is a co-working space - a common area with workplaces rented out to people in the liberal professions, self-employed and freelancers.

Often, export support centres are created under the auspices of BIs to provide business assistance in exporting and adapting products to foreign markets, ensure legal support in such transactions as well as help leading negotiations with foreign BIs and business partners to better promote and market products.

Table 5.1 Instituto de Estudios Superiores de la Empresa (IESE) Business School Acceleration Programme

START

PART I The Foundations of Management	PART II Managing Technology & Innovation	PART III Leading Change In Organizations
The firts part of the program will offer break-the-frame insights to inspire you to approach global business systems from new angles. You'll sharpen your capacity for analysis and deepen your understanding of core business areas including accounting, economics and finance. • Analysis of Business Problems • Accounting • Managing People in Organizations • Economics • Finance • Marketing • Operations	In Part 2 of the program, you'll examine the role of information systems as a strategic corporate driver as opposed to a stand-alone functional area. You'll also explore the fundamentals of marketing, entrepreneurship and operations, as well as reflect on your personal action plan. • Entrepreneurship • Information Systems • Marketing • Economics • Operations • 100-days action-plan	The last segment of the program puts the spotlight on corporate strategy, negociation skills and the importance of interweaving ethics at every stage of the value chain. You'll also learn how you can cultivate your personal and professional developement moving forward. • Managing People in Organizations • Ethics • Negociation • Strategy
WEEKS 1-4	**WEEKS 5-6**	**WEEKS 7-8**

FINISH

5 MONTHS

Source: UNECE, adapted from https://executiveeducation.iese.edu .

Section VI

SPECA EXPERIENCE WITH BIS: CASE STUDIES FROM KAZAKHSTAN

In Why Kazakhstan?

Kazakhstan was chosen by the present authors as a suitable country case in the SPECA subregion for analysis for several reasons. First, the promotion of high-technology entrepreneurship is a strong policy priority and Kazakhstan decided to transform the country into the region's most advanced IT leader and has an emerging entrepreneurial ecosystem to help facilitate this (MOST, 2019). Second, when considered from the SPECA subregional perspective, Kazakhstan has a huge market, coupled with a plethora of place-specific assets that can be used to create new innovative businesses. Furthermore, financing conditions for start-ups have been improving in Kazakhstan whereas in the other SPECA countries, the VC concept has not been extensively developed, meaning entrepreneurial projects, especially those in the start-up and early stages of development, face serious challenges gaining access to capital. Third, even though Kazakhstan's BI ecosystem is still in its early stage of development when compared to more advanced economies, it is the most advanced in the SPECA subregion with a relatively diverse range of sponsorship options and a set of key actors who have a sound understanding of the proper role of BIs.

According to several estimates, the number of BIs currently operating in Kazakhstan ranges from 15 to over 25 (Qaztech, 2020).

This section presents two incubators in detail: MOST, a mixed incubator, and NURIS, a university incubator; and aims to offer practical insights into business incubation for other SPECA countries (Table 6.1). The selected incubators share some commonalities at several levels (e.g. portfolios of services, process of admission of new incubatees, etc.) but are BIs that are backed by different types of sponsors (non-government organizations (NGOs), universities and private firms or individuals) and this is instrumental in demonstrating how different incubation models are contingent on sponsorship sources.

While the evidence suggests that the share of individuals with an interest in becoming entrepreneurs is rising in Kazakhstan (GEM, 2016), the existent national business support institutions are still not sufficiently developed to systematically support high rates of entrepreneurship. Thus, as discussed in previous sections, further efforts are needed to develop an efficient network of business support institutions.

Lastly, this section is based on interviews with the MOST and NURIS incubators' managers[1], survey data and secondary sources. Each case, to the greatest extent possible, provides information regarding historical context, incubation policy development and approaches, client base, value propositions and the structure of the given incubator.

The NURIS BI

A historical perspective

The NURIS incubator at the National Nazarbayev University was established in 2016 to put applied scientific and technological research into practice in order to meet national and global demand. The incubator is fully sponsored by the university and uses its expertise and experience to support early-stage start-ups with a wide range of services.

The BI, although a part of the university, enjoys substantial strategic and operational autonomy to pursue its objectives which are listed below.

1. The creation and development of sustainable and competitive innovative projects.
2. The analysis of business ideas and the assessment of their competitiveness and sustainability.
3. The popularization and training in the basics of technological entrepreneurship.
4. The preparation of projects of the residents of the Business Incubation Programme for further commercialization.
5. The creation of a support system for innovative ideas.

The facility is physically located within the National Nazarbayev University which is incorporated into a vibrant area of Nur-Sultan, close to both industrial and residential estates.

NURIS is locally recognised because of its expertise and high-quality incubation programmes. Its records show that more than 36 early-stage start-ups have gone through the four incubation programmes, and the total investment in early-stage companies over the past two years amounts to more than US$ 150,000. Every year, NURIS organizes 50 networking and other informational and commercial events while also hosting its own competitions and awards. It runs a variety of training courses, master classes for internal and external stakeholders, as well as provides consulting services to commercial partners for the benefit of client firms, university researchers and other external partners.

