



Specific Support to Slovakia

Boosting the Slovak startup ecosystem

Horizon 2020 Policy Support Facility



Research and
Innovation

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Specific Support to Slovakia Boosting the Slovak Startup Ecosystem

Horizon 2020 Policy Support Facility

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List of acronyms

BAN	Business Angel Network
B2B	Business to Business
B2G	Business to Government
BIC	Business and Innovation Centre
CoP	Community of Practice
EBAN	European Business Angels Network
EIF	European Investment Fund
ERDF	European Regional Development Fund
EU28	Group of 28 Member States of the European Union
EUROSTAT	EU's Directorate General for Statistics
FFG	Austrian Research Promotion Agency
GDP	Gross Domestic Product
IB	Intermediate Body
IPR	Intellectual Property Right
ICT	Information Communication Technology
IT	Information Technology
EIS	European Innovation Scoreboard
IV	Investment Vehicle
MA	Managing Authority
MESRS	Ministry of Education, Science, Research and Sport of the Slovak Republic
MOOC	Massive Online Open Courses
MSO	Minimum Set Objectives
NBC	National Business Centre
NIS	National Innovation System
OECD	Organisation for Economic Cooperation and Development
OPRI	Operational Programme for Research and Innovation
PHARE	EU Pre-Accession Funding Programme
R&D	Research and Development
RIS3	Regional Innovation Strategy for Smart Specialisation
SBIR	Small Business Innovation Research
SEIS	Seed Enterprise Investment Scheme
SIEA	Slovak Innovation and Energy Agency
SME	Small and Medium-Sized Enterprise
TTO	Technology Transfer and licencing office
VAT	Value Added Tax
VC	Venture Capital
VCT	Venture Capital Trust

The PSF Specific Support Panel

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POLICY MESSAGES

Slovakia is in the course of changing the “basis” for its competitiveness. Given the increase in income and productivity over the past decade, Slovakia intends to move from a cost-based competitiveness approach towards a more research and innovation-driven quality-based model. This change process is already projected in the partnership agreement with the European Union and backed up with sufficient resources from the European Structural Funds.

Newly founded companies are major change agents that may be decisive for the success of this strategy. New entrants — both domestic and foreign — challenge incumbents and thus foster transition processes towards more innovative and productive industries. In Slovakia, newly founded companies should also be seen as the future backbone of the economy — closing the gap with foreign-owned companies, integrating into value chains, enriching existing and creating new industries — and thus major contributors to the structural change necessary to modernise the economy and keep it competitive in the long run.

A subset of these newly founded companies are labelled “startups”.¹ These hold the promise of developing scalable product and service innovations that create, redefine or extend markets and thus offer a huge growth potential. In Slovakia, a startup ecosystem has started to emerge over the past 4-5 years. The system is small but fully fledged, displaying a number of co-working spaces, incubators, venture capitalists, business angels, etc.

The development of the **startup ecosystem is part of this larger change process**. Startups contribute to structural change and may change the course of action in companies, industries and the public sector. Change can only be welcomed if failure is an accepted part of the game. “Failing fast” and “celebrating success” should be the mottos rather than remembering those constellations that did not work. Apart from the startup ecosystem, the government will have its greatest impact on the future course of action by bringing the education and research system, as well as the business environment, up to par with the challenges of this change process.

Slovakia's startup ecosystem should also be considered as a part of a broader European startup ecosystem. The Commission has launched or supported different initiatives to frame such a European startup ecosystem:

- The startup Europe initiative², which aims to strengthen the business environment for web and ICT entrepreneurs so that their ideas and business can start and grow in the EU.
- The startup manifesto³, which is a set of recommendations published in 2013, with the support of the European Commission, by an independent group of founders in the field of tech entrepreneurship mandated by the Commission. Some of the recommendations contained in this report are mapped with actions of a similar nature which have been detailed in the startup manifesto policy tracker⁴.
- The scaleup manifesto⁵, a 49-point roadmap which was conceived, written and crowdsourced by leading startup associations and entrepreneurs, and which was launched on 29 September 2016 during the digital assembly in Bratislava⁶.

¹ There are various definitions for the word “startup”. This document follows the definitions of Steve Blank (2012): “Startups are temporary organizations that are designed to evolve into large companies. They move through 6 stages of development throughout their lifecycle: Discovery, Validation, Efficiency, Scale, Sustain & Conservation.” Blank distinguished between two startups: a) early-stage startups that are designed to search for product/market fit under conditions of extreme uncertainty. B) late-stage startups that are designed to search for a repeatable and scalable business model and then scale into large companies designed to execute under conditions of high certainty.

² <https://ec.europa.eu/digital-single-market/en/startup-europe>

³ <http://startupmanifesto.eu/>

⁴ <http://www.europeandigitalforum.eu/startup-manifest-policy-tracker/>

⁵ <http://scaleupeuropemanoifesto.eu/>

- The Start-up and Scale-up Initiative⁷, which aims at improving the conditions for startups to scale up, create more jobs and enhance Europe's competitiveness.

The PSF expert panel arrived at the following six Policy Messages, which are supported by detailed recommendations presented in this report:

- 1. "Manage with care" – supporting the startup ecosystem.** Create a Connecting Hub with the following tasks: linking stakeholders, making them visible to the outside world, providing information on initiatives and support measures, collecting data to monitor the system, promoting the participation of startups and SMEs in public procurement and helping the ecosystem to learn fast by setting up Communities of Practice.
- 2. Go for radical rather than incremental reforms of the business environment.** As incremental reforms of the business environment happen unnoticed, a radical move to improve the quality of legislation, based on the recently reformed regulatory impact assessment process, is necessary to foster the change process. Existing crowdsourcing platforms, and those to be further developed, can substantially support the reforms. Eliminate unfavourable regulations for startups.
- 3. Provide more support for demand- and success-driven incubation.** Establish a demand- and success-driven support programme for incubators that allows the development of both public and private incubators, while addressing the current challenges in the Slovak incubator landscape. The programme should be based on accreditation of incubators and limited public funding for the companies accessing these.
- 4. Accelerate and let go – use international experience and support smart specialisation at home.** Set up a brokering service assisting Slovak companies to apply to and access international accelerators. This offers companies access to the highest-quality mentoring, international top investors and corporate customers, with relatively small public investment. Support a single privately operated internationally oriented accelerator in a selected smart specialisation area.
- 5. Renew the framework for the commercialisation of research.** Develop joint principles and processes for universities regarding technology transfer and spin-offs. Support universities in establishing a model and clear rules concerning the use of research infrastructures for commercial purposes. Require all universities to establish a technology transfer strategy and action plan.
- 6. Let the (business) angels fly – mobilising private funds for startups.** Support the creation of business angel networks and a national federation of business angels. Public support should be given for a professionalisation of business angels, and the management of business angel networks and the national federation. Create a certification process for business angels that will then be able to co-invest with the government. The first co-investment scheme should be operational in 2017 and the second should start in 2019.

The rationales for the policy messages of the PSF Panel are further explained in the following section:

⁶ <https://ec.europa.eu/digital-single-market/en/news/launch-scaleup-manifesto-digital-assembly-2016>

⁷ <https://ec.europa.eu/digital-single-market/en/news/new-initiative-startups-start-and-scale-europe>

1. “Manage with care” — supporting the startup ecosystem. Create a Connecting Hub with the following tasks: linking stakeholders, making them visible to the outside world, providing information on initiatives and support measures, collecting data to monitor the system, promoting the participation of startups and SMEs in public procurement and helping the ecosystem to learn fast by setting up Communities of Practice.

To foster the Slovak startup ecosystem, there are many roles to play for the government and public sector in general. As a first step, fertile ground has to be created by offering more transparency, accessibility and coherence in all existing instruments and stakeholders. In that respect, mapping the startup ecosystem and making this information publically available on a web portal, creating a single point of contact and establishing a Community of Practice with all stakeholders will speed up the learning curve, support a transparent network and strengthen the community.

These steps precede the development of a **Connecting Hub**, instigated by the government: link up all innovation hubs in the country under one virtual umbrella, with a small support team that stimulates interaction and sharing of knowledge, and through this speed up the mutual learning curve. An important aspect is the sharing of agendas and networks, which helps to define a shared national agenda on startups. The Connecting Hub is an initiative that can bring several activities together (see chapter 5.2).

By organising the Connecting Hub in a lean way, the government can take the initiative to stimulate cooperation and strengthen the ecosystem from within. The success of the change process depends on existing and new actors taking on their part of the responsibility and proactively supporting budding entrepreneurs. This can range from being available for mentoring, organising information, meeting and offering space, to the practice of setting up enterprises. While leaving major decisions to the public sector, it is recommended that the government proactively integrates new and existing actors in the startup ecosystem community and requests participation. Linked to this, the Slovak government needs to develop a monitoring and evaluation system which gives insight into the facts and figures and the development of the ecosystem. The Connecting Hub should be the network node that organises the collection and publishing of monitoring data.

2. Go for radical rather than incremental reforms of the business environment. As incremental reforms of the business environment are generally unnoticed, a radical move to improve the quality of legislation, based on the recently reformed regulatory impact assessment process, is necessary to foster the change process. Existing crowdsourcing platforms, and those to be developed, can substantially support the reforms. Eliminate unfavourable regulations for startups.

Slovakia’s business environment has demonstrated that it can successfully support catching-up processes. It is on par with comparable countries in the neighbourhood but still has huge potential for improvement. While the number of laws and regulations is small, the sometimes low quality of intervention leads to substantial compliance costs. A number of studies (see below) report problems with corruption, non-transparent public procurement, tedious administrative procedures and e-government structures in their infancy. By tackling this, substantial resources in companies can be freed for more productive employment.

Newly founded companies, startups and SMEs are the most vulnerable actors in economic systems and thus more than proportionally hurt by hostile framework conditions. Improving the business environment increases the likelihood of starting a business, extends their life expectancy and — most of all — enables firms to grow, leading to the following observations:

- Improving the business environment is the single most powerful policy line to help the Slovak startup ecosystem develop further and to leverage more specific actions in this domain. While being important, its implementation is also a far longer process than drawing up single support measures. To be successful in creating a friendlier business environment demands strong political support.
- Startup support should focus on all newly established companies rather than selecting a few that are deemed most promising. Given the difficult environment that startups face, and the high insecurity and unpredictability of success, an additional filter should be avoided. The unpredictability of company success is one of the most important arguments for making efforts to improve the business environment for all. As mentioned above, incremental changes will not be noticed by would-be entrepreneurs. Therefore, it is important to implement significant reforms as they give credibility to the ongoing interest

of policy makers in fostering the startup ecosystem in Slovakia and create confidence on the side of entrepreneurs.

- The processes and measures to create a friendly regulatory environment — an important segment of the business environment — are discussed under the Better Regulation or Regulatory Impact Assessment headings and are all in place in Slovakia but have not always been carried out rigorously. A proper impact assessment of new regulations needs to happen before implementation. Furthermore, we also suggest scrutinising existing regulations with the intention to reduce compliance costs and regulatory burden. The reforms in late 2015 set out to improve the situation, relaunch the internal regulatory impact assessment process and align it with the political decision-making process. It is still too early to assess the impact of these changes.
- Both processes — the internal regulatory impact assessment and the re-evaluation of existing regulations — should be complemented with (partly already existing) online crowdsourcing processes that bring in the knowledge and experiences of citizens and companies. In a medium-term perspective, online processes only work if decision makers in the administration and in politics are willing to take the suggestions on board. This has to be made best practice when using participative online processes and treated rigorously, otherwise trust and credibility can be lost. Additionally, insights from behavioural economics should be injected into the regulatory process and the design of new support measures. A specialised institution could be tasked with this.
- More concretely, we suggest to abolish or at least to extend the period for 'loss carry forward', to turn the R&D tax relief into a premium, to bring down the time to register a company to 3 days, and to abolish social security contributions for the first employee of a company for 3 years.

3. Provide more support for demand- and success-driven incubation. Establish a demand- and success-driven support programme for incubators that allows the development of both public and private incubators while addressing the current challenges in the Slovak incubator landscape. The programme should be based on accreditation of incubators and limited public funding for companies accessing these.

The Slovak incubation landscape is relatively immature, in transition and fragmented between public incubators, using a traditional incubation approach, and privately managed incubators using a more versatile and modern approach. Public incubators struggle with attracting the necessary funding and experienced professional staff, and can offer only a limited set of incubation services. Links to investor, entrepreneur and company networks are often limited. Privately operated incubators are gaining momentum. Their management is more professional and they have much better local entrepreneur, investor and company networks, as well as some relevant international connections. Their business models are primarily based on success of incubated companies, thus providing a route towards a more sustainable operation.

The objective should be to develop a sufficiently independent and self-sustainable network of incubators in Slovakia. Any public funding or support measures targeting incubation should be designed to recognise the current dual character of the incubator landscape in Slovakia and ensure that possible policy initiatives don't compete unfairly and thereby stifle the emergent positive development of private incubation.

To address the current challenges in Slovakia, **we propose** that a **success- and demand-driven support programme for professionally managed incubators** be launched. The recommended approach allows for the development of both public and private incubators while addressing all current challenges in the Slovak incubator landscape. The programme should be based on accreditation of incubators and limited public funding for companies accessing these.

Only incubators which can attract sufficiently professional and experienced managers/advisors should be accredited. Accreditation should feature requirements regarding local, national and international networks with entrepreneurs, investors and companies, and with other incubators. Incubators should have limited occupancy to ensure quality and a success-based earning model to ensure longer-term sustainability. Incubators should establish a national association. Government should not operate its own incubators, hence, incubation activities currently planned for the Business Centre Network should be privatised. To support all this, the government should organise awareness-raising and communication as well as real-time online monitoring.

4. Accelerate and let go — use international experience and support smart specialisation at home. Set up a brokering service assisting Slovak companies to apply and access to international accelerators. This offers companies access to high-quality mentoring,

international top investors and corporate customers, with relatively small public investment. Support a single privately operated internationally oriented accelerator in a selected smart specialisation area.

The main challenges related to developing acceleration services in Slovakia are insufficient deal-flow, access to competent international level mentors, potential corporate customers, and experienced early-stage investors. While some private incubators and co-working spaces in Slovakia offer services typically offered by accelerators, there are no dedicated accelerators in Slovakia. For acceleration to be successful, it needs to be closely linked to international investors and customer markets. The presence of large multinational corporations in Slovakia can therefore be regarded as a strength.

We propose a dual strategy for acceleration in Slovakia. The strategy builds on the country's strengths, addresses the weaknesses and strongly features the necessary international dimension. The first part of the strategy is establishing **a brokering service assisting Slovak companies to apply to and access international accelerators.** This offers companies access to the highest quality of mentoring, as well as international top investors and corporate customers, with relatively small public investment.

The second part of the strategy is based on multinational corporate presence and interest in Slovakia. The government could offer the possibility to support the creation of a single **privately operated international accelerator in a selected smart specialisation area.** This accelerator would offer its services internationally, not only to Slovak companies. The attraction would be based on the interest and support of the multinational corporations active in Slovakia. The accelerator should be managed by an experienced international team, perhaps even one from an existing international accelerator in collaboration with local partners.

5. Renew the framework for the commercialisation of research by developing joint principles and processes for universities regarding technology transfer and spin-offs, supporting universities in establishing a model and clear rules concerning the use of research infrastructures for commercial purposes, and requiring all universities to establish a technology transfer strategy and action plan.

Framework conditions for commercialisation of research could be significantly improved in Slovakia. Many of the legal, governance, competence and networking barriers — as well as challenges related to appropriateness of incentives or existing university practices and culture — have already been recognised in earlier studies and strategies, some with specific planned actions to address them. However, very little progress has been made.

For this reason, **we propose that efforts are made only in selected framework conditions highly relevant for commercialisation of research via startups.** These include: (1) development of joint principles and processes for universities regarding technology transfer and spin-offs, (2) support for universities to establish a model and clear rules concerning the use of research infrastructures for commercial purposes, (3) requirement for all universities to establish a technology transfer strategy and action plan. Later on, further efforts should be taken in reforming university regulations to recognise and support technology transfer and supporting university technology transfer only with matching external funding.

6. "Let the (business) angels fly" — mobilising private funds for startups. Support the creation of business angel networks and a national federation of business angels. Public support should be given for a professionalisation of business angels, and for the management of business angel networks and the national federation. Create a certification process for business angels that will then be able to co-invest with the government. The first co-investment scheme should be operational in 2017 while the second should start in 2019.

Access to finance is an issue in each and every startup ecosystem. While "old" ecosystems have developed and refined the availability of smart money by business angels and venture capitalists, this is a scarce resource in most budding ecosystems. Slovakia is no exception.

Here, a set of initiatives is suggested to create a vibrant early-stage ecosystem. There is — as with most issues — no single perfect intervention that solves the problems, but a bundle of initiatives that have to be introduced in a coordinated way:

- The creation of business angel networks and a national association of business angels is of great importance and the basis for all further steps. Public support should be given for a professionalisation of business angels, and for the management of business angel networks

and the national association. These funds should leverage private engagement and be phased out in a medium-term perspective.

- More advanced promotion measures need a group of certified business angels to be launched. The government has to take care that the certification process is in place in a timely manner to allow a co-investment scheme to start in early 2017 and again in 2019. Tax reliefs may be considered should these measure not yield the expected activation of business angel money.

If the proposed initiatives are implemented, about 10 business angel networks will emerge and a group of 200–300 business angels will start investing regularly in startups.

Assuming that an average business angel will invest around €20,000 p.a. — which is the European average according to EBAN in 2015 — this would bring €4–6 million into the Slovak startup ecosystem. Adding public money increases the investment level to €12–24 million annually, or the funding of 30–100 highly innovative companies.

THE PSF SPECIFIC SUPPORT TO SLOVAKIA

The Horizon 2020 Policy Support Facility (PSF) is an instrument aimed at supporting Member States and countries associated to Horizon 2020 in improving the design, implementation and evaluation of their national R&I policies and systems. The Policy Support Facility has been set up by the European Commission, DG Research & Innovation, under Horizon 2020.

Specific support services provide tailored advice, expertise, and good practice to help Member States and Associated Countries in the design or implementation of a specific reform or topic concerning R&I strategies, programmes or institutions. This is carried out by an international and independent expert panel which formulates concrete and operational recommendations to the national authorities on the reforms which are necessary to address the specific objectives.

The Slovak authorities expressed their interest in receiving specific support under the Horizon 2020 Policy Support Facility in a letter of 22 September 2015. The support was requested in the context of the national "Strategy to support startups and further develop the startup ecosystem", adopted by the Government of the Slovak Republic in June 2015, and the envisaged creation of a startup committee and the establishment of a scheme to support business angels.

The PSF expert panel worked from April 2016 to August 2016. The panel included four independent experts from Portugal, Austria, Finland and the Netherlands acting in their personal capacity.

Aim and focus of the report

The purpose of this report is to answer the following questions posed by the Slovak government to the expert group based on an analysis of the budding startup ecosystem:

- How should the business environment be improved to promote entrepreneurship, startups and boost business investments in research and innovation.?
- How to improve the incubation/acceleration system and to attract investors to create new incubators/ accelerators?
- How to establish and implement a transparent and effective scheme to support business angels?

The report is structured to answer these questions. In the introductory chapter a quick overview of challenges and the startup ecosystem in Slovakia are presented. This is followed by discussing ways to actually "manage" the startup ecosystem. Chapter three presents the framework conditions that impact on the success of newly founded companies and SMEs, while chapter four analyses incubation and acceleration and presents recommendations for reorganising and complementing the present structures. Chapter five sheds more light on access to finance of newly established companies, paying particular attentions to the design of a scheme to support business angels.

Each chapter provides a set of recommendations for the Slovak government — based on the insights from the country visits, international experiences and academic research — with the intention to contribute to the already ongoing policy formulation process in Slovakia.

Methodology

The PSF specific support followed a two-step approach:

First, a preparation phase which involved the collection of relevant evidence in the form of studies, legislation, policy documents and statistics, and the analysis of the current situation of the business environment in Slovakia to promote entrepreneurship, startups and business investments. The analysis included an assessment of the strengths and weaknesses of the system and a review of the current policy framework. The analysis was presented in a Background Report.

Second, a reporting Phase which involved:

- Two country visits, 4-6 April and 10-11 May 2016, where the main actors and stakeholders — including public authorities, universities, startups, incubators, venture capitalists, business angels and banks — were interviewed and additional information was collected.
- Synthesis of the findings and review of European good practices that could inspire the recommendations.

- Preparation of a report presenting the results of the analysis and proposing concrete recommendations for policy reforms and the design of relevant measures.

At a later stage the progress of the reforms and the implementation of the recommendations will be assessed by the PSF panel and follow-up actions will be proposed including future requests for support in the frame of the Policy Support Facility.

1 INTRODUCTION

1.1 From cost-based to quality-based competitiveness

Slovakia has seen impressive growth in the past two decades. Particularly in the 2000s, the *per capita* growth rate of 6 % annually was well above the European average and that of peer countries. The resulting 60 % increase in GDP between 2000 and 2008 was therefore part of a rapid catching-up process, increasing GDP from 43 % of the EU-15 average in 2000 to 64 % in 2008.⁸

R&D — one of the most important drivers of growth — led to the installation of more advanced machinery and consequently to fast and substantial productivity improvements in the Slovak Republic⁹. Combined with a qualified workforce, and production and management know-how from investing foreign companies (share of FDI in GDP was 59.5 % in 2012)¹⁰, this created a virtuous cycle. Productivity growth was particularly pronounced in manufacturing (10.4 % p.a. during 1997–2010).¹¹

The economic and financial crisis brought this development mode to an end. Since 2008, catching-up countries are still amongst the fastest growing countries in Europe, although they now lead more advanced countries by a lower margin. While there is still potential to continue with the “traditional” development mode, a discussion of the future “sources of growth” is already under way. Cost-based competitiveness — the predominant form in many Slovak industries nowadays — should give way to a more quality-led competitiveness. The latter demands innovative efforts in enterprises, well-developed (public) science and education providers and a highly qualified labour force. This enables structural change within industry — i.e. companies constantly climbing up the quality ladder — and between industries, thus fostering structural change.

Changing the “origins” of competitiveness from cost to quality advantages takes substantial time and needs carefully planned government oversight and intervention. The government is the only player that can set framework conditions, modernise the science and education system, etc. and thus start and carry through such a change process.

The concept of the technological frontier is a good — though rather abstract — illustration of such a process¹². The closer companies, sectors and countries are to the technological frontier, the more original and ground-breaking research and innovation efforts are needed. The ‘distance’ to the frontier is also decisive for the impact and effectiveness of policy measures. It is a well-researched fact that the development level of a country impacts the “returns on investment” for any given measure. Interventions that work in advanced countries may fail to deliver in catching-up countries. This also limits possibilities for copying successful measures from advanced countries and transplanting them into a business environment with largely different institutions, regulations and capabilities.

The structure of the science and education system is thus important for the performance of a country, particularly when it is in a phase of system change. Education and research systems are — if well managed — adapted to the development level of a countries as they co-evolve and interact. If the *modus operandi* has to change because of a strategy change, reforms in education and the science sector must be prioritised, because a move towards quality-based rather than cost-

⁸ Bîea, Nicolae (2015), Economic growth in Slovakia: Past successes and future challenges, European Commission Directorate-General for Economic and Financial Affairs, Economic Brief 008.

⁹ In 2012 Slovakia invested 0.82 % of GDP into R&D. The share of industry was 37.7 % and has declined over the years.

¹⁰ RUZ (2014). Report of Business Environment in Slovakia.

¹¹ Bîea, Nicolae (2015). Economic growth in Slovakia: Past successes and future challenges, European Commission Directorate-General for Economic and Financial Affairs, Economic Brief 008.

¹² Aghion, P. Acemoglu, D., Zilibotti, F. (2006). Distance to Frontier, Selection, and Economic, Journal of the European Economic Association, March 4(1):37–74.

based competitiveness demands a different skill mix in the labour force. This can create a virtuous circle if the system responds well but, if the necessary reforms are not in place, can also seriously inhibit economic development.

Talking about reform in education and science is simple, but in reality many “road blocks” are encountered. Still, a clear vision and persistence in driving reform is the only way to support a system change. The available resources from European Structural Funds are a good starting point for increasing the support available for those areas that are important for the change process, while others can be left at the same level or allowed to shrink.

The role of government in this change process has already been stressed. Coordination between actors and horizontally coordinated policy implementation is the next big challenge. The ability to coordinate policies horizontally can substantially increase returns on investment and reduce the time needed to achieve goals.

The Slovak startup ecosystem is both a factor contributing to a new mode of competitiveness and a ‘microcosm’ of the challenges at the macro level. The shortcomings of the education system — i.e. output/supply not in line with demand — and of the research sector, which is not yet fully open to startups and SMEs, are already tangible constraints. Progress in fostering the startup ecosystem will further increase demand for highly skilled individuals and up-to-date research. Likewise, the substantial resources that are available through European programmes demand clear strategies, coordination and oversight, as well as cautious interventions, if the absorptive capacity of the startup ecosystem is not to be exceeded or private actors crowded out.

1.2 Innovation and startups in Slovakia

The “next frontier” towards a more quality-based competitiveness mode is improving the innovation and startup performance of the Slovak Republic. There is still some way to go: in 2014 Slovakia invested 0.89 % of GDP into R&D, which is well below the EU-28 average (2.06 %) and also below that of the surrounding countries.

The 2016 edition of the European Innovation Scoreboard (EIS) ranked Slovakia 26th out of 36 countries, slightly catching up with the European average and with neighbouring countries.¹³ Although the Scoreboard found that Slovakia underperformed in all dimensions, there are particular strengths and weaknesses: human resources, share of innovations and shares of medium- and high-tech exports in total exports are performing well, while IPR indicators underperform.

The share of high-tech exports has risen recently. While this is a positive development, its dependence on two industries, automotive and consumer electronics, which are dominated by multinationals, also bears some risks. The gap between these high-performing industries and domestic enterprises is still high.

Startup and newly founded enterprises are an essential input for a more innovative economy and society. Presently, both the number of people starting a company and the success rate of newly founded companies is low. Currently, 65 % of Slovak businesses survive their first 2 years, which is well below the Belgian (82 %) and Austrian (74 %) figures in 2013. The 5-year survival rate confirms this pattern: about 42 % of Slovak firms survive, which is almost a third less than in Belgium (61 %) and Austria (56 %). The Slovak figures are similar to those found in eastern and southern Member States of the EU.¹⁴

As there are a lot of factors that impact on the survival rate (e.g. entrepreneurial culture, business environment, ease of finding employment) these should be taken into account before jumping to conclusions. While the survival rate is an appropriate indicator for newly founded businesses in general, it might be misleading for the startup arena. There, the “fail fast” motto suggests the promotion of startups with the highest growth potential, while low-potential ventures should fail as

¹³ See <http://www.slideshare.net/georgedelaney/startupecosystemsurveyslovakia2016>.

¹⁴ Eurostat (2016): Business demography, Luxembourg.

soon as possible. Thus, a working startup ecosystem finds and promotes high-flyers and as a result does not promote many newly established companies.

The group of entrepreneurs behind these startups is — according to a snapshot by KPMG¹⁵ — mostly younger than 34 years old (73 %, with only 9 % older than 40), well educated (about 85 % have some form of tertiary education), has a background in business or computer science, is predominately male and usually works in a team (only 10 % are single founders). A substantial portion develops hardware and equipment and IT-related services.

The majority of startups are in their early stages. Only about 15 % are growing their revenue or expanding to new markets. Consequently, personal savings were by far the most important resource (71 %) used to finance activities. Still, business angel investors also provide support in 36 % of cases, while friends and family do so for 21 %. Venture capital plays a role for 25 % of startups. Banks and crowdfunding are used by 9 %.

A clear message shines through these figures: Slovakia already has a working startup ecosystem. It may be small but it is “up and running” and provides a good base from which to develop further. Co-working spaces, incubators, business angels, venture capitalists, and corporates are already involved. The public sector has supported some activities and universities are increasing their engagement.

The main challenge now is to bring the resources at hand — especially the ‘Operational Programme for Research and Innovation’ — in sync with the task of developing the national system of innovation (NIS), so as to enable the next phase in Slovakia’s economic development and to further develop the startup ecosystem, an essential contribution to both the NIS and in shifting the *modus operandi* of Slovakia.

1.3 The Operational Programme for Science and Innovation

The future course of action for Slovakia in the area that is touched by this report is largely defined by three strategic papers:

- The Smart Specialisation strategy (RIS3 document¹⁶) is the key policy document for the research and innovation policies in the programming period 2014–2020. It covers research and innovation in an integrated manner. The strategy analyses innovation performance, details strengths and weaknesses and makes recommendations.
- The “Concept of Promoting Startups and Developing a Startup Ecosystem in the Slovak Republic¹⁷” intends to increase interest in entrepreneurship, build the competences of would-be entrepreneurs, create new jobs in technology-driven and innovative sectors, increase the success rate of newly established companies and contribute towards higher R&D expenditures and a better innovation performance. This is to be achieved by investment in infrastructure (National Business Centres), supporting Angel Investors, easing access to capital for startups, fostering the involvement of universities, improving startup-related education offerings, and changes in the business environment (e.g. taxation).
- The Operational Programme for Research and Innovation¹⁸ (OPRI) details how the European Regional Development Fund (ERDF) will be used in Slovakia, and is jointly designed by the Ministry of Education, Science, Research and Sport (MESRS) and the Ministry of Economy of the Slovak Republic. The OPRI contains a number of policy measures aimed at creating a stable environment favourable to innovation, in order to increase the efficiency and

¹⁵ KPMG (2016), Startup Survey Slovakia 2016, <http://www.slideshare.net/georgedelaney/startupecosystemsurveyslovakia2016>.

¹⁶ RIS3 SK, Through knowledge towards prosperity Research and Innovation Strategy for Smart Specialisation of the Slovak Republic, http://www.economy.gov.sk/ext_dok-en_ris3

¹⁷ Concept of Promoting Startups and Developing a Startup Ecosystem in the Slovak Republic, <http://www.rokovanie.sk/File.aspx/ViewDocumentHtml/Uznesenie-14906?prefixFile=u>

¹⁸ http://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/slovakia/2014sk16fop001

performance of the research, development and innovation system as an essential pillar to boost competitiveness, sustainable economic growth and employment. The OPRI follows on from the Operational Programme for Research and Development and the Operational

- Programme for Competitiveness and Economic Growth for the programme period 2007–2013.

The OPRI is the major source of finance for Slovak research and innovation activities in the programming period 2014–2020. The OPRI resources are essential for implementation of the Slovak RIS3 document.

The total allocation for OPRI from EU sources is €2,266.78 million, of which more than three quarters are intended to strengthen research, technological development and innovation. The remainder will be used to support the enhancement of SMEs' competitiveness. The MESRS is the Managing Authority (MA) for OPRI. The Research Agency (MESRS) and the Ministry of Economy are the Intermediate Bodies (IB) for the OPRI.

Table 1: Financial resources for Investment priorities and intervention fields (dimension codes) in the OPRI in 2014–2020, €million.

Intervention field	Priority axis 1	Priority axis 2	Priority axis 3	Total
Cluster support and business networks primarily benefiting SMEs	48.07	4.00	12.66	64.73
Research and innovation processes in SMEs (including voucher schemes, process, design, service and social innovation)	124.10	5.00	12.17	141.27
Research and innovation infrastructure, processes, technology transfer and cooperation in enterprises focusing on the low carbon economy and on resilience to climate change	6.23	2.13	x	8.36
Advanced support services for SMEs and groups of SMEs (including management, marketing and design services)	47.00	x	97.89	144.89
SME business development, support to entrepreneurship and incubation (including support to spin-offs and spin-outs)	10.01	x	78.65	88.65
Total	235.41	11.13	201.36	447.90

Box 1.1: Examples of actions for specific objective 3.1.1

- Support for new SMEs and startups, through grants and financial instruments (e.g. loan programme to support new SMEs and startups, venture capital fund for startups at seed and startup stages) and promotion of industry and services, including knowledge-intensive services (KIS) and new, progressive sectors.
- Promotion of informal investors' networking in financing the initial stages of a business cycle (business angels).
- Promotion of activities and development of business centres in Slovak regions (one-stop-shops) with the aim to establish support institutions for SMEs, as well as those interested in running a business using the existing infrastructure. The most important activities include:
 - individual business advising;
 - organising expert events (seminars, webinars, lectures, discussion forums, workshops, conferences, B2B, B2G events, cooperation events);
 - training events and education programmes on preparation for entrepreneurship;
 - mediation of financing (micro-loans, credits, venture capital, business angels, innovation vouchers);
 - online platforms and demand services;
 - internships in foreign high-tech centres and parks.

- Support for successful business practice and encouraging entrepreneurial spirit (presentation and promotion actions, road shows, prizes and competitions).
- Provision of long-term counselling services.
- Support for the exploitation of new ideas in the economy — Small Business Innovation Research (SBIR scheme). The most important activities include: (i) preparatory technical feasibility studies on innovation in industry and services, (ii) projects implementing innovative designs with prototype creation/pilot solution (and preparation of a business plan) and (iii) market commercialisation projects.
- Identification and use of social innovations for business and job creation, especially for disadvantaged social groups (women, young people under 30 years of age, senior people over 50 years of age, long-term unemployed, third-country nationals, handicapped people, Roma). The most important activities include:
 - provision of information and expert counselling;
 - provision of incentives for entrepreneurs engaged in services oriented towards disadvantaged social groups;
 - short-term and long-term courses with module-structured curricula tailored to the needs and specific features of target groups and target enterprises;
 - support of the national institutional platform to promote women's entrepreneurship.