Table 6.1 Details on the selected incubators for the case study

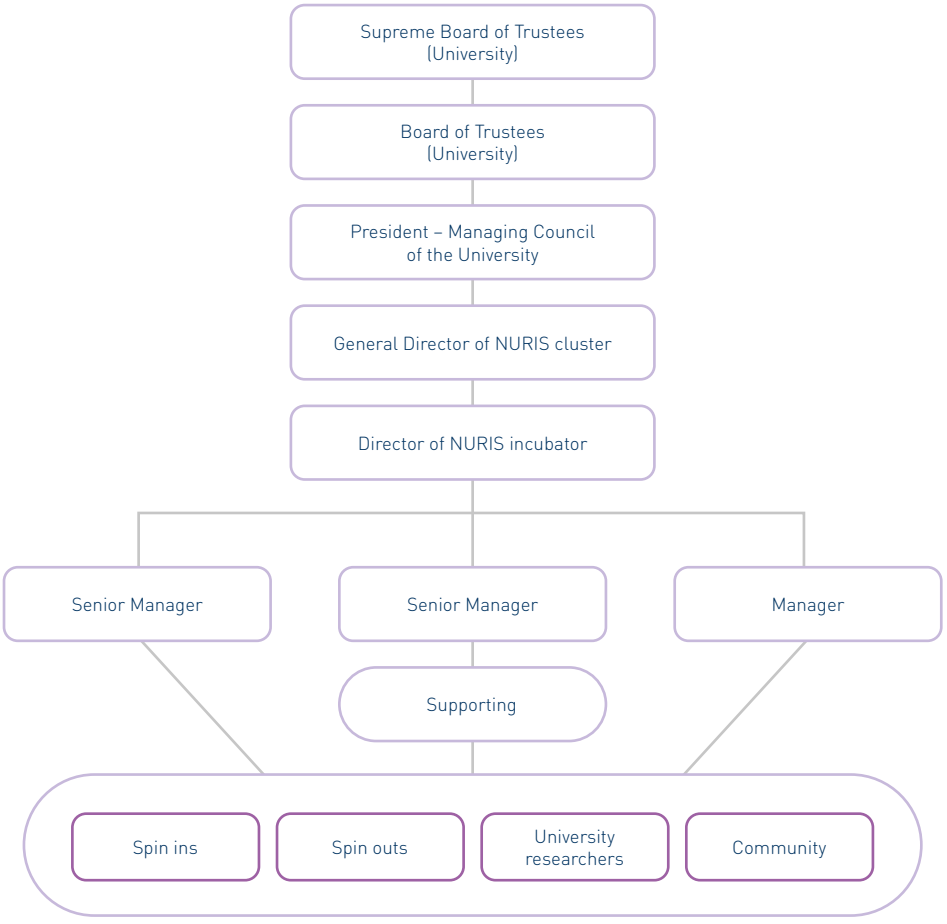
Incubator	Country and city of origin	Sponsor	Sector	Age (in years)	Incubation length	Applications per year (Total # of graduates)
MOST Incubator	Kazakhstan Almaty	Private funding, NGO grants, Government	No specific sector focus (IT-driven projects are prioritized)	6	2 months (idea stage projects) 1 month (Minimum Viable Product (MVP) stage projects)	On average, 300 applications per year On average, 50 graduate projects per year
NURIS Incubator	Kazakhstan Nur-Sultan	University	No specific focus	3	3 months	On average, 140 applications per year On average, 24 graduate projects per year

Source: Author's compilation for UNECE.

Organizational Structure

Four professional staff members are responsible for NURIS' leadership, operations, enterprise development, technology transfer, communications and public relations (PR), the continuing professional development (CPD) of staff and day-to-day administration. Due to the technical demands of NURIS' areas of activity, each of the staff members works in their respective area of responsibility. In general, reporting relationships are very well determined and fully comply with the rules assigned by the university's Human Resources (HR) department. Figure 6.1 provides an approximate depiction of the organizational structure:

Figure 6.1 • NURIS' organization chart



Source: Authors' compilation for UNECE.

Service Portfolio and Value Proposition

NURIS provides a vast array of value propositions in its eight services[2] and detailing these as an exhaustive list is instructive as the incubator is flexible and tailors what it provides to suit the needs of individual client firms. NURIS's two value propositions are inter-related and mutually impacting (Table 6.2).

Table 6.2 NURIS' service portfolio

Value Proposition	Service	Description
Enterprise Development and Promotion of an Entrepreneurial Culture	Infrastructural Supports	**1.** Limited access and security **2.** Dedicated server room **3.** Free Microsoft software for start-ups **4.** Permanent access to a large boardroom **5.** Numerous seminar and meeting rooms of various sizes **6.** Reception services **7.** Wireless network **8.** Café with an external deck
	Developmental Assistance 1 – Enterprise Development Advice	**9.** Feasibility study **10.** Business plan development **11.** Company formation **12.** Access to sources of finance and investment **13.** Business growth advice **14.** Introductions to potential investors (individual introductions to venture capitalists and business angels) **15.** Introductions to business advisors (legal, financial, tax, marketing, etc.) **16.** Collaboration with Master of Business Administration (MBA) and Doctor of Philosophy (PhD) programme projects
	Developmental Assistance 2	**17.** Legal **18.** Finance and Tax **19.** Marketing **20.** Sales **21.** IP
	Regular Workshops & Training Sessions	Through a manager responsible for CPD and traction meetings - various business planning and development workshops for knowledge-intensive start-ups
	Developmental Assistance 3 – Facilitated Linkages to Research at the University	Through matching, introductions and other facilitation mechanisms
	Developmental Assistance 4 – Networking Opportunities	Through the participation in networking events, local and international competitions, workshops and other events.
	Developmental Assistance 5 – Media Exposure	Through a dedicated communications and PR manager who helps promote client businesses and achievements in local and international press as well as other media.

Table 6.2 NURIS' service portfolio (Concluded)

Value Proposition	Service	Description
Technology Transfer & Building Partnerships	Services for University Researchers	1. Supporting researchers with regard to IP considerations for funded research projects 2. Assisting researchers in identifying IP and completion of invention disclosure forms 3. Developing and implementing commercialization strategies to exploit university IP 4. Marketing of inventions 5. Drafting and negotiating.
	Services for Industry	6. Developing cooperation with industry and business communities.

Source: Authors' analysis for UNECE.

At this stage, NURIS is fully funded by the National Nazarbayev University – however, according to the internal regulations of the BI, it can take a 3% equity stake in successful start-ups, although this has not happened yet (potentially due to the recent establishment of the BI).

Client Base

The NURIS incubator attracts business ideas from firms in the pre-seed stage of development from a diverse range of sectors and across all industries. Open to all potential Kazakh entrepreneurs, NURIS supports projects involving, inter alia, cybersecurity, digital healthcare, the Internet of Things (IoT), artificial intelligence (AI), agrotech, and big data. From more than 400 applicants in 2020, only 34 were retained and Table 6.3 below lists some of the residents (clients) that have successfully graduated from the incubator.

Table 6.3 Selected NURIS' residents (client) sample

Categories	Industry	Nature	Occupancy Type	Stage
AI – Legal company	AI	Law	Incubation	2 years
UNIpass company	Internet Technologies	Education	Incubation	2 years
HydroPlat Company	Chemistry	Hydrogen	Incubation	2 years
Infinite Bilim	Internet Technologies	Education	Incubation	2 years
Finbook	Internet Technologies	Management Accounting	Incubation	2 years
Smart Detector	Cybersecurity	Smart House	Incubation	2 years

Source: Authors' analysis for UNECE.

Incubation Policy and Practice

The ratio of internal and external clients is approximately 30:70 with several channels used to attract prospective clients to NURIS. External clients are those who are not part of the National Nazarbayev University, while internal clients encompass potential incubatees (students, faculty members or staff members) who officially study or work at the university. Clients are primarily attracted through referrals, advertising and a range of events, training sessions and meet-ups on the university campus. Once a prospective client has been identified, formal client screening, inducting, incubating processes, as well as the selection and graduating procedures guide such clients through the various phases of their partnership with NURIS.

The first step in the process is a detailed application form and a business plan *(see Appendix 5)*. An expert committee studies the application and approves or rejects it. Once approved, a formal contract and a consent form is signed by the future resident who will thus become an incubatee. Upon the successful completion of the incubation programme, i.e. having met most or all the pre-set and agreed targets in the contract, the resident graduates. At NURIS, any resident who prematurely leaves the programme for any foreseen or unforeseen reason, irrespective of the completion of the terms of the contract, is not counted as a graduate start-up since the incubatee would not have completed the whole process of business incubation. By the end of the incubation programme, a graduate start-up will have a validated business model, a complete team, a MVP and market validation (confirmation of the demand for a product: customer validation and testing of sales channels).

The most BI

A historical perspective

MOST was established in 2015 and has built on its predecessor, The Club of Young Entrepreneurs, as a privately-owned BI. It was the first privately-owned regional BI to provide offices, co-working space, mentorship, networking, consultancy, and pre-seed investment in Kazakhstan. Its objectives are to:

1. Help young people, unemployed persons and others to establish their own businesses;
2. Assist existing small businesses to expand and provide for employment growth;
3. Change the traditional mindset into a more entrepreneurial one; and
4. Enhance the entrepreneurial ecosystem in Central Asia.

MOST set up a diverse board of directors and established its premises at a university. Funding for MOST came from a combination of sources, primarily grants and other revenue streams, since there was no government-based mechanism available for it. The services offered by the MOST BI include subsidised office space, training, and consultancy.

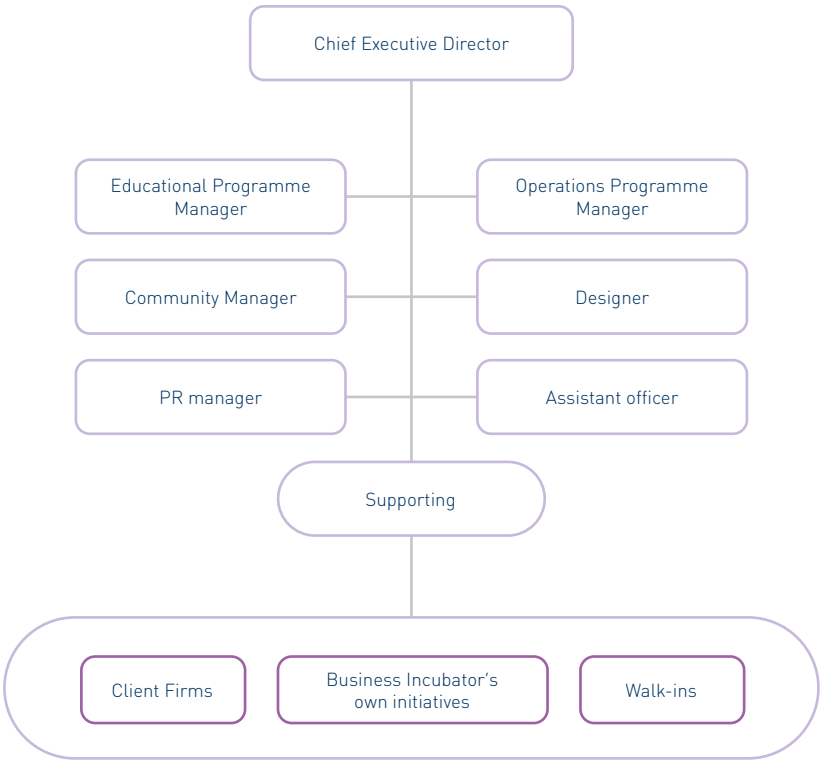
At the beginning of its operations, the incubator held biannual board meetings which helped set the direction and focus on matters regarding premises, finance, client profiles,

staffing profiles, customer service issues, occupancy rates and associated issues (for example, clients staying too long). By the end of 2019, MOST had conducted a total of ten programmes and held more than a 100 events for over 6000 entrepreneurs; it had 83 project graduates and 43 start-ups accepted into its programme at some point, having raised more than 128 million tenge (approx. €250,000) in funding during 2018-2019.