Policy interventions aimed at development of SMEs and new business models are also included in the Investment Priorities 3.2 and 3.3, as follows:

- **The Investment Priority 3.2:** 'Developing and implementing new business models for SMEs, in particular with regard to internationalisation' contains the specific objective 3.2.1 'Growing internationalisation of SMEs and increased use of the possibilities offered by the EU Single Market'. The specific objective promotes participation in fairs, exhibitions, cooperation meetings, and missions aimed at establishing international cooperation for SMEs. It also supports one-time advisory and consultancy services provided in relation to the promotion of marketing, trading and investment activities of SMEs.
- **The Investment Priority 3.3:** 'Supporting the creation and the extension of advanced capacities for product and service development' contains the specific objective 3.3.1 'Increasing SME competitiveness at their development phase'. The specific objective supports:
 - development of existing SMEs through grants and financial instruments (loans, venture capital schemes);
 - information and counselling services for SME development;
 - use of e-business tools by SMEs;
 - supporting the development of alternative forms of entrepreneurship (entrepreneurship of disadvantaged social groups);
 - creation of new creative industry business models.

The resources available are substantial (see table 1). Support for SME business development, entrepreneurship and incubation was allocated €88.6 million for the 2014-2020 period.

The OPRI also sets output goals for the investment priority. An excerpt of startup-related indices can be found in table 2.

The OPRI had launched four calls by March 2016. None of these calls support startups. However, the indicative plan of the OPRI calls does envisage calls for this priority in 2016.

The resources at hand (see table 2) are substantial and well above past and current efforts, which are characterised by some support initiatives and co-investment supported by European sources.

The available European funds may help startups to extend their operations beyond the borders of Slovakia. Exploring the possibilities of collaborating with neighbouring countries, and together fostering the wider ecosystem in the Danube region, is and should be on the policy agenda but developing a more advanced startup ecosystem should be prioritised.

Table 2: Startup-related output indicators for the OPRI Investment Priorities

Investment Priority	Indicator	Fund	Category of region	Target value (2023)	Frequency of reporting
1.1	Number of new startups and spin-offs	ERDF	Less developed region	20	Once a year
1.2	Number of new startups and spin-offs (specific)	ERDF	Less developed region	110	Once a year
2.1	Number of new startups and spin-offs (specific)	ERDF	More developed region	5	Once a year
2.2	Number of new startups and spin-offs (specific)	ERDF	More developed region	27	Once a year
3.1	Number of new startups and spin-offs (specific)	ERDF	Less developed region	1,200	Once a year

1.4 Summary

Slovakia is embarking on a broad change process with the aim of upgrading economic structures and changing its approach to competitiveness. Instead of relying on cost advantages — which drove a largely successful catching-up process in the 2000s — the quality dimension of the output is coming to the fore.

Innovation and entrepreneurship have to play an important role in this. Entrepreneurship will both drive and be driven by the evolution of the system, increasing competitiveness and fostering structural change. The magnitude and speed of the change process depends crucially on reform in the education and research system to align supply and demand for skills.

The resources to invest into the startup and innovation system — mostly supplied by European Structural Funds — have to be invested in a coordinated and complementary way to achieve the desired outcomes. The management of the startup ecosystem is a particular challenge, as its structure has only developed in the last 4-5 years. Thus implementing the planned measures without crowding out other stakeholders is a challenge.

2 A PRODUCTIVE STARTUP ECOSYSTEM FOR SLOVAKIA: BUILDING BLOCKS

2.1 Introduction

Fostering innovation and establishing new enterprises are key to sustainable economic growth. In the European knowledge economy, policy makers are putting increasing emphasis on the role of startups in speeding up innovation, developing new business models, creating jobs and adding value to solving societal challenges, as well as transforming economic sectors and diversifying the economy in general. This leads to a variety of policy approaches matching the economic structure of the country.

At the same time, it is not just the government who sees the potential of startups for the economy and society. In addition, the private sector — corporates in every conceivable economic sector, investors, healthcare organisations and the defence industry — also recognise the potential. Both private and public sectors develop strategies and activities which involve startups. This means that developing a productive startup ecosystem should involve all active stakeholders and is essentially a multi-stakeholder approach. The basic attitude of public policy is to recognise this and work with this energy and ambition. Building a productive startup ecosystem is essentially about how to give space to these private, or semi-public (universities) initiatives and let them flourish and be in the lead.

This demands a different approach from the public sector, which is often regulatory (about what you cannot do) and instrument-control (conditions and monitoring) based. Decision making in the public sector can take years, whereas startups work in life cycles of three months up to a few years. Furthermore, the government is very risk-averse. Failing is not an option in policy and politics. But a startup which walks the trodden path, avoids risk and lacks competitiveness is doomed to fail. In other words, adventurous startups are at the other end of the scale compared to risk-averse governments. So, how can public policy in Slovakia stimulate parties to achieve their ambitions in the fast lane: to take risks and fail, and to raise their level of expertise, interaction and networking rapidly? And in the longer term, how can you allow startups to grow, become scale-ups and aim for the international market?

In general, the impact of young firms on economic growth is positive. The OECD published evidence that young firms are the net engine of job creation. Over 40 % of all new jobs emerge from these firms¹⁹. However, this is too general. The contribution of new firms to the creation of new jobs consists of four elements: the startup rate, the average size of firms at entry, the survival rate and the average growth rate of survivors²⁰. In particular, technology-based startups play an important role in innovation and are pivotal to transforming a country's production and earning models, as well as to diversifying the economy. Founders of startups, in this open and global economy, are looking for the best environment — or 'startup ecosystem' — to start and grow their business. Therefore, a country's startup ecosystem has to be internationally competitive, if it does not want to be vulnerable to brain drain.

Chapter 1 gave an overview of the startup facts and figures of Slovakia, as well as a view on the strengths and weaknesses of the Slovak economy in general. Creating a competitive startup ecosystem is linked to many different policy fields and public and private actors. Creating the right environment for startups to arise, survive and grow should be part of an integrated longer-term economic policy strategy linked to the specific characteristics, strengths and outlook of the Slovak economy, the scientific environment, and the fiscal and educational system.

Designing an integrated long-term policy on building and strengthening the startup ecosystem, which should be a multi-stakeholder approach, is a key challenge for Slovakia.

¹⁹ Pilat, D (2015)., "The innovation imperative, contributing to productivity, growth and well-being" OECD.

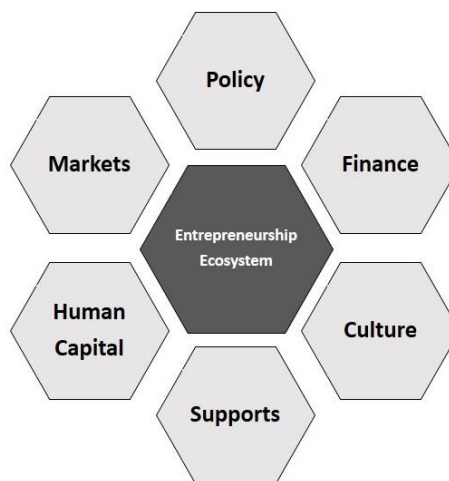
²⁰ F.Calvino, C.Criscuolo, Carlo Menon (2016). Cross country evidence on startup dynamics, OECD Science, Technology and Industry Working Papers 2015/16, p.8.

Below, chapter 2 provides a vision of what a startup ecosystem is, as well as its critical factors, and focuses on selected systemic hurdles and opportunities to develop the ecosystem. In this chapter, fostering talent is identified as an “unfair advantage” which should be exploited more by Slovakia. The chapter starts with an analysis of ecosystems and the role of the public sector in an emerging startup ecosystem. The latter is broad and entails creating an overview of the actors in the startup system and co-ordination of the actions of (public) institutions, fostering learning at the ecosystem level, designing policies to stimulate entrepreneurial talent and entrepreneurship, reorganising public procurement, connecting the different nodes, and monitoring the evolution of the system, as well as — last but not least — measuring progress within the ecosystem. Specific characteristics of a startup ecosystem — such as incubators, the capital market and the business environment — are discussed in other chapters.

2.2 What is a startup ecosystem?

The startup ecosystem concept has emerged as a means of explaining and managing entrepreneurship at a regional level by looking at the interaction of different actors and conditions. An entrepreneurship or startup ecosystem can be defined as “a set of networked institutions [...] with the objective of **aiding the entrepreneur** to go through all the stages of the process of new venture development. It can be understood as a service network, where the entrepreneur is the focus of action and the measure of success”²¹.

Figure 1: Dimensions of startup ecosystems



Source: Isenberg 2011

At the figurative centre of the startup ecosystem is the entrepreneur (and his team), who founds a startup or spin-off company with the ambition to grow it successfully.²² In terms of the supporting environment — the ecosystem — two levels can be distinguished:

- Level 1: contextual factors that differ in each country or region and determine the conditions in which entrepreneurial activities take place. These factors can be divided into a) political & **legal framework**, b) cultural & **institutional environment** and c) economics & regional dynamics.

²¹ Isenberg, D. (2010) „How to Start an Entrepreneurial Revolution“ Harvard Business Review. Retrieved June 2010 ; Isenberg, D. (2011) The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship, Presentation at the Institute of International and European Affairs, May 12, 2011, Dublin, Ireland.

²² Fűrlinger, G. (2016) The role of social capital for university startup incubation: A multi-level comparison of USA and Europe. Dissertation, Vienna, Austria: Vienna University of Technology.

- Level 2: The various actors who support directly — to varying degrees — the entrepreneurs and their new venture. These actors/institutions can be divided into different areas: **research (universities and laboratories), public support (e.g. government grant providers and regional development agencies)**, professional support (e.g. management consultants, legal firms and accountants), **finance** (e.g. business angels and venture capitalists), industry (entrepreneurs, and small and large firms), personal support (family and friends) and **support organisations (incubators and accelerators)**. Besides the varying degree of interaction between these actors and the entrepreneur, there are also interrelations between these actors. Depending on the nature of these actor interrelations, their support initiatives within the ecosystem can either be symbiotic or redundant.

As a consequence, each startup ecosystem is unique in that it exhibits different characteristics in terms of a) the contextual factors providing the conditions in which entrepreneurial activities take place, b) the degree of support the entrepreneur receives from the different actors/institutions, and c) the degree and nature of interrelations among the support actors in the ecosystem.

2.3 Creating sustainable systemic changes: The role of the public sector in facilitating a productive and competitive startup ecosystem

Here, startup ecosystems are seen as 'service networks', which put the entrepreneur in the centre. Thus a closer look at the services, or 'critical factors', which are required, as well as the role of the public sector with respect to these factors, is warranted. First of all, over the last 5-10 years a rapidly growing public interest in the startup phenomenon has been observed. As mentioned in the introduction, the impact of innovative entrepreneurship on structural change and the development of the economy²³ explains the interest of public policy makers and the private sector in the subject. Government also directly impacts on or manages areas that are essential for entrepreneurship, entrepreneurship culture and the startup ecosystem: legal framework conditions, science and research, education — to name the most important. Thus governments impact entrepreneurship but sometimes struggle to find their role in actually interacting with startup ecosystems.

According to Fiona Murray, professor at the MIT Sloan School, there are two logics for how to create an entrepreneurship ecosystem²⁴: The governmental logic says that it needs specialised inputs, such as technology parks and innovation centres (e.g. Skolkovo near Moscow) to promote the emergence of such an ecosystem. Following this logic, however, the market may be distorted by an excessive public commitment, which might halt the development of a sustainable dynamic. The other logic is based entirely on people and their personal networks. Cultural change towards a founder-friendly environment takes time and is difficult to initiate "top-down" — the associated values and practices within the community need to grow organically from the "bottom up".

The logic of this chapter is based on the assumption that one should start building a startup ecosystem from the available strengths; learn from other ecosystems but don't aim to copy them, and give the government a facilitating role to create the excellent conditions for young innovative companies to start and grow. Therefore, this chapter combines the possibility of specialised inputs with the network approach. They are not mutually exclusive. All public or private players should be doing what they are good at, in close cooperation and in one connected hub, and not take over each other's role.

²³ See Audretsch, D. B.; Thurik, R.; Verheul, I. und S. Wennekers (2002), Understanding Entrepreneurship Across Countries and Over Time, in: Audretsch, D. B.; Thurik, R.; Verheul, I. und S. Wennekers: Entrepreneurship: Determinants and Policy in a European-US Comparison, Economics of Science, Technology and Innovation, 27, Boston,

Gilbert, A. B.; Audretsch, D. B. und P. P. McDougall (2004), The Emergence of Entrepreneurship Policy, Small Business Economics, 22, 313–323;

Acs, Z. J. und L. Szerb (2007), Entrepreneurship, Economic Growth and Public Policy, Small Business Economics, 28, 109–122;

²⁴ Regalado, A. (2013) *In Innovation Quest, Regions Seek Critical Mass*, MIT Technology Review, September/October 2013, Vol. 116, No. 5. P. 84-86

Looking at the Compass Top 20 Global Startup Ecosystem Ranking 2015 gives a flavour of critical factors for prospering startup ecosystems. Most leading startup ecosystems are in fact also leading innovation hubs. The following building blocks for startup ecosystems arise:

- Availability of tech & entrepreneurial talent
- Availability of top-notch technology
- Access to capital (very early stage to series A or higher)
- Availability of high-quality incubators and accelerators
- Presence of corporates with open innovation
- Entrepreneurial culture (high on support via mentors, open networks and culture, policy, forward-looking regulation and low on red tape, tax)
- Academia fostering innovative entrepreneurship, including IP arrangements
- Access to large markets, international scope and connectivity.

The phrasing of these conditions already suggests that the public sector is involved indirectly rather than directly in the management of these ecosystems — by investing in education, facilitating access to finance, providing infrastructure, and setting up startup-friendly framework conditions in academia²⁵. This holds in any case for fairly developed ecosystems. In addition, not only startups benefit but all economic actors and citizens. Startups can create value both in an economic and societal manner.

For Europe — and particularly for emerging countries — ecosystems whose framework conditions are on par with all the conditions listed above are the exception rather than the rule. It is also not essential to include them all, but they are the main building blocks for creating a competitive startup ecosystem. For most regions these conditions are difficult to attain in the short run but are the objectives to be met in the long run. Particularly challenging is the role of the public sector in kick-starting, supporting and accelerating startup ecosystems. The role of the public sector in this process can be compared to that of a catalyst that provides favourable conditions for startups, most of the time without direct interference. This entails mapping initiatives to increase transparency, creating an entrepreneurial culture and fostering cooperation and learning at the ecosystem level.

2.3.1 Mapping the Slovak startup ecosystem

The first step in developing a startup ecosystem from the public perspective is to identify its private-public stakeholders, its instruments and existing facilities and make them transparent and accessible to everyone. This is the startup matrix. The startup matrix can result in a web portal which contains all relevant information and, in particular, a single point of contact where startup entrepreneurs can find all the available instruments. Secondly, the public sector can invite the stakeholders to explore how they can mutually reinforce each other and how to improve cooperation between the different actors. The public sector can be the initiator of this, with the intention to lay the foundation for an active and transparent private-public startup network. This is called a community of practice (CoP). The CoP is the stepping stone to the “Connecting Hub”, which is described later in this chapter.

²⁵ This is strongly supported by the insights of the United Nations (United Nations (2012)) with respect to the components, means and instruments governments can use to support science-based innovation processes and entrepreneurship ecosystems:

- Legislation and regulatory environment (IP rights, immigration laws, tax law, labor rights, bankruptcy laws, business formation process, etc.)
- Educational system (esp. universities) and awareness building
- Access to finance and financial support (research grants, tax benefits, etc.)
- Technology exchange and networking (cp. publicly funded research institutions and initiatives like Fraunhofer in Germany or DARPA in the USA).

Recommendation 2.1: Develop The Startup Matrix: Mapping the public and private sector instruments and activities in the ecosystem to become more transparent, coherent and effective

The Slovak government could choose a three-layered approach to map instruments and initiatives and facilitate interaction. 1. Measures and activities in both the public and private sector to increase the quantity and entrepreneurial quality of startups. This can also contain generic measures to promote entrepreneurship. 2. Measures and activities (public, private) with stakeholders in the ecosystem for how to grow and scale a company in Slovakia. 3. Instruments and activities (public, private) aimed at tech-driven startups to diversify the Slovak economy.