MOST's Organizational Structure

MOST has seven staff members who provide advisory and administrative support while also performing duties relating to the management of the incubator. Although a hierarchical structure does exist among the staff, the general environment is more 'family-like' or communal. The board of directors is the governing body mandated to provide managerial oversight and responsible for setting new policies. Figure 6.2 below approximately depicts the organizational structure:

Figure 6.2 • MOST's organization chart



Source: Authors' compilation for UNECE.

Despite being limited in number, MOST's staff have varied roles and job descriptions. This flexibility has been required to ensure that the organization remains competitive, economically efficient and lean while being able to provide services as per the needs of each client and the wider business community so as to generate reasonable revenue streams from incubation clients.

Service Portfolio

The services offered by MOST vary according to the type of client, the type of service provided (such as infrastructural or advice-based or a combination), their cost (free or paid), exclusivity (limited to a particular category of business or available across the board), among others. Table 6.4 presents a broad overview of many of these aspects:

Table 6.4 MOST service portfolio

Service Available	Incubation programme	Not programme-based	Walk-in
Developmental			
One-to-one business guidance	+ Free		+Fee-based
Assistance with business planning	+ Free		
Assistance with funding applications	+ Free	+Free	
Assistance with customer development			
Business networking meetings			
Training			
Customer development courses	+ Free		+Fee- based
Start-up courses			+Fee-based
Professional development courses		+Fee-based	+Fee-based
Market research		+Fee-based	+Fee-based
Design thinking		+Fee-based	+Fee-based
Tracking sessions	+ Free		+Fee-based
Infrastructure			
Wireless broadband	+ Free		
Administrative support	+ Free	+ Free	+ Free
PCs and desks	+ Free	+ Free	+ Free
Conference and private meeting rooms	+ Free		

Source: Authors' analysis for UNECE.

The two significant revenue streams for the incubator are rents for office space, and fees for trainings and advisory services. The training courses were offered to designated members of the local community with support from a government agency.

Since 2018, MOST has received funding from QTV, a previously mentioned government agency, as it subsidiszes part of the incubator's staff members wages. Similarly, a subsidy was also made available to cover the costs of running professional development training programmes and engaging the services of international expert consultants. Revenue is also generated via *ad-hoc* schemes which international organizations and NGOs offer from time-to-time (e.g. those run by Chevron and Youth Business International (YBI) which MOST applied for).

Client Base

MOST hosts a diverse mix of clients with different backgrounds, industry exposure, experience and business models. The Table below provides a sample of incubator's residents according to several criteria.

Table 6.5 MOST residents (client) sample

Graduate	Industry	Nature	Occupancy Type	Stage
Prodengi.kz company	Internet Technologies	Financial marketplace	Incubation	3 years
Time company	App development	Service	Incubation	2 years
Pillowz company	Online Platform	Renting Online	Incubation	3 years
MedElement	Internet Technologies	Medicine	Incubation	3 years
Smartpay	Internet Technologies	Payment	Incubation	2 years
TOP	Robotics	Robot	Incubation	3 years

Source: Authors' analysis for UNECE

Incubation policy and practice

As is the case with NURIS, potential clients are attracted to MOST through several mechanisms. These include advertising on social pages, websites and other advertising media, the word-of-mouth, meet-up sessions and start-up fairs. The selection of future residents is similar to the one in NURIS and consists of the application form (Table 6.6), an interview with the applicant, and the signature of the contract or an agreement to formalise the relations between the resident and the incubator.

Table 6.6 Incubation unit application form

1	Details of an applicant
2	Details of the business (such as name and legal structure)
3	A brief description of the nature of the business
4	Relevant qualifications/training
5	Experience relevant to the project
6	Who are your customers?
7	How will you sell your product/service?
8	Who are your main competitors?
9	Why will customers choose to buy your product or service?

Source: Authors' analysis for UNECE

Summary: Comparative Overview of NURIS and MOST (Table 6.7)

Table 6.7 Overview of the two case studies

BI	NURIS	MOST
Aspect/Background		
Established	2018	2015
Funded by	National Nazarbayev University	Private funding
Accomplishments	140+ graduate companies	100+ graduate companies 7000+ served entrepreneurs 90+ companies raised investments
Client focus	Mixed-use	Mixed-use
Original goals	1. Promote a culture of innovation and entrepreneurship at the university 2. Manage technology transfers by identifying and registering the IP arising from the university's research 3. Support start-ups 4. Build partnerships and bridge the gap between academic research and industry	1. Help young people, unemployed persons and others to establish their own businesses. 2. Assist small businesses already in existence to expand and provide further employment 3. Change the traditional mindset into a more entrepreneurial one 4. Enhance the entrepreneurial ecosystem in Central Asia
Structure		
Additional body	Not available	Board of Members
Leadership	Director	CEO
Number of staff	4	7
Hierarchy	Structured, defined goals	Informal, flexible, needs-based
Management	Lean, corporate style	Lean, corporate style
Services		
Developmental	1. Enterprise development advice 2. Monthly one-to-one advice clinics 3. Regular workshops and training sessions 4. Facilitated linkages to research at the university 5. Networking opportunities 6. Media support	1. One-to-one business advice and guidance 2. Assistance with business planning 3. Assistance with funding applications 4. Business network meetings 5. Educational courses
Infrastructural	1. Part-time access, ample car parking and security 2. Dedicated server room 3. Free Microsoft software for start-ups 4. Numerous seminar and meeting rooms of various sizes 5. Reception services 6. Wireless network	1. Wireless broadband 2. Training / conference facilities
Revenue	Not-for-profit	Client rentals, dividend and other income from shareholdings in clients' firms

Table 6.7 Overview of the two case studies (Concluded)

BI	NURIS	MOST
Clients		
Participants	25	56
Sector	Information Communication and Technology, Cyber Security, Digital Healthcare, the IoT, AI, Agrotech, Big Data, Civil Construction Technologies	No particular sector focus
Incubation Policy and Practice		
Selection process	Application form > interview	Application form > interview
Contract	Agreement	Agreement

Source: Authors' analysis for UNECE.

Conclusions and challenges for NURIS and MOST BIs

Although NURIS is the most advanced BI in Kazakhstan, it still faces various challenges. Foremost among these is funding for growth – NURIS is reliant upon on modest funding from the university as its services are free of charge. With NURIS services being focused on IP rights, financial and legal challenges, networking and office space, it is not able to offer an integrated and comprehensive package of services common to BIs in developed economies that better satisfy the demands of potential innovative ventures. In addition to the above, NURIS' limited financial resources affect the quality and number of trainers and experts it can employ in the incubation process to assist the residents throughout the programme. Given that these specialists play a central role, this directly affects the effectiveness of the incubator.

MOST, the first private sector incubator in Kazakhstan, also faces a number of challenges. Most of its support is provided through networking, organization of events and training sessions. With a relatively large client base of between 100 to 200 incubatees, more effort could be put into expanding the portfolio of services to embrace more specialised consulting and training opportunities, as well as the provision of more advanced equipment (e.g. for innovative tech companies).

UNECE stands ready to support the SPECA countries to apply the guiding principles on establishment of effective BIs provided in this handbook. We hope that this handbook will assist policymakers in the SPECA sub-region to ensure that BIs, as a key part of the broader innovation support infrastructure, reach their full potential to catalyse innovative entrepreneurship by making the connections to ensure systematic experimentation with new ideas. Building on the ongoing efforts of the SPECA countries to strengthen their innovation systems and enhance the business environment, BIs can facilitate economic diversification and structural transformation to drive sustainable development in the sub-region, helping to find solutions to the most pressing societal and economic challenges.

Annex 1. BI organization chart

#	Parameter	Value		
1	BI type	☐ Open ☐ Closed		
2	Specialization	☐ Production ☐ Innovation ☐ IT ☐ Services ☐ Mixed		
3	Targeted social group (if any)			
4	Services list			
5	Employees	Full-time employees	Contractors (non-staff employees)	Expert Board Members
6	Status	☐ State ☐ Private ☐ Structural division		
7	Location			
8	Premises			

Source: Authors' compilation as presented at the VI International Forum on Business Incubation (Moscow, MGIMO-University, 2016).

Annex 2. Experience of the MGIMO BI[3]

In Russia, the existence of university BIs is complicated by the fact that state-run universities cannot support a commercial structure and, if an incubator is a structural unit of a public educational institution, as is the case with the MGIMO Business Incubator, then it cannot engage in commercial activities.

The MGIMO Business Incubator was created in 2007 with the support of the university's administration and the most active and devoted alumni. The mission of the MGIMO BI is to develop student entrepreneurship while improving the knowledge and professional skills of students.

The organization structure of the MGIMO BI:

- Director;
- Deputy Director, Marketing;
- Project manager, administrator.

The primary characteristics of the MGIMO BI are the following:

- It is a structural unit of the university and as such, it cannot charge for services;
- The MGIMO BI is a closed-type incubator, which means that it only works with university students and alumni;
- Its emphasis is on educational services;
- Work is carried out with students who are still at the stage of generating a business idea;
- The BI strongly encourages the formation of project teams, team building and networking;
- Cyclicity, a recruitment scheme for the training programme is carried out once per academic semester (2 times a year);
- The BI actively works to integrate itself into the university's educational processes and joint educational blocks on entrepreneurship via BI training programmes[4] .

The main goal of the MGIMO BI incubation programme is to create conditions for the implementation of projects by residents and career guidance for MGIMO students.

The basic requirements for accepting residents into the MGIMO Business Incubator:

- The team must have at least 1 MGIMO student;
- Teams that have missed more than 2 training sessions are excluded from MGIMO BI residency;
- Motivation and discipline of the applicants;
- Would-be residents must have the ability to combine with the university's educational processes.

Selection procedure for residents

One of the main determinants of whether an incubation programme is effective lies in selecting high-quality teams to participate in it. The competitive selection process at MGIMO BI takes place in the following sequence:

- Applications from potential residents (~ 90 applications/year);
- Consideration of applications;
- Individual interviews, elevator-pitches;
- Announcement of the list of residents (~ 40 projects/year).

Furthermore, work with residents is divided into the following blocks:

- Mandatory training programme for residents;
- Elimination of residents who have not passed the training programme (~ 35 projects remain);
- Design of the business model using various tools;
- Development of a strategy and business plan, determination of the target market;
- Product testing, demand identification;
- Consulting, expertise, crash tests and mentoring (~ 20 projects remain);
- Project packaging for pitches and investors;
- Internal, expert and investor pitches (~ 15 projects remain);
- MVP[5] (prototype) creation, commercialization, scaling, assistance in bringing the product to market (~ 10 projects remain);
- Registration as a legal entity (~ 8 start-ups);
- Graduation from the BI (~ 5-8 projects per year).

The MGIMO BI training programme lasts approximately two months and is structured as follows:

- Business modelling (16 academic hours);
- Modern marketing technologies for start-ups (4 academic hours);
- Financial modelling (4 academic hours);
- Social media marketing (4 academic hours);
- Efficient landing and website (4 academic hours);
- Peculiarities of accounting in small business (4 academic hours);
- Rent for small business (4 academic hours);
- Project packaging for the investor (4 academic hours);
- Crowdfunding, crowdsourcing, crowdinvesting (4 academic hours);
- Protection of IP (4 academic hours);
- Ecosystems and marketplaces (4 academic hours);
- Presentation skills (4 academic hours);
- Meetings with successful entrepreneurs, BI graduates and industry professionals (4-8 academic hours).

In addition to the main activities undertaken as a normal part of the work with residents, the MGIMO BI runs the following programmes for different target audiences.