Targeted measures and initiatives from the public sector can have a significant impact and may act as the ignition for a startup community, with the aim to create a self-sustainable startup ecosystem. Policy should act as a facilitator, rather than leading the movement²⁶. The public sector in Slovakia has developed many initiatives for startups, but they are fragmented. Slovakia has ambitious plans outlined in the new structure for the National Business Centre (NBC), as well as the Operational Programme Research and Innovation (priority area 3.1.) for activities to help grow the startup ecosystem. Also the smart specialisation strategy has a potential for startup-related activities. The private sector, from corporates to incubators and co-working spaces are playing an increasing role in the evolving ecosystem. These instruments and activities could learn from each other, but appear to be working separately. To bring more organisation, coherence and transparency in the ecosystem, Slovak policy should identify the target group(s) and link the instrument, activity or policy measure to it.

The Ministries of Economic Affairs, Education, Science, Research and Sports, as well as Energy should invite the public agencies and private sector stakeholders to give an overview of instruments and activities along the lines of different target groups and duration. Identify complementarity or overlap in goals, target groups and types of instruments. Identify dates of evaluation. This should result in a transparent matrix, which can be published on the dedicated web portal (see subsection 2.5).

2.3.2 Foster learning at the ecosystem level

A Startup Matrix creates transparency, but it needs a group of dedicated people to speed up the learning curve of how to translate the complementarity and knowledge into a productive and internationally competitive startup ecosystem. This can be done via a public-private community of practice (CoP).²⁷ This is a group of people who share a profession or a task. A CoP can evolve naturally because of the members' common interest in a particular domain or area, or it can be created deliberately with the goal of gaining knowledge related to a specific field and translating it into improvements. It is through the process of sharing information and experiences with the group that the members learn from each other, and have an opportunity to develop themselves and their topic personally and professionally. The CoP can also include private sector stakeholders. Together they can raise ecosystems to a higher and more competitive level.

²⁶ Feld, B. (2012) Startup Communities: Building an entrepreneurial ecosystem in your city. John Wiley & Sons, New Jersey.

²⁷ https://en.wikipedia.org/wiki/Community_of_practice

Recommendation 2.2: Organise a public-private community of practice (CoP) by the public sector, to speed up the learning curve to becoming a competitive Startup ecosystem. In addition, integrate into international networks and communities to learn from the best and have access to the most recent developments.

The CoP should be based/agree on three leading principles:

1. Public and private sector mutually reinforce the Slovak Startup Ecosystem to become internationally competitive.
2. The role of the public sector in strengthening the startup ecosystem is to give incentives to the private sector and to remove barriers, so the private sector can take the lead and can flourish. The public incentives should be based on a model that the activity can eventually sustain itself. We recommend that the government empowers other actors rather than dominates, controls or competes with stakeholders.
3. Learning from the best to bring new ideas for ecosystem management is essential.

A public-private CoP consisting of policy makers, users, actors from the private sector and operational units should come together every three months to coordinate and learn from each other, with the shared goal of strengthening the Slovak startup ecosystem. To learn from other European or international experiences, they could invite experts. This CoP could precede, and later operate under the flag of, the Connecting Hub (see section 2.5). They assist with identifying the best and worst practices and speed up the learning curve of the public sector concerning startup-based policy, but they also identify ways in which to better interact with private initiatives. Private initiatives can learn from public experiences and gain access to their networks of startups or investors.

This intervention will result in massive learning. Communities of practice should be established to maximise the gains. This will help form a common understanding of progress made, problems to be solved and issues to be addressed. Public initiatives should facilitate the rise and growth of private initiatives and not compete with, control or dominate the market or the startup ecosystem. Public initiatives should be demand-led (there should be a large and concrete demand, which eventually can pay for the service or facility), involve knowledge of the private sector (run by someone with entrepreneurial experience) and not be long-term public-funding driven (set a limited period of time for public funding, decrease the funding each year).

The public sector agencies must monitor and share information with each other on the effects and impact of instruments as part of a professional public monitoring and evaluation approach (see section 2.3.5). Private sector initiatives could be asked for information, and where they receive subsidy this should be made obligatory. In any case, decision makers in the public sector have to be well informed about national and international developments. For the latter, active integration into international networks, partnering with advanced countries, regions and cities and the integration of top-level experts all help to make better decisions and avoid “capture” by pressure groups.

Recommendation 2.3: Single point of contact for startups

Develop a Single Point of Contact for startups to get advice on public instruments and funds. Explore the possibility of also involving private initiatives.

The Startup Matrix could also be complemented by a single point of contact for startups. This point of contact is already envisaged in NBC national business centres. It will be financed from OP R&I and supported by SIEA with topics like European Structural Funds and advice on intellectual property rights. In this point of contact all governmental agencies unite and entrepreneurs can get information on all the available instruments, including the European instruments. Here startups can get advice on which government instrument or activity can fulfil their needs. For efficiency reasons the single point of contact for startups can be broadened by a single point for SME's, because often they have overlapping challenges. Both the startup matrix and the single point of contact can become part of the Connecting Hub for startups (see section 2.5).

2.3.3 Education in IT and entrepreneurship.

Education is the cornerstone of the economy. Several 'no regret options' — meaning they justify themselves through their additional beneficial effects alone — related to building a strong and

sustainable startup ecosystem can be distinguished. The first one is to introduce digital skills, including coding in the class room, to teach children at an early age how to work with digitisation and also to be prepared for the creation of future jobs, which will have a strong relationship with ICT. Digitisation has become part of every economic sector and the two strongest sectors in Slovakia, electronics and automotive, are ICT-driven. The shortage of IT staff will be structural, and will hamper the innovative development and growth of these two key sectors, if no arrangements are made to grow the national talent pool.

Recommendation 2.4: Develop digital skills

Introduce digital skills — including coding — into the curriculum in primary and secondary education.

In the Smart Industry strategy for Slovakia it is recommended that digital skills, including coding, become an obligatory part of the Slovak educational primary and secondary curriculum. Teachers have to be educated or re-skilled to teach it to children and special educational programmes have to be developed. This topic has also been mentioned in the Startup Manifesto policy tracker. This way, Slovakia will build a strong IT-based and future-oriented workforce which is aimed at creating and filling the jobs of the near future out of its own talent pool. Educational systems like the UK, Finland and Estonia have already implemented this. The Netherlands is considering it and in many Member States it is on the political agenda. The private sector can also contribute to this. To give children, parents and teachers already the flavour of what coding is and to make them confident and enthusiastic, regions could organise coderdojo's together with the private sector.

Coderdojo's are free coding clubs for children after school hours, which are open source (not fixed on a specific programming language) and volunteer-led by professional experts in coding. Children from all ages and backgrounds learn how to code together in a playful way. Large companies like Ziggo or Salesforce sponsor these coderdojo's, but also other corporates, depending where they are based. Coderdojo is an organisation based in Dublin, Ireland, with branches across the globe. No government funding is needed.²⁸

The second 'no regret' option which is mentioned in the Smart Industry Strategy is to foster and professionalise further entrepreneurship in education. This is also in the Startup Manifesto policy tracker in 4.1. In recent years there has been a shift in the perception of entrepreneurship as a career path in the Slovak Republic. The topic has received significant media coverage and widespread attention, including in the political sphere. Globally, the topic of startups is very visible, with success stories from Berlin, Silicon Valley and other hubs filling the news. This hype doesn't automatically create good entrepreneurs. On the contrary, it can be a pitfall, because of a lack of expertise. The National Business Centre (NBC) will be offering courses on entrepreneurship throughout the country, which is a good development. More interactive learning by peers can be done via mentoring programmes in incubators and accelerators.

However, it is important to start young and to experience what it takes to be an entrepreneur. The secondary vocational educational system has to support this career option by introducing entrepreneurship in the curriculum, starting from the basic skills on how to make business plans, financing and running a company, and hiring staff. Next to basic skills, having an entrepreneurial mind-set is important. This mind-set is about taking risks, exploring new grounds, daring to fail and trying again. Pupils could do internships in startups or receive masterclasses from founders and serial entrepreneurs.

Recommendation 2.5: Reinforce entrepreneurial education

Introduce entrepreneurship as part of the curriculum of vocational education as well as at higher education and universities. Failing is a valuable part of the learning process. Introduce and evaluate high-quality mentorship programmes.

²⁸ See for more information <http://www.coderdojo.com/>

Universities should offer entrepreneurship courses in order to — at an early stage — make students and researchers think of the innovative and business potential of research. This requires lecturers and professors with a background in entrepreneurship to teach and coach students. Cambridge University is of course an excellent example, as is the Erasmus School for entrepreneurship in Rotterdam. This can be done also with support of the private sector and with a reasonably low budget, as at Technion University in Israel. Here professor Dan Shechtman, former Nobel Prize winner, has set up a very successful course — with contributions from volunteers that include experts, startup founders and serial entrepreneurs — on how to start and scale a business. It focuses on the role of the entrepreneur, the company and the supportive ecosystem of entrepreneurship.

Another good example is the Entrepreneur Schools Programme by DNA Cascais in Portugal²⁹. Every year 100 professors and 3,000 students are involved in this programme. It has completed its 10th edition. In addition, via the OECD one can get in touch with the Local Economic and Employment Development³⁰ (LEED) Programme. This is an organisation which promotes entrepreneurship in education, based on in-depth collaboration with education institutions, ministries, science and research. They offer peer reviews, as well as targeted business startup and growth support. Also the European Commission has the programme 'Entrepreneurship in Education', under DG EAC, which is based on mutual learning between Member States and funding projects.

2.3.4 Startup visa: Residence permit for foreign startup entrepreneurs

The Slovak government decided to implement a residence permit for foreign startup founders in Slovakia, also known as a startup visa. The respective law is not adopted yet, but should be effective as of December 2016. A new visa or permit scheme will make it possible for ambitious entrepreneurs to apply for a temporary residence permit in Slovakia. The residence permit for startup entrepreneurs will allow them to start an innovative business. These founders can diversify the Slovak economy, introduce entrepreneurial skills, stimulate brain gain and add to the number of firms in Slovakia.

On a European-wide level, during the Dutch EU-presidency, Council conclusions were adopted in which the European Commission and the Member States were asked to further explore the possibility of developing a European residence permit for foreign startups. Within the EU, eight different schemes exist for founders from outside the EU to come and reside in one of the Member States: Denmark, France, Ireland, Italy, Slovakia, Spain, the United Kingdom and the Netherlands. The Netherlands believes that a common EU approach would be beneficial for fostering the Single Market and therefore proposed to introduce a European startup visa/permit for foreign startup founders. If such a visa/permit would cover the entire European Single Market, scaling up across Europe will become easier and more attractive for foreign startup founders to reside and build their business in the EU. This initiative has a link with action 2.1 of the Startup Manifesto policy tracker.

Recommendation 2.6: Promote the EU Startup Visa

Promoting the EU Startup Visa as mentioned in the Council conclusions should be actively explored by the EC and national government, with a particular opportunity for the EU Presidencies, starting with Slovakia.

Currently, EU figures show that the majority of non-EU startup founders come from the US, Canada, Russia and India. Annually, up to 100 founders are selected and admitted to a Member State under strict conditions for a period of up to 3 years. Visas or permits issued by each individual Member State are at present only valid in that state; foreign national startup founders cannot use this visa to work or reside in another Member State. For each country, a separate visa/permit is needed with different sets of conditions that have to be met.

²⁹ <http://www.dnacascais.pt/>

³⁰ www.oecd.org/employment/leed

Via the EU startup visa both Europe and Slovakia would benefit from a coherent procedure that reduces red tape and increases the visibility of favourable conditions for entrepreneurs from across the globe to establish startups. The EU startup visa would attract founders to Slovakia because of the availability of highly skilled and affordable talent, and from this base they could scale up to the rest of the EU.

2.3.5 Mentoring programmes for entrepreneurs

Mentoring is an essential part of developing professional entrepreneurial expertise and a strong and sustainable ecosystem. Mentors are experienced people who are serial entrepreneurs, or have long-term experience in enterprise and are willing to share their knowledge to assist the startup founder to start and grow their business. Good mentors are not easy to find, especially not in a country without a long and extensive history in entrepreneurship, such as Slovakia. Therefore, a mentoring programme has to be set up, based on principles of high quality and experience. To provide quality, it is essential that mentoring is voluntary or provided on a part-time basis — not a fulltime job to earn a living — because that is the way to attract experienced mentors who are still active in business. Good mentorship is crucial and should be based on real experience and an open attitude towards the founder. Besides that, mentorship can work both ways and can help the mentor stay in touch with the latest developments.

Recommendation 2.7: Foster mentoring programmes

The enthusiasm and creativity of Slovak startup founders should be backed by solid and inspirational mentoring programmes on entrepreneurship and scaling-up of business.

There are several options to fill the mentorship gap:

1. Mentoring programmes can be done by experienced founders and serial entrepreneurs, as part of 'giving back' on an individual basis. Mentors can become part of an incubator or accelerator. The founder will be recommended a mentor who fits his or her requirements and questions. This mentor can receive a certain payment for this service. It can also be part of the package deal, depending on the incubator, if mentorship is included.
2. Mentoring programmes can also be sponsored in kind and in cash by corporates, as part of a corporate incubator programme. Corporates could share their knowledge and give experienced staff the opportunity to spend a percentage of their time to mentor startups. This can be a win-win, under the right conditions based on a previously made deal. The corporate indirectly gains insight in developments and startups which could help them to innovate. The startup can use legal expertise, global networks, funding, etc.
3. MOOC's (Massive Open Online Courses) could showcase experienced founders or serial entrepreneurs who work in Slovakia or abroad, or provide legal advice. For instance universities could jointly fund a MOOC to help founders of startups.³¹
4. Together with corporates and business faculties of universities, the government could co-fund summer schools and attract the best founders of scale-ups and inspirational leaders to the Slovakia/Danube region.
5. A venture capital firm could link the founder to a mentor within their network depending on the stage and requirements of his company.
6. A public-private programme could link experienced mentors from corporates or SME's to founders. In the Netherlands, NLGroeit is based on this concept: a web portal where mentors and founders find the best match. A back office deals with the requests and guards the quality. The costs are low (non-profit) and the principle is based on the "giving back to the ecosystem" principle. Both parties benefit: the mentor gets a free insight into latest trends and ideas. The founder receives advice and networks.

³¹ www.coursera.org www.coursera.org

7. Continue the best practice of Startup Weekend (www.startupweekend.org) and similar events in Bratislava and other towns to provide an easy entry to startup thinking and first experiments. These events attract serial entrepreneurs and can organise speed dating and matchmaking between founders and mentors.

When mentoring becomes a full time profession in itself, one should question the intentions and level of expertise. This is the risk if the public sector provides 100 % funding to mentoring programmes. The NBC is considering these programmes. Mentoring should take up to only a certain percentage of the mentors' time. The quality, appreciation and impact of the mentoring advice should be frequently evaluated.

2.4 Smart public procurement

Startups can develop new products and services, but often need an environment to test the prototype and develop a market. The Slovak market is a small market, but at the same time a very good environment to test innovations and to scale them up.

The Slovak government can give startups a boost by opening up possibilities in the public procurement procedures and adopt an open mind about involving new, innovative and smaller players into the public procurement area. It is a win-win situation for both sides. Innovative public procurement offers tremendous opportunities for stimulating cost-efficiency and innovating public products and services, and can work as a launching customer for startups and SMEs. It can attract foreign startups to participate and reside in Slovakia and it can diversify the Slovak economy. Often the public procurement opportunities are not being exploited to the fullest, because government organisations find the existing legal framework is not offering enough space, or think that by giving assignments to incumbents they will not run the risk of failure, or of exceeding costs. Reality has already shown on the international scale that working with large corporates is no guarantee for success.

There are new initiatives concerning innovation and public procurement in Slovakia. The new Law on Public Procurement is effective in Slovakia since April 18, 2016. This law introduces the term 'innovative partnership' into the Slovak legal system. The Ministry of Economy of the Slovak Republic, alongside with its partners — selected public institutions — is preparing a national project on support for public procurement of innovations within Operational Programme Effective Public Administration. The main aim of the project is to improve the effectiveness of public finance spending, and of the public administration as a whole, by means of innovation.

Recommendation 2.8: public procurement as a natural partner for supporting startups

Create space in public procurement rules to allow for innovative procurement processes to create important reference projects for startup and innovative solutions for the public sector. This can be done in cooperation with the Office for Public Procurement for introducing innovative solutions.

This recommendation could be implemented also via the aforementioned project. Its activities may focus on these main areas:

- Methodology of public procurement of innovation
- Methodology of innovative partnership
- Training of public employees involved in procurement on the new methodology
- Adjustment of the legal framework to the new public procurement procedures, if necessary
- Sample documents necessary to participate in the public procurement of innovation and their availability for the innovative companies
- Identification of prospective areas with high innovation potential
- Creation of a platform to share and exchange information and experiences among the entities involved in the public procurement of innovation
- Competition focused on the best procurement procedure and the best innovation procured via new procedures.