Target groups / Programmes	MGIMO students	Residents of incubators and TPs - partners of the MGIMO BI	Initiators - non-residents of incubators and TPs	Incubators and TPs - partners of the MGIMO BI	School Students
Incubation Programme for MGIMO students	●				
Cross-disciplinary incubation programme	●	●	●	●	
Case Competition programme	●	●		●	
MGIMO-NBIA certification programme				●	
International Technology and Business Transfer Program (Soft landing)	●	●	●	●	
Pre-incubation programme					●
Business Incubation Forums and Conferences	●	●	●		

Source: Authors' analysis for UNECE.

Annex 3. Experience of the a BI at TP "STROGINO"[6]

TP "STROGINO" was created by the municipal government of Moscow with the support of the Ministry of Economic Development of Russia in 2007. It is the only TP in Moscow that has implemented a full cycle of project support that goes from idea to production. For each stage of project development in TP "STROGINO" there is an infrastructure element that has all the necessary material and technical means, and a set of services required for each stage, these including:

- Co-working areas;
- A Prototyping Centre;
- A BI;
- A TP.

This not only allows projects to be successfully created but to also ensure their sustainability and development after they leave the confines of the TP and start operating independently.

The activities of the TP are carried out in cooperation with the Department of Entrepreneurship and Innovative Development of the City of Moscow, the Department of City Property of Moscow and the Prefecture of the North-West Administrative District of Moscow.

Organization structure

- Director of the TP and BI at TP STROGINO;
- A lawyer;
- A chief specialist focused on the development of residents and work with innovative projects;
- A chief specialist focused on assisting in the organisation of events, exhibition activities and work with the media;
- An expert who works with the residents by assisting in resolving organizational issues related to the preparation of tender documents and obtaining resident status.

Basic requirements for the accommodation of residents in the business incubator at TP Strogino:

- The presence of an innovative component in the project.[7]
- The business's period of registration as a legal entity is less than 3 years.
- Maximum placement period is 3 years.
- The entity in question is a small business.

According to the head of the TP Strogino business incubator, the key practices that new business incubators should pay attention to are:

- Proper integration of the BI into the framework of a technopark.
- Interaction with industry players.
- Employing an EC of qualified consultants who evaluate the quality of projects at the start, as this contributes to the number of successful projects;
- Have a full cycle of project support that goes from idea to production.

The expected result from participation in the incubation programme is the transformation of an interesting innovative business idea into a high-quality, investment-attractive business project.

Selection procedure for residents

1. The project team sends an application by email (the application form can be found in the attachment).
2. If the company meets the BI's criteria, the administration considers the application; then, the applicants are invited to meet the EC.
3. Applicants present their projects in front of the EC's experts (specialists from partner companies who are located in the TP, business trainers, business angels, investors and such like).
4. The project is evaluated in terms of its business model, market promotion, investment and novelty.
5. If the project gains the approval of the EC, then it goes to the next stage - the Competition Commission (CC).
6. The CC is a procedure for the presentation of an already registered company to experts from the Department of Industry and Investment Policy. Potential residents

must prepare a package of documents for the presentation and the company must have been registered for no more than one year at the time of the submission of the documents.

The transition from BI to TP

Residents can be accommodated in the BI for no more than 3 years. During this time, the BI helps the company to grow and develop while the company's financial performance is monitored and analysed quarterly. If the company shows positive dynamics for 3 years, it can be transferred to the TP for 100% payment for services. If the dynamics are deemed not positive enough, then the resident is offered a co-working space to continue efforts to develop the company.

BI primary services:

- Project evaluation;
- Accommodation at preferential rates.

Premises rental cost (m^2/year including VAT):

- 1st year of placement, 40% of the market rate;
- 2nd year of placement, 60% of the market rate;
- 3rd year of placement, 80% of the market rate.

The rental price includes:

- Standard office with 5 workplaces (area 40 m^2), equipped with furniture and office equipment;
- Access to meeting rooms;
- Server placement;
- All utility bills and operating costs, including telephone, Internet and parking.

Basic free services provided to residents (available and obligatory):

- Any consulting services used, including legal, financial, informational;
- Seminars and training on various aspects of entrepreneurship (market entry, logistics, customs clearance, information security and so forth).

Additional free services and support:

- Presentation of the company's products/services to corporate customers and industry clusters;
- Help to search for acceleration programmes suitable for the company's needs;
- Providing information about government support measures and assisting in both the processing and submitting of applications for such support;
- Providing information about funding from grants, investments and venture financing opportunities;
- Organizing business breakfasts for networking purposes where new tenants make a presentation to existing residents to highlight opportunities for mutual assistance;
- Assistance in establishing business contacts.

The following services are available upon request but incur a cost:

- Development of a business plan, preparation of presentations;
- Contract registration;
- Prototyping;
- Printing services (printing documents, posters, business cards, laminating, brochures);
- Rent of meeting rooms (additional time).

Paid services for graduate companies:

- Assistance in entering the market;
- Support in negotiations with foreign companies;
- Organization of participation in specialized Russian and international exhibitions.

Annex 4. Differences between a BI and a business accelerator (BA).

Criteria	BI	BA
Conditions of participation in the programme	• Have a business plan or business idea	• Have a developed business model • Have a working prototype
Activity	• Limited competition at the resident selection stage • Works with projects in various sectors and industries	• Highly competitive selection process • Usually works with start-ups in a specific sector or industry
Incubation time	• Usually around 2 years • Highly flexible programme length	• 3-6 months • Fixed timing: the programme is designed to obtain quick results
Goal	• Create a foundation for the successful development of a new start-up	• Accelerate the growth of existing start-ups
Types of provided support	• Office premises • Administrative and legal support • Business planning • Development and testing of prototypes	• Accelerated sourcing of finance • Mentoring from industry specialists • Networking
Financial sources	• Often funded by universities or the Government	• Private funding • The BA often take shares in resident companies

Source: Authors' analysis for UNECE.

Annex 5. Example incubator application form from NURIS

General Information of an applicant

Last Name, First Name	
Email	
Country and city of residence	
Date of Birth	
Telephone number	
Education (recent)	
Please describe your relevant job experience and skills	
What are the competences for venture creation and execution?	
Are you applying as a team or an individual?	*Individual *Team
If you are applying as a team, please provide details of your team members	
Have you taken part in other incubation programmes/accelerations? If yes, please indicate when?	
Occupation	☐ Nazarbayev University employee ☐ Student/ graduate Nazarbayev University ☐ Student of another university/ college ☐ Employee ☐ Entrepreneur ☐ Freelancer
How did you find out about us?	☐ Facebook ☐ Instagram ☐ Telegram/WhatsApp groups ☐ E-mail from NURIS ☐ E-mail from another organization ☐ Friends ☐ Google, Yandex ☐ Other

1. Project description/background

Project/business idea title	
Please indicate the industry focus of your start-up.	☐ IT/IoT ☐ E-commerce ☐ IT-services for B2C ☐ Agrotech ☐ Medicine ☐ Construction ☐ Chemistry ☐ Other
Which problem are you helping the client solve?	
Who are your potential clients? How do they solve the existing problem? Please describe why existing solutions cannot solve the existing problem?	
Solution - how does your product/service solve the problem? What are the benefits to your prospective clients? Please describe its key technology	
Competition. Who are your major competitors?	
What are your competitive advantages?	
Please describe your team. Do you need to expand the team? What are the competencies that you and your team need?	
Revenue stream - model	
Stage	☐ Idea stage ☐ Basic MVP ☐ Needs expertise ☐ Strong MVP ☐ Initial Sales
What are your expectations?	☐ To get a business education ☐ To create an MVP and start selling ☐ To test an MVP ☐ To enhance our professionalism ☐ International expansion ☐ Funding ☐ Sales ☐ Marketing ☐ To gain access to experts
Consent form:	

Source: Adapted by the authors' for UNECE.

References

Sheriff , M., & Muffatto , M. (2015). The present state of entrepreneurship ecosystems in selected countries in Africa. *African Journal of Economic and Management Studies*, 17-54.

Худайназаров, А. (2019). *Состояние системы организационной поддержки и финансирование стартапов Республике Узбекистан: проблемы, их причины и решения.* Ташкент: Торговая Промышленная Палата Узбекистана.

ADB. (2017, December). Human Capital Spending, Inequality, and Growth in Middle-Income Asia. *Economics Working Paper Series*.

ADB. (2019). *ADB Data Library.* Retrieved from https://data.adb.org/

Asia, E. C. (2019). *Boosting Private Sector Development and Entreprneurship in Afghanistan* . Paris: OECD Publishing .

Azerbaijan, S. S. (2019). *Micro, small and medium entrepreneurship in Azerbaijan.* Baku: State Statistical Committee of the Republic of Azerbaijan.

Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. *Technovation*, 20-28.

Bruneel, J., Ratinho, T., & Groen, A. (2012). The evolution of business incubators: comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32.

Chandra, A., & Chao, C. (2011). Growth and evolution of high-technology business incubation in China. *Human Systems Management*, 55-69.

Chase, T., & Webb, J. (2018). *Business Incubator and Accelerator Sustainability.*

Dutt, N., Hawn, O., Vidal, E., Chatterji, V., McGahan, A., & Mitchell, W. (2015). How Open System Intermediaries Address Institutional Failures: The Case of Business Incubators in Emerging-Market Countries. *Academy of Management Journal*, 59.

EBRD. (2019). *Transition Report 2019-2020: Better Governance, Better Economies.*

European Commission. (2010). *Smart Guide to Innovation-Based Incubators (IBIs).* Luxembourg: Publications Office of the European Union.

European Commission. (2010). *The Smart Guide to Innovation-Based Incubators* . European Union .

GEM. (2016). *2015/2016 Global Report.* Global Entrepreneurship Research Association .
Global Entreprneurship Monitor. (2018). *Global Report.* Boston: The Global Entrepreneurship research Association .

Guerrera, F. (2005). China's banks smarten up as they switch from state control to commercial lending. *Financial Times*, 9.

Hausberg , J., & Korreck, S. (2018). Business incubators and accelerators: a co-citation analysis-based, systematic literature review. *Journal of Technology Transfer*, 1-26.

Holzhacker, H., & Skakova, D. (2019). *Turkmanistan Diagnostic.* Ashgabad: European Bank for Reconstruction and Development .

InfoDev. (2010). *GLOBAL PRACTICE IN INCUBATION POLICY DEVELOPMENT AND IMPLEMENTATION.* Washington DC: World Bank.

Isenberg, D. (2011). *The entrepreneurship ecosystem strategy as a new paradigm for economy policy: principles for cultivating entrepreneurship.* Babson Park: Babson College.

KASE. (2020, December 23). *Markets*. Retrieved from KASE Kazakhstan: https://kase.kz/en/

Khalil M.A., O. E. (2010). Enabling Innovative Enterpreneurship through Business Incubation. *The Innovation for Development Report 2009–2010* , 69-84.

Khalil M.A., Olafsen E. (2010). Enabling Innovative Enterpreneurship through Business Incubation. In *The Innovation for Development Report 2009–2010* (pp. 69-84). London: Palgrave Macmillan.

Mashaev. (2018, April). *Венчурист на старте.* Retrieved from Expert Kazakhstan.

MIT. (2017). Retrieved from Observatory of Economic Complexity : https://oec.world/en/

MOST, Б.-и. (2019). *ИЗУЧЕНИЕ ИНВЕСТИЦИОННОГО КЛИМАТА ИННОВАЦИОННОЙ ЭКОНОМИКИ КАЗАХСТАНА***.** АЛМАТЫ.