Slovakia, like all EU Member States, works with European procurement rules being implemented through national regulation. These rules are often found to be not very flexible, bringing high thresholds for startups or SMEs, and consequently stimulate competition between incumbents. At the same time, European legislation has to be implemented at a national level, which makes it

possible to use experimental space in an innovative way. Slovakia also works with SBIR (small business innovation research), which is an excellent starting point for smart public procurement. The paragraphs below provide examples which can be used:

- Introduce experiment into the national legislation in the pre-competitive phase. This opens up opportunities for startups and SME's to be part of fact finding during the problem-defining phase of the assignment and broadens the thinking about new solutions to the challenge. This can be done as a so called 'beauty contest', where there is no obligation to 'pick the winner', but only if the results can be confidential. (It is not desirable for a competitor or a corporate to run off with the concept.) Space in national legislation can also be used to offer a test-bed environment for prototypes after an SBIR procedure, where public/private launching customers test the specifications and customer requirements.
- Use the opportunities of the modernised 2014 Public Procurement directive for subcontracting and direct payments which make it easier for SMEs to participate in public procurement processes. The following measures should be considered:
 - Compulsory division of contracts into lots, according to functional or logical sections
 - Turnover cap — the contracting authority cannot request higher economic standing than twice the value of the contract
 - Central purchasing, which helps in pooling resources and sharing the risk inherent to innovation
 - Simplified Competitive Dialogue procedure for complex solutions unavailable on the market.
- Organise courses for civil servants dealing with procurement, based on international best practices, on how to deal with innovation, SME's and startups and how to manage risks the right way (in other words: not avoid them, but manage them with an innovative and cost-effective result).
- Create a smart public procurement platform or Community of Practice: make sure that you learn from each other and present and discuss all the initiatives. Speed up the learning curve by sharing experiences and solutions with local and national procurement services about best and worst practices in smart procurement. Failing is not the problem: not learning from failure is the problem. Reward civil servants who come up with new ideas (prize) and solutions. Evaluate the experiences annually and give recommendations on implementation to the involved ministers or counsellors.
- Use a (partly) international expert panel as part of procurement procedures when decisions on funding are being made if there are risks of corruption.
- Stimulate SBIR (small business innovation research) grants in governmental services and products. This could vary from defence to infrastructure or healthcare and education. These start with defining the requirements (so not the product) on an abstract level to increase innovative thinking; publish a tender for feasibility studies where only SME's and startups can apply (under *De Minimis* or as part of a public funding programme); reward several proposals with a grant to work on the prototype and — if the prototypes are convincing — the government can act as a launching customer or organise corporate launch pads (meet-ups with corporates who are looking for new products or services) who can provide a market introduction. The IP stays with the startups or SME's up to the need of co-investment and market launch.
- Introduce a Startups in Residence programme, as in San Francisco www.startupinresidence.org or Amsterdam www.startupinresidence.com (see Box 2.1)
- Develop and profile Slovakia, or a region within the country, as a test-bed environment for innovative solutions, such as e-health or smart energy. Look at the example in Groningen: www.smartcities.info/groningen and www.cityoftalent.nl/en/smart-users-city. Via ec.europa.eu/eip/smartcities/ and ec.europa.eu/health/ageing/innovation/index_en.htm there is more information on European-wide knowledge sharing and funding opportunities.

Box 2.1: Highlight of an example of an in-residence programme

The Amsterdam programme is an innovative collaboration between the City of Amsterdam and (inter-)national startups. They are invited to devise innovative solutions to social issues related to, for instance, Urban Mobility or Circular Economy. The startups will be offered an intensive accelerator programme, as well as support from professional mentors and coaches. They will be offered co-working spaces, where they assist local government with identifying new opportunities and approaches in local policy challenges. When the ideas are identified as useful, a transparent process will be organised to develop these concepts together with the public and private sectors.

2.5 Slovakia as Connecting Hub for startups: empowering the ecosystem from within

Creating a productive and internationally competitive ecosystem requires all the existing networks, instruments, activities, stakeholders and regional partners within Slovakia to work together. When regions start to compete with each other, they lose sight of the larger objective. Looking at the earlier described weaknesses, the lack of cooperation between the stakeholders is a crucial one that needs to be tackled within Slovakia. The strength of an ecosystem depends on close interaction between the stakeholders — whether they openly share contacts, knowledge and networks, and whether they are willing and able to join forces. But it also depends on their level of ambition and willingness to learn and to change — do they aim to be the best?

Recommendation 2.9: Set up a Connecting Hub to connect the ecosystem

Develop a Connecting Hub principle and organisation which involves all stakeholders and gives them a leading role in developing activities. The Connecting Hub makes the ecosystem transparent and accessible. It stimulates knowledge exchange, contacts and learning from each other. The proposed approach builds on collecting the main support activities under the same common virtual umbrella, including brokering, matching, facilitation, etc. services as well as joint resources such as online information regarding the Slovak startup ecosystem. The Connecting Hub should mainly focus on connecting and offering practical support to the relevant ecosystem actors. It should be closely connected to ecosystem monitoring activities.

A startup ecosystem is as strong as its stakeholders and the way they cooperate and enlarge and share their networks and expertise. This is the basic principle behind developing a connecting hub. The Connecting Hub starts as a public initiative, initiated by the government. It can have its predecessor in the startup matrix and the Community of Practice, as described earlier in this chapter. It should involve, without hierarchy, all relevant stakeholders from the capital markets to the incubators and research centres, or the government agencies who provide the instruments. The Connecting Hub connects, first of all, all the regional hubs, since they know their local ecosystems players directly. Startup Ireland, as well as StartupDelta in the Netherlands, are both following this model, which works very well in smaller countries. Cooperation between the stakeholders within the hubs is key, and by interacting between the hubs they can enlarge their scope and impact. Together they can join forces, investments, technology or each other's launching customers.

Developing the Connecting Hub can be done via the following parallel steps, starting with:

- The formation of a team which operates as a connector between the innovation hubs in the country. The team could be of around five people with different backgrounds from government, regions and private sector. It will run the organisation with the main goal of strengthening the ecosystem from within, by using the existing stakeholders and developing an action-oriented approach where all stakeholders play active and leading roles. The organisation should act as an honest broker between the hubs and is above all parties. The director can be someone from the public sector, with experience from the private sector. Innovative organisations like the Slovak internet alliance, SAPIE, should be actively involved and can act as a best practice on how to set up a "connector" role.
- Linking up the innovation hubs in the country. The small team, mentioned above, acts as the connector and brings the representatives of Slovak regional startup hubs together on a monthly basis. Every hub puts one person forward who acts as their representative. The mutual goal is to open up networks, agendas of activities and expertise which can benefit everyone. They also develop a shared agenda on a national level which outlines the necessary systemic changes for the country, such as proposals for tax incentives or establishing regulatory free zones for innovation. These hub representatives have excellent

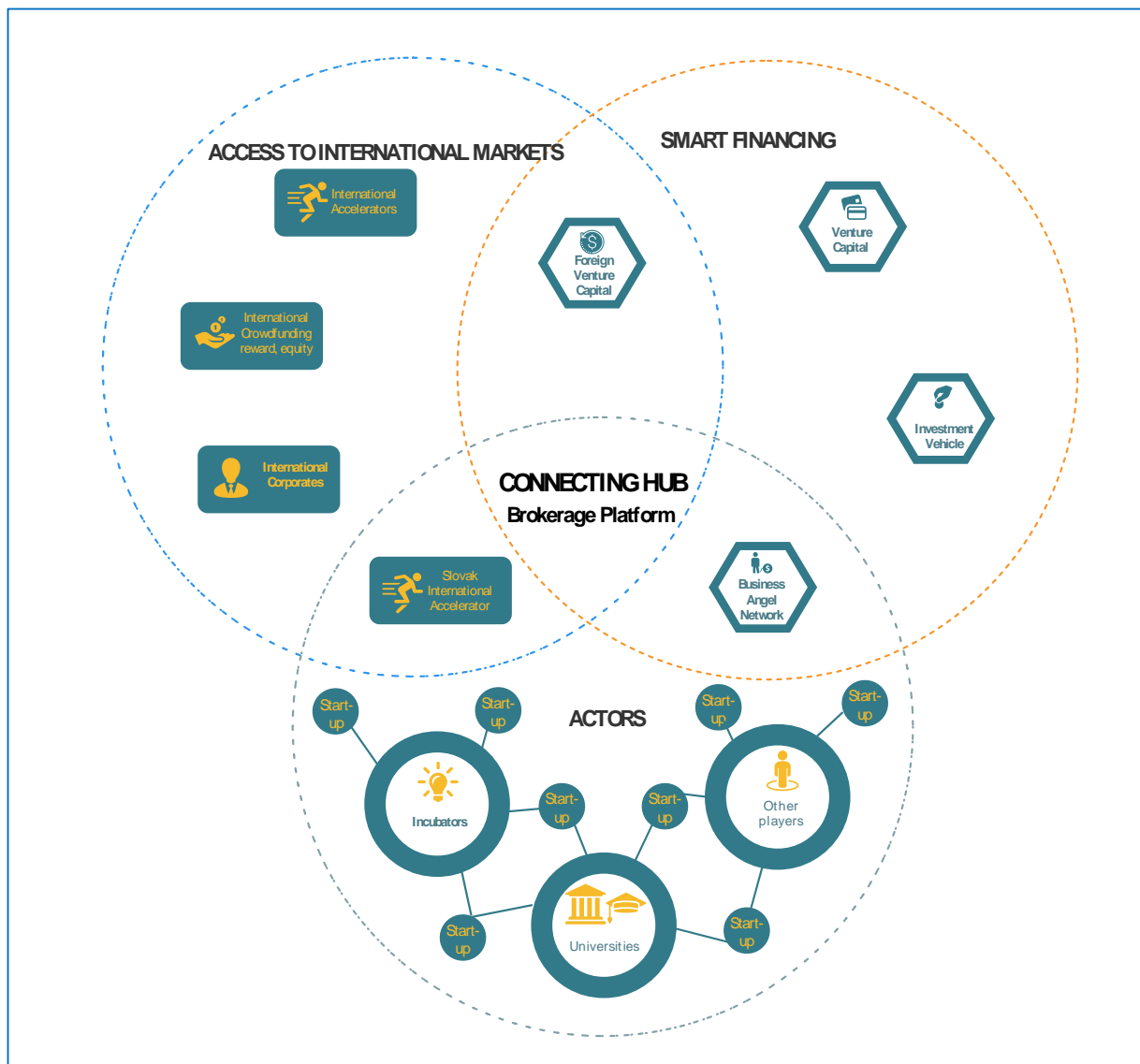
contacts with the startups in their hub, know the investors and have good access to academia, incubators, corporates and the regional public sector.

- Developing a web portal on which relevant information for startups is made transparent. The web portal makes it possible for hubs, startups, investors, corporates, government to share information concerning activities, events, investment rounds, public instruments, etc. The Startup Matrix (see section 2.3.1) can also be published here and be supported by a Single Point of Contact (see section 2.3.2.) which gives advice to startups about the instruments. The web portal can use social media to provide the latest information. This web portal can be a public-private initiative, where both the government and sponsors provide the funding for the first years. This will cost between €500,000 and €1 million in cash or in kind. After that it will be self-sustainable, because users will pay a small fee in relation to the turnover of their organisation. And they can receive revenues for advertisement. See www.startupdelta.org
- Involving the power and networks of the stakeholders of the hubs actively by developing programmes with them which relate to their specific qualities — for instance, a corporate programme on how they can work with startups in a sustainable way which benefits both the startup and the corporate. Slovakia's industrial strongholds are populated by strong multinational corporates, which should be involved in building and strengthening the startup ecosystem. Startups bring in new ideas and practices while the experience of established players helps to scale the inventions and innovations. This is one reason why the cooperation between startups and established companies is often fruitful. Corporates can also be involved via a corporate launchpad where startups pitch in front of corporates on certain themes. Corporates can learn from each other by sharing their best and worst-practices with each other on how to work with startups. Together with the hubs they can develop a filter to target the right startups which fit their scope and vision. A key element to this is that corporates should put startups on their agenda at board level and that they define when the cooperation will be a success. Corporates can organise this themselves, together with a business faculty of a university.³² Another example is by supporting mentoring and involving mentors from all the hubs. Or organising international events.
- Developing a communication strategy on the competitive advantage of the Slovak startup ecosystem. Make people proud to be part of the ecosystem. What are the role models and success stories of Slovakia? What are the facts and figures? Why should founders, investors, corporates etc. come to or stay in Slovakia? Use embassies and consulates to promote the Slovak ecosystem in their networks.
- Involving the Special Envoy for SME's to also develop specific actions for startups. This is a top-level person who can act independently to put startup-related topics high on political, academic or corporate agendas, and who has easy access to all stakeholders and can represent startups and scale-ups. This Special Envoy can be supported by the Connecting Hub organisation.
- Linking up to international startup hubs. Identify the hubs which are complementary and can enrich the network of the Slovak ecosystem. These could be 'close by', like the Danube region, or transatlantic. This way you could attract inspirational leaders, mentors, investors and founders — for example, the global incubation network in Austria (www.gin-austria.com).
- Considering public support during the build-up stage of the Connecting Hub. However, the Hub should be self-sufficient after no more than 2 years.

Given its tasks just outlined, the Connecting Hub has a pivotal role in the ecosystem (see figure 2), connecting institutions and fostering the ability of the ecosystem to deliver the "services" necessary for a proper stimulation of the entrepreneurial spirit in Slovakia. This spirit is to be transformed into successful startups that not only deliver locally but venture onto international markets. The aims to be achieved in terms of incubation and acceleration, as well as access to finance, are further described in chapters 4 and 5.

³² See www.startupdelta.org/abou/press/209. See www.startupdelta.org/abou/press/209.

Figure 2: The Role of the Connecting Hub



2.6 Monitoring the performance of the ecosystem

Startup ecosystems are dynamic multi-stakeholder entities and often their competitiveness is based on unforeseen qualities. For instance, the Israeli, Tel Aviv ecosystem is based on the availability of talent, which has its training background in army units, in combination with a risk-taking mentality and the availability of venture capital. See also www.startupnationcentral.org. Berlin owes a lot of its success to the availability of low-rent property and the open and creative atmosphere (www.startup-berlin.com). In other words, there is no “one size fits all” approach for ecosystems, nor for which general indicators play a key role. It is tailor-made and specific, depending on the stage of the system and the qualities or challenges.

At this moment the performance of the Slovak startup ecosystem is not being strategically monitored. There are no objectives, nor indicators present, nor a baseline study with the facts and figures on the ecosystem. The only available documents which give insight in facts and figures on founders and the surrounding ecosystem are the KPMG reports of 2014³³ and 2016.³⁴ The KPMG report provides many of the right questions, but lacks overall objectives, so it is unclear where the ecosystems stand compared to others.

The operational programmes plan rudimentary metrics on the companies being receivers of public funds.

Slovakia is not unique in this. Most European Member States and countries in the world are confronted with this issue.

Recommendation 2.10: Monitor your startup ecosystem

The general assumption and awareness that startups contribute to innovation, growth and jobs and that Slovakia has the ambition to develop an active startup policy and prosperous startup ecosystem, requires a thorough approach on monitoring, effect measuring, evaluation, and (online) publishing of developments.

To develop a monitoring and evaluation system, the following steps should be taken:

1. Develop a baseline study. This study provides the base, with concrete facts and figures on the number and type of startups and scale-ups (academic-tech, etc.), the stage of development and the proven viability of the business model — i.e. how fast they grow in turnover, profit and people, the number of entrepreneurship students and successful spin-offs from universities, the number of incubators and the number of successful startups they produce, as well as the viability of these startups over a period of 3–5 years. Other topics which might be included are: where startups get their investments from, the availability of talent and funding to scale, etc. The startup matrix could be part of the baseline study and measure the performance of the instruments and activities in connection to its goals. As a study, it could review if and how the instruments contribute to reaching the overall objectives of the government.
2. It is important that the monitoring of the ecosystem is woven into any public support activity right from the start. Receiving public support comes with the obligation to deliver data to monitor the evolution of the Slovak startup ecosystem. This concerns incubators, accelerators, business angels, universities, venture capitalists, etc. alike and allows the analysis, benchmarking, management, evaluation and thus understanding of how the system is evolving. Without data no proper policy design and implementation is possible.
3. The Slovak government should clearly state its 'smart' objectives when developing policy and forthcoming instruments for startups and the strengthening of the Slovak startup ecosystem. The baseline study provides the foundation: when will the policy be a success?
4. Make the data permanently available via the web portal of the Connecting Hub. The baseline study is the basis for permanent, almost real-time monitoring of the system, which is fed into a platform and — if data are not confidential — publicly available.
5. Align with existing startup-ecosystem reporting to increase visibility and benchmarking. The global and European rankings on startup ecosystems are becoming more sophisticated and gaining in meaning and impact. For developing the framework of effect measuring and evaluation, it is not only important to define clear national objectives and indicators, but also to try to synchronise with the indicators in these reports, like Compass or the Startup

³³ KPMG, Startup EcosystemEcosysteme Survey Slovakia 2014, http://www.kpmg-studio.sk/publications/KPMG_Startup_Survey_2014.pdf

³⁴ KPMG, Startup Ecosystem Survey Slovakia 2016, <https://www.kpmg.com/SK/en/IssuesAndInsights/ArticlesPublications/Documents/startup-ecosystem-survey-slovakia-2016.pdf>

Manifesto Policy Tracker. The European Digital Forum has the Startup Manifesto Policy Tracker which provides a framework, including recommendations to Member States. This is focused on digital startups. Slovakia ranks number 18, with a 55 % adoption rate of the Startup Manifesto policy recommendations, and scores a bit below the EU average. The EDF also has the European Digital City Index. In spite of its digital focus, the recommendations are useful for developing a startup ecosystem in general.

6. On one hand, for practical reasons, getting the data is time consuming and often difficult, so it is better to include the indicators these reports use in the monitoring exercise. On the other hand, you can easily become part of these rankings and claim your rightfully owned position.
7. The role of the ministries is to provide the objectives and to demand the agencies to provide the data. A public organisation, which has no interest in the results of instruments, can organise a public procurement concerning the baseline study — developing the monitoring, effect measuring and evaluation of the policy framework and underlying conditions. Private sector initiatives can only be obliged to give data if they receive a subsidy. In other cases, it will be voluntary. If data are confidential, there are many ways to anonymise them.
8. The government could consider appointing an international expert team to review the outcome of the evaluation and give recommendations to government, and the government can report this to parliament as to whether the policy has been a success or not.

There are several countries which are ahead in the process of monitoring. For instance, the UK is interesting to follow with the methodical approach of the Scale-up Institute, Nesta and Coade. These organisations could be involved in giving advice in setting up the Slovak monitoring system. The OECD performs studies and compares OECD countries, as described earlier. Slovakia is not part of this yet. It would be good to look into this opportunity. Although it doesn't cover the entire EU, www.startuphubs.eu provides a useful example of indicators which can be used when mapping the national Slovak ecosystem, such as the number of startups, the number of employees or the level of investments.

2.7 Summary

Startups are key to fostering innovation, economic growth and sectoral diversity and, furthermore, solving societal challenges. Whether startups contribute to net job creation depends on the quantity of jobs which are replaced by disruptive startups in relation to the new jobs they create. Overall, however, the outlook concerning the potential impact of startups in Slovakia is positive.

Slovakia has a young, emerging startup ecosystem in the context of national economic growth. The central quality of the ecosystem is the availability of a highly skilled workforce at affordable costs, compared to the small size of the country. This has the potential that contacts are easy to reach and networks can be mobilised quickly. There are also a large number of corporates in the automotive and electronics sector, which could potentially be more strongly involved in developing the ecosystem further.

At the same time, Slovakia faces challenges in relation to developing a productive and competitive ecosystem. There is a shortage of IT programmers (as anywhere in Europe). The variety of stakeholders in the ecosystem do not cooperate in a regular and dynamic way with each other; there is not enough diversity in economic sectors. There are many available instruments for startups from several organisations and agencies, which creates a fragmented approach. Key players, such as academia and corporates, are still playing a minor role in the ecosystem and financing startups is at an early stage.

To foster the Slovak startup ecosystem, there are many roles to play for the government and public sector in general. The first steps to accomplish this are aimed at creating fertile ground by offering more transparency, accessibility and coherence in all existing instruments and stakeholders by mapping the ecosystem and showing these on a web portal, and realising a Single Point of Contact. Furthermore, establishing a Community of Practice together with these stakeholders and owners of the instruments can speed up the learning curve. These steps precede the development of the Connecting Hub. Via a lean and mean organisation, the government can take the initiative to stimulate cooperation and strengthen the ecosystem from within. Linked to this, the Slovak government needs to develop a monitoring and evaluation system which gives insight into the facts, figures and developments of the ecosystem.

The government should, on the basis of the baseline study, set its smart goals. What do they actually want to accomplish over the years and what do they see as the role for themselves and

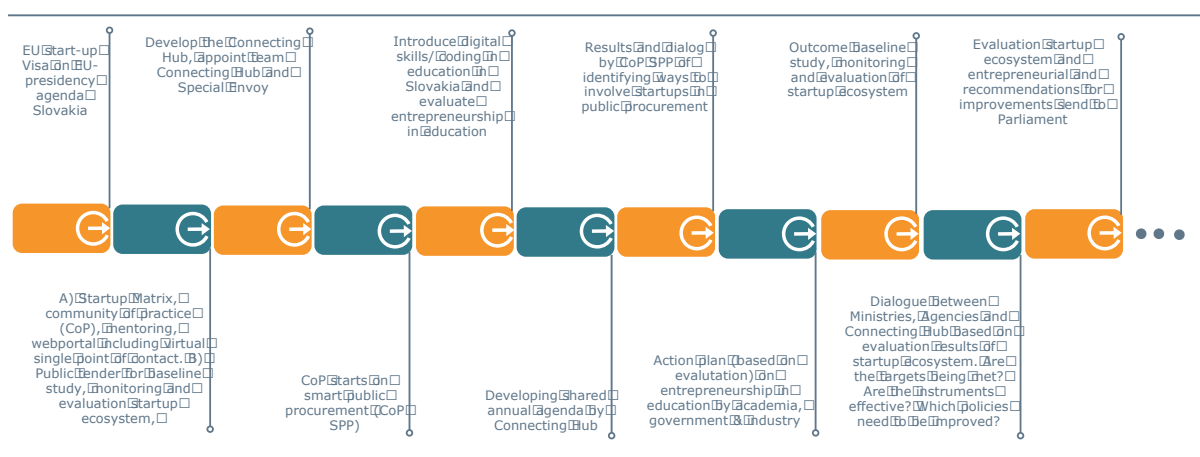
the different public and private partners of the ecosystem? For instance, opening up smart procurement could be a very attractive way to involve startups into public sector innovation. The policy measures need to be evaluated in the context of these goals.

The government can, as mentioned, also instigate the formation of a Connecting Hub: link up all innovation hubs in the country under one virtual umbrella, with a small support team that stimulates interaction and sharing knowledge, and through this speed up the mutual learning curve. An important aspect is the sharing of agendas and networks, which helps to define a shared national agenda on startups. In this Connecting Hub, lots of activities can be brought together, such as the Startup Matrix; the Single Point of Contact and the business angels network (see chapter 5.2).

An important role for the government in strengthening the Slovak startup ecosystem is to use Slovakia's strength and enlarge the talent pool via education and migration. First of all, by stimulating IT talent through introducing digital skills and coding into education, as well as stimulating entrepreneurship in education and fostering mentoring programmes to raise the entrepreneurial skills of founders. In addition, in the field of migration, the introduction of the national and European startup visas will bring more founders to Slovakia who can share their expertise and also foster diversity in economic sectors.

Another important role for the government is to open up public procurement to innovative startups. The recent law adopted in Slovakia looks promising.

Figure 3: Sequencing of public policy interventions for a well-performing startup ecosystem³⁵



³⁵ Of course, and this holds for the other sequencing figures as well, some of these activities can and should run in parallel.

3 IMPROVING THE BUSINESS ENVIRONMENT FOR ENTREPRENEURSHIP, STARTUPS AND INNOVATION

Newly founded companies, startups and SMEs are the most vulnerable actors in economic systems and thus more than proportionally hurt by hostile framework conditions. Improving the business environment increases the likelihood of starting a business, extends its life expectancy and — most of all — enables firm growth.³⁶ Improving the business environment is the single most powerful policy line to help the Slovak startup ecosystem develop further and will leverage more specific actions in this domain. Two qualifications are important in this context: 1. As any improvement in the business environment will increase the returns of more specific actions, ameliorations of the business environment should be prioritised. 2. As the future of companies is unpredictable, improving the business environment is a far more reliable intervention than any direct support to companies. This not only holds for the emerging support structures in Slovakia but also for more advanced countries.

Slovakia's business environment has demonstrated that it can successfully support catching-up processes and is on par with comparable countries in the neighbourhood, but still has huge potential for improvement. While the number of laws and regulations is small, the sometimes low quality of intervention leads to substantial compliance costs. A number of studies (see below) report problems with corruption, non-transparent public procurement, tedious administrative procedures and e-government structures in their infancy. If these are addressed, substantial resources in companies can be freed for more productive employment.

3.1 Status-quo of Slovakia's business environment

Various studies and surveys assess the business environment in Slovakia³⁷. Presently Slovakia ranks 29th in the "Doing Business" ranking of the World Bank in 2016.³⁸ Slovakia shares this position with Slovenia, is a little behind Poland, which occupies the 25th position, but is ranked above the Czech Republic (rank 36) and Hungary (rank 59). The Economist's business environment ranking, using a different but comparable method and data, produces a similar but slightly different ranking. Slovakia comes out in 31st position trailing the Czech Republic (28th position) and Poland (29th) but ahead of Slovenia (33rd) and Hungary (37th position).

A number of surveys and international comparisons suggest that the business environment has substantial potential to be improved in Slovakia.³⁹ In particular, the level of corruption,⁴⁰ red tape,

³⁶ The dominance of simple growth targets is increasingly challenged by a wider definition of economic and environmental accomplishments. The overarching benchmark for Europe should be high well-being and a sustainable environment see e.g. Aiginger, K., et al., New dynamics for Europe: Reaping the benefits of socio-ecological transition, Vienna, 2016.

³⁷ We employ the World Bank for business ranking (World Bank 2016) and particular studies on the Slovak business environment. These studies differ in methodology, depth, and — as most are survey based — in the number and type of participants. We are consequently not taking these surveys at face value but are looking for common traits across studies that allow for some level of generalisation. See also, for a recent assessment by the European Commission, the Country Report for Slovakia: European Semester SK Country report analyses. http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_slovakia_en.pdf

³⁸ In the World Bank (2016) study, Slovakia excels in trading across borders (rank 1) and registering property (rank 5) but is somewhat less business-friendly in protecting minority investors (rank 88), dealing with construction permits (rank 84), starting a business (rank 68) and paying taxes (rank 63). Most progress was made in paying taxes (+36 ranks change) and starting a business (+3 ranks change).

³⁹ The reliance on respondents from foreign-owned companies may present a particular view on the Slovak system that is not shared by domestic companies. The big advantage is that respondents should be able to compare the business environment in Slovakia to other countries. An indication that there might be a different assessment of strengths and weaknesses by domestic companies are the results of a survey cited by RUZ. There, the contribution to the social security system and the tax burden are seen as major impediment to doing business in Slovakia (see more on the tax system below). They are followed by problems with the rule of law and corruption. Corruption and the rule of law are identified as major obstacles for both domestic and foreign-owned businesses. Tax issues will be dealt with in more detail below.

⁴⁰ At European level, three quarters of respondents (76 %) think that corruption is widespread in their own country. The countries where respondents are most likely to think corruption is widespread are Greece (99 %), Italy (97 %), Lithuania, Spain and the Czech Republic (95 % in each). A quarter of Europeans (26 %),

non-transparent public procurement, access to public and European funds and promotion schemes, the tax system and authorities, and the rule of law lend themselves to reform. These issues are consistently on top of the suggested reform agendas in the Competitiveness Ranking of the World Economic Forum,⁴¹ the survey of AmCham,⁴² EY⁴³ and the recent survey of a number of economic chambers active in Slovakia.⁴⁴

With all the challenges ahead, the strengths of the Slovak business environment are the EU and Eurogroup membership, productivity and motivation of employees, availability of local suppliers, labour costs, qualifications of employees⁴⁵ and the low tax burden. These strengths are widely acknowledged and were the pillar of the successful catching-up process in the past decade. Currently, 90 % of respondents in a recent survey are more optimistic for economic development in Slovakia than in 2015 (87 % in 2015 compared to 2014). The expectations are surprisingly more optimistic for the business location than for the company of the respondent itself.

Overall, the business environment as such is more or less on par with the catching-up countries in the neighbourhood and seems to have stabilised in 2014 and 2015 after years of decline between 2008 and 2013. This may signal more awareness of the issue and — in the best case — a reversal of the trend.

Startups, newly founded companies and SMEs are more than proportionally hit by an unsupportive business environment. To employ a metaphor used in the startup world: each startup has a **runway** whose length depends on the founder's resources at hand. The startup either manages to launch the product or service, or fails when the runway is too short. Getting access to additional financial resources via business angels, venture capitalists or public support extends the runway. All resources spent, or related to an unfavourable business environment shorten the runway. For startups, the business environment decides about the costs of starting a business, the resources needed to comply with regulations and laws, and — in a very general sense — the opportunities for making business.

Improving the business environment is a huge task as this ranges from infrastructure, laws and regulations, education, science and research, to the political set-up. Given the purpose of this report, the focus is on subsets of the business environment: the quality of laws and regulations, the time needed to set-up a company, and taxation and social security contributions. This is admittedly a small fraction of the factors impacting on the business environment and each of the factors chosen is further condensed, thus raising only the most pertinent lines of action.

compared with 29 % in the 2011 Eurobarometer, consider that they are personally affected by corruption in 7 % of their daily lives. People are most likely to say they are personally affected by corruption in Spain and Greece (63 % in each), Cyprus and Romania (57 % in each) and Croatia (55 %); and least likely to do so in Denmark (3 %), France and Germany (6 % in each). Around 1 in 12 Europeans (8 %) say they have experienced or witnessed a case of corruption in the past 12 months. Respondents are most likely to say they have experienced or witnessed corruption in Lithuania (25 %), Slovakia (21 %) and Poland (16 %) and least likely to do so in Finland and Denmark (3 % in each), Malta and the UK (4 % in each). Around three quarters of Europeans (73 %) say that bribery and the use of connections is often the easiest way of obtaining certain public services in their country. This belief is most widespread in Greece (93 %), Cyprus (92 %), Slovakia and Croatia (89 % in each). Similarly to 2011, around two in three Europeans (67 %) think the financing of political parties is not sufficiently transparent and supervised. Most likely to hold that view are respondents from Spain (87 %), Greece (86 %), and the Czech Republic (81 %), while those least likely to hold this view are respondents from Denmark (47 %), the UK (54 %), Sweden (55 %) and Finland (56 %). Just under a quarter of Europeans (23 %) agree that their government's efforts are effective in tackling corruption; around a quarter (26 %) think that there are enough successful prosecutions in their country to deter people from corrupt practices (see European Commission, Anti-Corruption Report 2014, COM(2014) 38 final., 2014).

⁴¹ World Economic Forum (2016), Slovakia, Country/Economy Profile, 2016, <http://www3.weforum.org/docs/gcr/2015-2016/SVK.pdf>

⁴² Investing and doing business in Slovakia: What can be done better, 2016.

⁴³ EY (2014), Doing Business in the Slovak Republic.

⁴⁴ Deutsch-Slowakische Industrie- und Handelskammer et al., Stimmungsumfrage 2016 bei europäischen Investoren in der Slowakei, 2016.

⁴⁵ Deutsch-Slowakische Industrie- und Handelskammer et al., Stimmungsumfrage 2016 bei europäischen Investoren in der Slowakei, 2016.

3.2 Political & legal framework for businesses in Slovakia

Regulations and laws are indispensable for the working of modern economies. They set the standards and rules for well-functioning economic activities. Additionally, they transport common shared values and principles of how society should operate⁴⁶ and be organised. Thus, regulations have to be assessed not only by the costs of compliance but also if they contribute to the achievement of the societal targets they aim at (e.g. safety and health regulations, environmental protection).

The cost of compliance—irrespective of the goals and achievements of goals—might be extremely different depending on the quality and implementation of the regulations. A general aim of policy makers should be to reach the goals with minimum costs on both the regulated and the regulators. Regulatory reform to cut red tape must not necessarily compromise the intentions and objectives of the regulation, but find easier ways to achieve them.

The regulatory burden and red tape is substantial in Slovakia. AmCham (2016) reports that more than 80 % of respondents find the labour code is hindering their business. This is followed by the tax code (47 %) and social security and pensions (47 %). More generally, low quality and frequent changes of laws are seen as a major impediment. According to employers the 10 most important laws were changed up to 25 times in 2014. Particularly for SMEs the costs of compliance are excessive⁴⁷. In the AmCham survey, 73 % of participants report that their administrative costs have increased over past 6 years. Survey results from EY (2014)⁴⁸ support this view, giving 'reducing bureaucracy' top spot in the results.