Mustaeva, N., Wyes, H., Mohr, B., & Kayumov, A. (2015). *Tajikistan: Country situation assessment.* Dushanbe: The Regional Environment Center for Central Asia.

OECD. (1997). *Technology Incubators: Nurturing Small Firms* . Paris: OECD.

OECD. (2013). *Innovation-driven Growth in Regions: The Role of Smart Specilisation.* Paris: OECD Publications.

OECD. (2018). *Enhancing Competitiveness in Central Asia, Competitiveness and Private Sector Development.* Paris: Éditions OCDE.

OECD. (2019). *PISA 2018: Insights and Interprettaions* .

Qaztech, V. (2020, September 1). *Business Incuabtion Support Programme.* Retrieved from Qaztech: https://qaztech.vc/en/

Schwab, K. (2018). *The Global Competitveness Report.* Geneva: World Economic Forum.

Shagdar, B. (2006). Human capital in Central Asia: trends and changes in education. *Central Asian Survey*, pp. 515-532.

Tajikistan, A. o. (2018). *Отчет о результатах единовременного выборочного обследования малых предприятий* . Dushanbe: Agency on statistics under the President of the Republic of Tajikistan.

The World Bank. (2011). *Growing Innovation: infodev Annula Report.* Washington DC: World Bank infodev.

UKBI. (2010). *United Kingdom Business Incubation.* UKBI.

UN. (2015). Retrieved from Transforming our world: the 2030 Agenda for Sustainable Development: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

UNDP. (2019). *Human Development Index.* Retrieved from Global Human Development Indicators: http://hdr.undp.org/en/countries/profiles

UNECE. (2009). *Enhancing the Innovative Performance of Firms: Policy Options and Practical Instruments.* Geneva: United Nations.

UNECE. (2019). *Innovation for Sustainable Development Review of Kyrgyzstan.*

UNECE. (2019). Innovation for Sustainable Development Review of Kyrgyzstan.

Ventures, Q. (2018). *Annual Reprot of "QazTech Ventures" JSC.* Astana: QazTech Ventures .

WBC. (2019). *Uzbekistan: Country Economic Update Summer. T*ashkent: World Bank Group.

WIPO. (2020). *Global Innovation Index.* Retrieved from https://www.globalinnovationindex.org/analysis-indicator

World Bank. (2014). *An Evaluation and Impact Assessment of Business Incubation Models in Eastern Europe and Central Asia.* Washington DC: International Bank for Reconstruction and Development, The World Bank.

World Bank. (2019). *Enterprise Surveys: Uzbekistan 2019, Country Profile.*

World Bank. (2019). *World Developement Indicators.* Retrieved from https://datacatalog.worldbank.org/dataset/world-development-indicators

World Bank. (2019). *Worldwide Governance Indicators.* Retrieved from Databank: https://databank.worldbank.org/source/worldwide-governance-indicators#

World Bank. (2020). *Doing Business* . Retrieved from https://www.doingbusiness.org/en/data

World Development Indicators. (n.d.). Retrieved from https://datacatalog.worldbank.org/dataset/world-development-indicators

World Economic Forum . (2019). *Global Competitiveness Index 2017-2018.* Retrieved from http://reports.weforum.org/global-competitiveness-index-2017-2018/countryeconomy-profiles/#economy=

Республики, Н. с. (2019). *Малое и среднее предпринимательство в Кыргызской Республики.* Бишкек: Национальный статистический комитет Киргызской Республики.

Сатпаева, З. (2019). *Женское предпринимательство в Казахстане: состояние и перспективы.* Алматы: Центр исследований гендерной экономики.

Notes

1 A round of interviews with the managers of the incubators and a survey among BIs management staff were conducted for the purposes of the study.

2 Value proposition here is the value that the BI promises to deliver to its clients (incubatees) should they choose to buy their product.

3 http://mgimo.business

4 http://omtu.info

5 A version of a product with just enough features to satisfy early customers and provide feedback for future product development.

6 http://www.tpstrogino.ru

7 The innovative character of an enterprises is identified by at least one of the following criteria:

1. At least 15% of the company's expenses can be attributed to R&D activities.

2. The enterprise is the holder, depositary or licensee of a registered patent (industrial property), or the owner and author of registered software.

3. At least 1/3 of the total workforce are PhD students, the holders of a PhD or researchers or, alternatively, 2/3 of the total workforce must hold a Master's degree.

Business incubators for sustainable development in the SPECA subregion UNECE Policy Handbook

UNECE supports closer cooperation among its 56 member States in the pursuit of the UN Sustainable Development Goals (SDGs) and the 2030 Agenda. Its Economic Cooperation and Trade Division (ECTD) assists member States with economic integration and in promoting and enabling a better policy, financial and regulatory environment. To foster sustainable development, including progressing towards an increasingly circular economy and building resilience to events such as the COVID-19 pandemic, experimentation with ideas and technologies must become systematic across UNECE economies and societies.

The Innovative Policies Development Section within ECTD focuses on promoting a supportive environment for innovative development and knowledge-based competitiveness. Activities include policy dialogue, recommendations and good practices, analytical reviews, and capacity-building.

The United Nations Special Programme for the Economies of Central Asia (SPECA) was launched in 1998 to strengthen subregional cooperation in Central Asia and its integration into the world economy. The countries of SPECA are Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The United Nations Economic Commission for Europe (UNECE) and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) jointly provide overall support to the Programme.

The project "Strengthening innovation policies for SPECA countries in support of the 2030 Agenda for Sustainable Development" is implemented with the financial support of the United Nations Development Account (UNDA). This project follows a request from the SPECA countries to develop a SPECA Innovation Strategy for Sustainable Development to foster cooperation between the SPECA countries on efforts to promote innovation for sustainable development in the sub-region.

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