To be precise, in Slovakia a root cause of the problem is the quality of regulations, and the resulting cost of compliance and regulatory burden, and not the size or number of regulations overall. Poorly formulated and tested laws and regulations demand frequent amendment because of their impracticality or "side effects"⁴⁹. Combined with infant e-government services, and little coordination and cooperation among public authorities, this creates hurdles that translate into substantial costs. Better regulation would allow achieving the same or far more with lower costs on the side of companies and citizens as well as the public sector. For example, the administrative hassle related to filing tax statements is onerous: a SME has to spend 207 hours per annum to fill all statements required by the tax and social security insurance authorities in 2014. While this is still more tedious in the surrounding countries (Czech Republic: 413 hours, Hungary: 277 hours, Slovenia: 279 hours;), the benchmark case should be Luxembourg where it takes 55 hours⁵⁰ to comply with these requests.⁵¹

3.2.1 Challenges and recommendations

Currently, new laws and regulations follow a regulatory impact assessment process (RIA) that has been developed since 2001.⁵² The process has been reformed in 2008, 2010 and late 2015. The general assessment so far was that Slovakia underperforms in terms of improving the quality of

⁴⁶ Of course, some of the regulations are due to vested interests, lobbying, or simply improper decision-making thus removing industries from competition, creating rents for some of actors, etc.

⁴⁷ European Commission, (2015), Business Environment in Slovakia: State of Play and Future Outlook, Debate with Representatives of Major Slovak Employers and Businesses - 14. Jan. 2015, Representation of the European Commission in Slovakia, 2015.

⁴⁸ EY (2014), Doing Business in the Slovak Republic.

⁴⁹ World Bank (2016). Doing Business 2016, Measuring Regulatory Quality and Efficiency, Economy Profile 2016 - Slovakia.

⁵⁰ World Bank (2016). Doing Business 2016, Measuring Regulatory Quality and Efficiency, Economy Profile 2016 - Slovakia.

⁵¹ World Bank (2016). Doing Business 2016, Measuring Regulatory Quality and Efficiency, Economy Profile 2016 - Slovakia.

⁵² The most important regulations in this context are the Legislative Rules of Slovakia, Guidelines for the Preparation and Submission of Material for Government Sessions of the Slovak Republic and the Joint Methodology for the RIA. See Staronova K., Regulatory Impact Assessment in Slovakia: performance and procedural reform, Impact Assessment and Project Appraisal, Vol. XX, NO X, page 1-14, 2016, forthcoming. for more details.

regulations and correctly assessing the impact of new regulations.⁵³ Recent reforms addressed issues that caused this assessment. While these reforms definitely go in the right direction, it is still too early for an evidence-based assessment of its working.

All regulations submitted to the government must include an evaluation of impacts in the following five domains: 1) public budgets, 2) business environment, 3) social impact (i.e. on citizens' financial situation, social exclusion, equality of opportunities and gender equality, and employment), 4) environment and 5) impact on digitisation of public services.

In practice, only the fiscal impact assessment has been done thoroughly by the Ministry of Finance, while the social, economic, environmental and e-governance impacts are somewhat neglected⁵⁴. Furthermore, the assessment is done late in the regulatory process when almost all decisions are taken. The OECD finds "...an apparent lack of interest and engagement from the centre of government ... in demanding evidence and analysis from line ministries in supporting the programmes and/or decisions beyond the narrow short-term budgetary impacts of policies or legislative changes within the regulatory impact assessment process."⁵⁵

The impact of new regulation is thus insufficiently assessed and often the practical implications are not studied at all. Instead of scrutinising this before implementation, enterprises and citizens are the guinea pigs in this process. Any new law might trigger a vicious cycle of amendments once significant flaws come to the force. This not only creates costs on the side of enterprises and citizens, as well as an agitated business environment, but makes it also hard to know the most up-to-date version of a regulation. The costs on the side of the public sector must be substantial too.

Recommendation 3.1: Reinvigorate the internal regulatory impact assessment by reorganising the process and combine it with an open process that integrates citizens and companies

The current regulatory impact assessment process has been reinvigorated in late 2015 and may lead — if properly carried through — to substantial improvements in the quality of laws and regulations. Recent reforms aim at an early-stage assessment of impacts for all categories (fiscal, social, economic, environmental, e-government) and interinstitutional comments proceedings.

Slovakia already has online processes that involve citizens and companies in the drafting of laws and involve businesses in finding weaknesses in existing regulations. These structures should be further developed to improve the overall review process and thus the quality of new and existing regulations ('crowdsourced legislation') in combination with simple real-life experiments to quickly assess regulatory burden, compliance costs and impacts in advance. In particular, the insights of behavioural economics can be used to optimise tax compliance and avoid tax fraud, but could be instrumental for all kinds of policy interventions.

The Slovak government has recently made a renewed effort to improve the regulatory impact assessment. The main component and coordinator of the impact assessment — the watchdog — is the Permanent Working Commission for the assessment of selected impacts under the Legislative Council of the Government Office. Another component is the Better Regulation Centre that is part of the Slovak Business Agency. Its main activities are: regulatory impact assessment of proposed and existing regulations with impacts on SMEs, suggesting measures to reduce regulatory burden, analysing the regulatory impact on SMEs (SME test), promotion of the "Think Small First" principle, stakeholder consultations, and reducing 'gold-plating' when European regulations are enacted in Slovakia.

⁵³ See for example European Commission, Country Report Slovakia, European Semester, Brussels, 2016, European Semester SK Country report analyses.
http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_slovakia_en.pdf

⁵⁴ For a thorough assessment see Staronova, K.(2016), Regulatory Impact Assessment in Slovakia: performance and procedural reform, Impact Assessment and Project Appraisal, Vol. XX, NO X, pp. 1-14, forthcoming.

⁵⁵ OECD (2015), Slovak Republic : Better Co-ordination for Better Policies, Services and Results, OECD Publishing, Paris.

Most notably, Slovakia already has an online portal that allows citizens to participate in the interministerial comments procedure (see <https://www.slov-lex.sk/domov>). On the business side, Businessfriendly.sk — a private website operated in cooperation with the Ministry of Economy — focuses on collecting ideas from businesses to change legislation in order to reduce the regulatory burden.

While it is too early to assess the impact of the reform in late 2015, the overall aims should continue to be bringing down the number of amendments substantially and ameliorating those regulations that create most regulatory burden and compliance costs without compromising the objectives of the legislation. The following suggestions aim at fostering the already ongoing reform process:

- Prioritising reform efforts and areas by a review of international benchmarking studies with the aim of bringing down regulatory burdens and compliance costs. This helps to find the most urgent topics that may then be prioritised according to their impact on growth or economic development or other criteria. The time to start a business is one such indicator and will be discussed below. Another example is the already mentioned hours needed to comply with tax and social security regulation when filling in the annual tax statement. A demanding but realistic target would be to reduce these costs to the level of the most advanced countries in 5-years time.
- Reinvigorating crowdsourcing processes, including citizens and companies that identify regulations that should be improved or abolished. Using the “wisdom of the crowd” helps to speed up the process but does not free decision-makers from doing their job. The following process steps should be organised:
 - In this crowdsourcing process Slovaks would be asked to identify legislation that is causing substantial administrative burdens and compliance costs as well as bringing in ideas for improvement. This should be part of an official campaign to address this issue.
 - The administration and the responsible politicians have to demonstrate that they use the input of the online process in their decisions by giving detailed feedback on how it was implemented or giving the reasons why it was not implemented. This feedback loop is important for the working — i.e. the motivation and willingness to participate — of such a process.
 - Open consultations and crowdsourcing processes are a deviation from the traditional relationship between companies, citizens, public authorities and politicians. Crowdsourcing processes eliminate hierarchies and give each participant the same weight. In this environment the public sector has to be responsive to the needs of citizens to make this a worthwhile exercise for all participants in the long run. Crowdsourcing processes on regulatory issues can either be organised once a year or operate on a continuous basis or are a mixture of both approaches.
- Rigorously testing new regulations within the recently reformed framework for regulatory impact assessment. The process should start early, not when all decisions are taken, and the public online consultation should be strengthened. Currently, public consultations are necessary for legislative and non-legislative proposals submitted to the government. All documents are immediately published on the government consultation portal and open for comments for 15 days. If a comment is supported by more than 500 participants, ministries have to provide a written answer that is then part of the dossier submitted to the government for discussion⁵⁶. The weight of online consultations depends crucially on the impact they have on the final decisions. Only if the government seriously considers the input from participants can this become a virtuous circle that helps to improve regulations in a short- to medium-term perspective. This process could be strengthened by making this option better known in Slovakia, simplifying the online system and increasing the duration for participation. The process logic, in terms of communicating with participants, giving feedback, demonstrating that input is used for decisions, etc., should be more pro-active.

⁵⁶ See OECD (2015). Slovak Republic : Better Co-ordination for Better Policies, Services and Results, OECD Publishing, Paris.

- Introducing the insights of behavioural economics to reduce compliance costs, regulatory burden and tax fraud, with the aim of increasing the effectiveness and efficiency of public sector interventions, is also advised. This applies particularly to the tax system. This approach is based on experimental testing of the present and future regulations to bring down compliance costs substantially while harnessing the goals of the regulation:
 - Forming hypotheses and testing them, rather than relying on expert assessment alone, has proven to be more efficient and effective when designing interventions at the country and company level. There is some overlap with the lean startup technique in the sense that both methods rely on testing their assumptions. Here the formulation of experiments relies on insights from psychology and economics that are tested in experiments before being introduced. The findings of behavioural economics so far are impressive: small changes in the way regulations are formulated, options arranged and forms presented may make all the difference without creating more costs. Testing is warranted because human behaviour may be irrational but predictable — something to be found out through experiments.
 - Expertise to set up behavioural experiments and run tests with the aims of improving regulations should be given to an institution outside the public administration. This organisation should be tasked with acquiring the appropriate skills, connecting to other institutions with similar tasks and advising public authorities in the preparation of legislation and in impact assessment. Assessing impact with the help of behavioural economics should become a standard practice in regulatory impact assessment.

As these issues are a challenge for almost all European countries, the improvement of the business environment should have an international dimension too. Other countries that are working on these issues — the Czech Republic, Germany, Sweden, and the UK, for example — should be invited to join, as could other countries in the Danube region, the V4 or a selection of partners across Europe. Financial resources for these activities might be available too. The mix of partners might help to learn from the best in class and develop the best solutions for problems that are faced by all.

The most important ingredient for such an effort — irrespective of whether at home or internationally — is a clear political commitment that better regulations are a priority and that steps are taken to implement the results. Furthermore, an appropriate governance structure should be put in place to get results related to this horizontal theme. Broad cooperation across ministries is a must, and there is also a demand for leadership.

Box 3.1: Behavioural economics at the Behavioural Insights Team

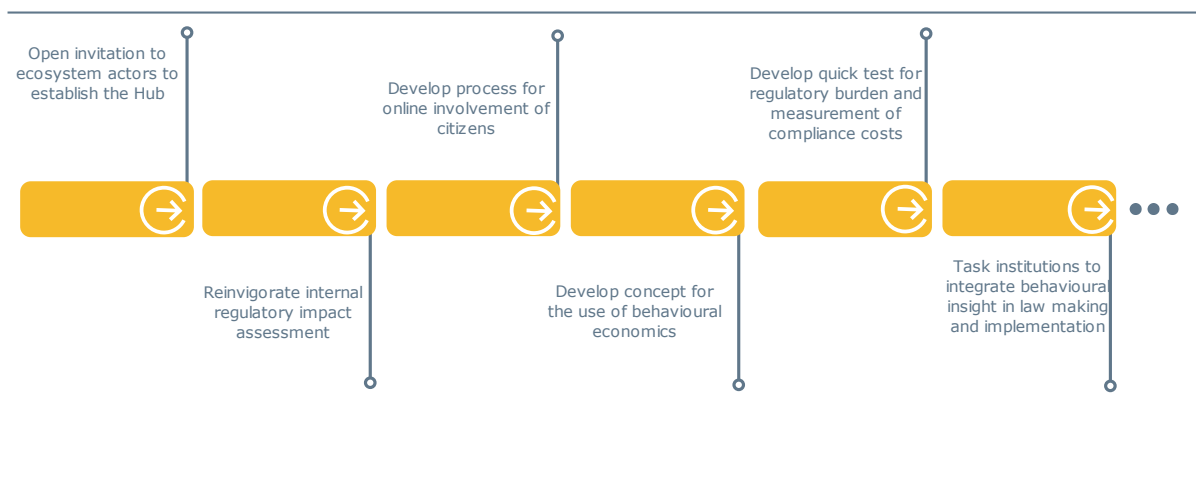
Using the insights of behavioural economics has started to become more widespread in policy making. One of the most prominent examples is the Behavioural Insights Team (BIT) created by the British government about 10 years ago. BIT was tasked with the application of behavioural science in government policy to:⁵⁷

- make public services more cost-effective and easier for citizens to use
- improve outcomes by introducing a more realistic model of human behaviour to policy
- enabling people to make 'better choices for themselves'.

BIT redesigns public services by using ideas from the behavioural science literature. This is done by empirical testing and trialling of these ideas before they are scaled up. This helps to understand what works and what does not work before actually introducing any regulations.

⁵⁷ See for more information <http://www.behaviouralinsights.co.uk/>

Figure 4: Timeline for implementation of better regulations



3.3 Starting a new business

Starting a new business is an international benchmark indicator measuring the importance given to entrepreneurship in a country. The costs, days and procedures required to start a business are important predictors of the number of new firm registrations in the country.⁵⁸

Of course, setting-up a company is just one obstacle each business founder has to master. It is not the most important nor difficult step in this process. A person that is fully dedicated to starting a new business will not back down just because of the steps it takes to register a company. For the less dedicated would-be entrepreneur this might be one step too many in the process of becoming a real entrepreneur — the same can be said about the many other hurdles to take. In any case, countries that want to ambitiously promote entrepreneurship must be among the “best in class” where the time and resources needed to start a business are concerned, because this process signals the attitude and competence of policy makers and the public administration towards entrepreneurship. Thus many countries have made significant efforts to bring down the time and resources needed to start a business. Interestingly, these efforts only pay off if the reforms are substantial and signal credibly that entrepreneurship is really in decision-makers’ focus. Incremental changes will not be sufficient to convince budding entrepreneurs to make this step.⁵⁹

Starting a business is beset with substantial administrative burdens in Slovakia. It takes about 11.5 days according to the Doing Business benchmarking exercise of the World Bank, which results in rank 68 — well below the overall 29th place. The process demands six separate administrative procedures. The “core” procedures can be accomplished at a one-stop shop either electronically or in 50 regional points.

3.3.1 Challenges and recommendations

Slovakia has to bring down the time it takes to start a business. Optimising the processes and reducing the number of steps needed are straightforward. Improving e-government services to speed up the process is also a common strategy in leading countries.

⁵⁸ See Leora Klapper and Inessa Love (2012), The Impact of Business Environment Reforms on New Firm Registration, World Bank Impact Evaluation Series No. 49.

⁵⁹ Ibid.

Recommendation 3.2: Bring the time to start a business down to 3 days — or if Slovakia is ambitious — to 1 day

The European Startup Manifesto Policy Tracker gives a benchmark for the time to set up a business: 3 days. It is thus straightforward to set this as a benchmark for Slovakia as well. If Slovakia wants to be on par with the best in class, the time for setting up a company should be 1 day. Both challenges are demanding, still within reach, but need a redesign of the process itself and a consequent implementation in e-government services. Given that most steps to reach the 1-day target would also have to be done to reach the 3-day target, it is recommended to opt for the more ambitious version.

Recommendation 3.3: Leapfrog in e-government

Any attempt to bring down the set-up time for a company — or to improve the business environment by Better Regulation in general — has to use the opportunities created by e-government solutions to the maximum. Slovakia should leapfrog in terms of e-government and see this use case as instrumental to developing the main e-government services that can then be ported to other areas as well.

The Doing Business studies see New Zealand as offering the easiest way to start a new business. There, entrepreneurs have to reserve a company name, register on an online platform and provide the following information: address, summary, directors, shares and shareholders, constitution, tax registration, and payment of fee. This process can be used as inspiration for the redesign of starting a business in Slovakia.

Likewise, Portugal has managed to bring down the time to start a company drastically. The '*Empresa na Hora*' initiative⁶⁰ is a one-stop shop that makes it possible to create a company in just one hour. During the incorporation procedure, the definitive legal person identification card is handed over, the social security number given, and the company immediately receives its memorandum and articles of association and an extract of the entry in the commercial register.

In Slovakia, some support in starting a business through e-government services is already provided for the core process. The current solution should be further streamlined to support the new process design by already applying the e-government principles laid out in the European e-government Action Plan.

The further development of **e-government** services is quintessential for any effort to reduce the time for starting a company. Both cited examples show that connecting different institutions online (e.g. social security services, company register, tax authorities) offers vast potential to reduce the time to set up a company as well as the resources needed on the side of the entrepreneur and the public sector. This should be seen as a clear and confined use case to demonstrate the huge impact up-to-date e-government services offer. At the same time, it is an opportunity to leapfrog based on the experiences of the best performing countries in this domain, creating a reference case for other yet-to-be-developed e-government infrastructures and use cases.

This should already be seen as a “new generation” service, e.g. defining a clear use case yet staying compatible with the larger e-government infrastructures and services that will be implemented, introducing substantial simplifications, testing the solution before introduction until it is simple enough and working smoothly. Demonstrating how up-to-date e-government services can be sped up, the registration process for startups should lead the way for a broad modernisation of e-government services. Of course, Slovak startups and innovative SMEs can contribute to this

⁶⁰ See http://www.empresanahora.pt/ENH/sections/EN_homepage

process massively, creating strong relationships in the medium term and opening the public sector to inspiration from these groups.

The e-government action plan of the European Commission⁶¹ offers a number of principles and approaches that should guide future efforts to strengthen e-government in Slovakia. The principles of the e-government action plan⁶² are well suited to roll out e-government services on a broad scale. From a pragmatic perspective, it is important to have an overall plan and to add services on a step-by-step basis, i.e. implementing these principles for a very particular area and then scaling the solution once it is proven to work. The traditional approach — i.e. developing the big plan, programming the system accordingly, introducing the system — usually does not work. Here — as in many areas — public administration has to act like a startup. Assessing problems, developing solutions, testing solutions and, once they prove to meet the target, scaling them up.

3.4 Tax system and social security contribution

The OECD reports an overall tax burden of 29.6 % of GDP for Slovakia. In the long run, the tax burden has decreased substantially from 40 % of GDP in the mid-1990s to the present level. The introduction of a flat tax of 19 % in 2004 was well noted internationally. The latter was only adapted and somewhat increased in 2013 (see figure 5) resulting in the first increase overall for the past 10 years.

The Slovak tax burden is substantially below the OECD average of 34.1 % and also below peer countries in the region, i.e. Hungary is above, Czech Republic equal to, and Poland just below the OECD average. Although cross-country tax comparisons should be interpreted cautiously, Slovakia's tax burden is definitively on the lower end of the distribution.

The personal income tax stands at 19 % for incomes up to €35,022.31⁶³ and 25 % for all revenue above this threshold. The corporate income tax is now 22 % after being raised from 19 % to 23 % in 2013.⁶⁴ Rules for carrying forward tax losses have been tightened recently and are now limited to up to 4 years. Dividends are not subject to taxation but have to pay social security contributions of 14 % for all profits up to €51,480.

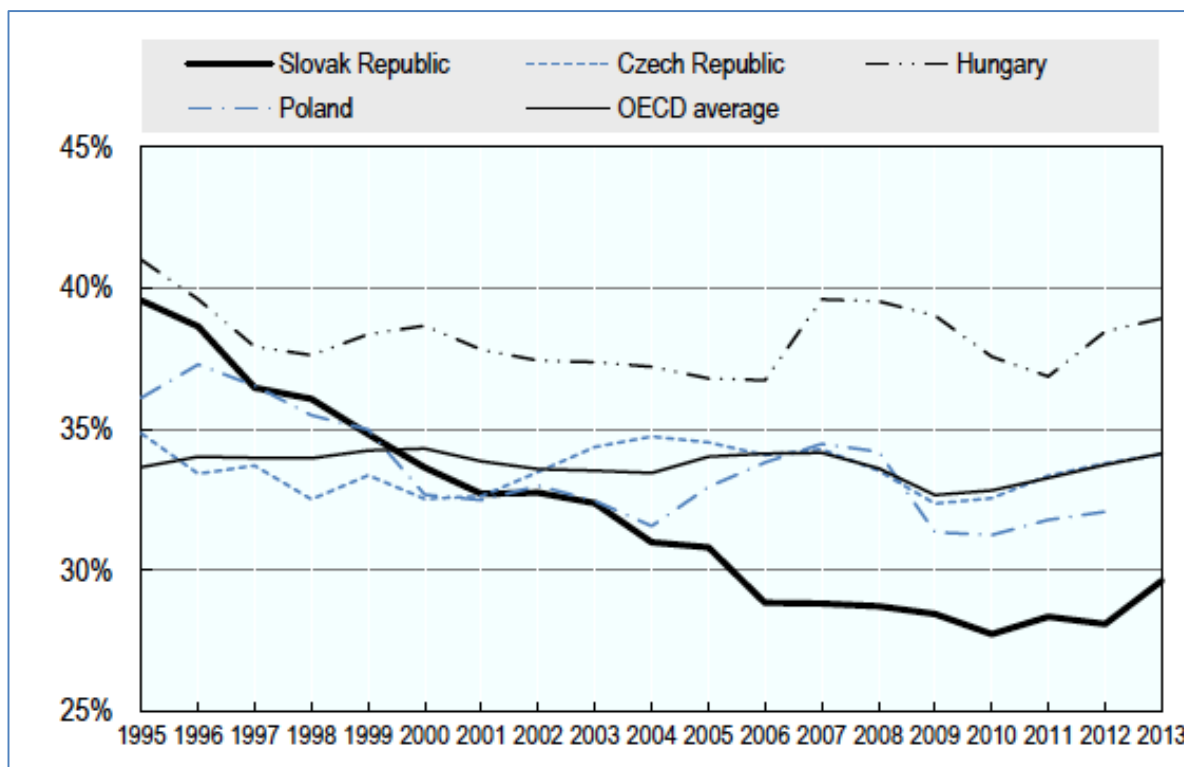
⁶¹ European Commission, eGovernment Action Plan 2016-2020, Accelerating the digital transformation of government, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2016) 179 final, Brussels, 19.4.2016

⁶² These are digital by default, only once principle, inclusiveness and accessibility, openness and transparency, cross-border by default, interoperability by default, and trustworthiness and security.

⁶³ The exact definition is 19 % from all income below 176.8 times the minimal living income, i.e. €35,022.31. The value of the minimal living income remained the same in 2014, 2015 and 2016. For income above this threshold, the 25 % tax rate applies.

⁶⁴ Unprofitable companies have to pay a minimum tax of €480 if they are not yet registered for VAT, €960 if VAT-registered but have less than €500,000 turnover, and €2,880 for those with a higher turnover. The payments can be carried forward for 3 years. Newly founded companies do not have to pay the minimum tax in the first year but only at the end of the second year. Furthermore, the minimum tax will be abolished at the beginning of 2018 so that this is no longer a real burden for startups.

Figure 5: Comparison and evolution of tax burden



Source: OECD, 2015⁶⁵

The tax burden overall is very favourable in Slovakia. There are indications that domestic companies assess the tax burden differently than subsidiaries of foreign companies. A survey by RUZ⁶⁶ suggests that the contributions to the social security system and the tax burden are seen as a major impediment to doing business in Slovakia. This impression is only partly supported by evidence from OECD. The Slovak tax mix deviates substantially from the OECD average, exposing a higher share of social security contributions (13 % of GDP versus an OECD average of 9 %), about average revenues from VAT and corporate income tax (2.6 %, OECD average is 2.9 %) and below average contributions from personal income tax (2.6 % of GDP).⁶⁷ In addition, there is no inheritance tax in Slovakia.

The rates applied for VAT are 10 % and 20 %. VAT registration is obligatory in case turnover is higher than €49,790 over the past 12 months. Voluntary registration is the second option to both deduct and charge VAT.

Innovation and R&D have been promoted by subsidies and R&D tax relief.⁶⁸ Subsidies accounted for 87.9 % of total stimuli (€18.42 million) and were awarded to 21 companies during 2011-2013. The

⁶⁵ Remeta, J., Perret, S., Jareš, M., Brys, B. (2015), Moving Beyond the Flat Tax - Tax Policy Reform in the Slovak Republic, OECD Taxing Policy Working Paper No 22, Paris.

⁶⁶ RUZ (2014), Report on Business Environment in Slovakia, Bratislava.

⁶⁷ Remeta, J., Perret, S., Jareš, M., Brys, B. (2015), Moving Beyond the Flat Tax - Tax Policy Reform in the Slovak Republic, OECD Taxing Policy Working Paper No 22, Paris.

⁶⁸ 185/2009 Act on R&D Stimuli. See also Dömötör, R. Fandl, U., Funke, T., Smorada, M., Šrenkel, L. (2013), Twin entrepreneurs – Bratislava – Vienna, Analysis of a and young companies in the region SK-AT, Vienna Business Agency (VBA) and Young Entrepreneurs Association Slovakia (YEAS), Vienna & Bratislava http://www.twinentrepreneurs.eu/media/file/8_TwinEntrepreneurs_Regional_Study.pdf

Ministry of Science, Education, Research and Sports awarded six companies with stimuli of €8.47 million in the 2014-2016 period.

The new Slovak tax relief scheme for R&D expenditures — enacted in 2015 — allows deductions from the tax base of 25 % of expenditures for R&D, R&D labour costs of newly hired graduates performing R&D tasks and the increase of R&D expenditures over the previous tax period. Using the tax relief scheme does not allow for funding from other sources. The R&D documentation has to be signed by a statutory representative of the taxpayer.

3.4.1 Challenges and recommendations

The tax burden for companies — corporate income tax — and also wealth or inheritance taxes for individuals are very favourable in Slovakia and are no impediment for startups given that they have to be paid only if there are profits to tax.

The story is different for the social security contributions and the overall tax structure:

- The OECD points out that the Slovak system taxes productive activities and only levies small contributions based on land ownership, real estate, property and wealth, etc. thus putting productive activities at a disadvantage.
- Whether social security payments are high or low depends on the services offered in return. While this cannot be discussed here, high social security rates on top of salaries reduce the likelihood that startups will increase the number of employees. Rather, they will find ways to employ their collaborators that avoid or shift social security payments.

Recommendation 3.5: Turn the R&D tax relief into a premium and allow to carry forward taxes for more than 4 years

Here we propose — apart from the simplifications in the business environment described above — to change two small facets in the tax code that may more than proportionally hamper startups, as well as a substantial reduction of social security contributions. The first is to abolish or at least to extend the period for loss carry-forward. The second is to turn the (super) R&D tax relief into a premium. Additionally, social security contributions for the first employee of a company should be abolished to facilitate company growth.

Apart from these general considerations, there is a debate as to whether SMEs or startups should receive special treatment in tax regulation and the social security system. The Startup Manifesto Policy Tracker found 12 countries that have introduced legislation or given special status to startups, mainly by limiting the liability of the company, simplifying administrative requirement, reducing capital requirements or applying special tax rates.⁶⁹ Likewise, a number of countries grant reductions of social security contributions (see also Box 3.3).

⁶⁹ See page 14 and 35 in Osimo, D. and the Startup Manifesto Policy Tracker, 2016 Startup Nation Scoreboard, How European Union Countries are Improving Policy Frameworks and Developing Powerful Ecosystems for Entrepreneurs, <http://www.europeandigitalforum.eu/index.php/component/attachments/attachments?id=311&task=view>

Box 3.2: There are various initiatives across Europe that offer favourable tax and social security treatment for startups

Belgium: almost full exemption for the first employee, gradually lower reductions up to the fifth employee

France: reduction of corporate taxes to young innovative companies, local taxes and social security contributions for up to 7 years if R&D expenditures are above 15 %.

Ireland: tax credit reduces the social security contributions

Spain: €50 social security flat rate for startups

Austria: some reduction of social security payments for the first and second employee

There are issues that are particularly relevant for startups:⁷⁰ The loss carry-forward is possible for up to 4 years. As the first years of a startup are rarely profitable it is very likely that the loss cannot be carried forward in this period. This time frame thus seems arbitrarily chosen and the amounts concerned will be almost negligible. Thus the restriction on loss carried forward should be abolished or extended to at least 7 years for newly founded companies.

Currently, companies can deduct the R&D tax relief from their tax base.⁷¹ In case of a loss, the tax relief increases the loss and may be carried forward for 4 years. While this is not particularly worrisome for established companies that have access to financial resources, it might be another reduction of resources for startups that innovate. For this group the equivalent of the R&D tax relief, i.e. the amount to be deducted multiplied by the tax rate of 22 %, should be offered as premium. Thus startups would receive this amount as a payment from the tax authority and would thus recover part of their R&D investment even in years without profits. The additional costs of transforming the R&D tax relief into a premium are negligible as it only makes a difference for companies that make a loss and do R&D — a small subset of the overall population — and moves receiving this support closer to the date of the actual execution of R&D.

The calculation of R&D expenditures is not straightforward, although clear definitions exist (see the Frascati Manual of the OECD). Despite these definitions, the actual calculation will always be somewhat fuzzy, with room for interpretation. Thus tax authorities and accountants struggle to assess the appropriateness of the calculations. There are at least two ways of dealing with this situation: the first is scrutiny of R&D expenditures by an independent expert institution before the tax relief is granted. In Austria this is done by the FFG — the Research Promotion Agency — based on a small form to be submitted ex post by the company. Alternatively, the claimed R&D expenditures could be accepted by tax authorities but randomly checked by experts. Strong deviations would result in a substantial penalty.

Social security and health contributions are 13.4 % for employees and 35.2 % for companies. The share of social security payments is substantial compared to the other direct taxes and may thus be an impediment for employing people. There is substantial evidence that warrants a special treatment of young enterprises to help them master the first challenging years of setting up their own business. The activities of other countries are ample proof that action is warranted (see box 3.3) — the low survival rates of Slovak businesses provide further support for this argument.

Consequently, incentives to employ people by reducing or abolishing social security payments in the first 3 years for the first employee should be granted.

Turning the R&D tax relief into a premium comes with low or no extra costs for the government. As this is not the case for exempting the first employee from social security, this might trigger a discussion to whom this applies: newly established companies, startups or SMEs. There is substantial overlap between these categories and boundaries are fuzzy. While SME are clearly defined, the demarcation line between startups and newly founded companies are less so. If

⁷⁰ The government will already abolish the minimum tax at the beginning of 2018.

⁷¹ Alternatively innovation expenditures could be the basis rather than R&D expenditure for very small companies.

startups are defined as “a human institution designed to deliver a new product or service under conditions of extreme uncertainty”⁷² then the number of startups in Slovakia is small — at around 50 ventures at the moment. Most of them are at an early stage and searching for product/market fit, i.e. they are in the incubation phase with the intention to scale up once product/market fit is established. Restricting access to the promotion measures suggested above would come with the problem of deciding who is a startup and who is not. Presently a commission set up by the Ministry of Economy has to make this decision. The members of the group are mostly from the public sector. This set-up comes with the risk of having to deal with an increasing number of applications and thus substantial administrative costs if the benefits of being labelled a startup become substantial.

Basically, the group of experts considers being generous to (newly founded) companies that meet the SME definition rather than being selective. As the course of a company is unpredictable, judging who will be amongst the winners does not make sense. Thus newly established firms should meet a friendlier business environment that helps them to establish themselves, grow their business and to avoid red tape and resources in writing applications.

Given the suggestions above, limiting access to support schemes would only be relevant for the reduction of social security payments. All other proposals have negligible budgetary consequences or employ different selection processes (e.g. R&D expenditures). The European reference cases support newly established companies in general rather than startups in the narrow sense. This should also be the suggested way forward here.

If granting favourable conditions to all newly established companies is deemed too generous, access to favourable treatment should rather be dependent on performing R&D and innovation activities. This would be in line with the broader development goals of Slovakia and provide an easier — not easy — base for selecting companies. The procedure should be lightweight for both the entrepreneurs and the public side as well. Consequently, receiving support out of a public R&D scheme (e.g. tax relief for R&D), or receiving a patent, should be a sufficient indication for R&D and innovation activity.

3.5 Summary

Newly founded companies, startups and SMEs are the most vulnerable actors in economic systems and thus more than proportionally hurt by hostile framework conditions. Improving the business environment increases the likelihood of starting a business, extends the life expectancy and — most of all — enables firm growth:

- Improving the business environment is the single most powerful policy line to help the Slovak startup ecosystem develop further and to leverage more specific actions in this domain. While being important, its implementation is also far more tedious than drawing up single support measures. To be successful in creating a friendlier business environment demands strong political support.
- Startup support should focus on all newly established companies rather than selecting a few that are deemed most promising. Given the difficult environment startups face, the high insecurity and unpredictability of success, an additional filter should be avoided. The unpredictability of company success is one of the most important arguments for making efforts to improve the business environment for all. When doing reforms, it is important to do significant changes. Incremental changes will not be noticed by the would-be entrepreneurs. Significant reforms give credibility to the ongoing interest of policy makers in fostering the startup ecosystem in Slovakia and create confidence on the side of entrepreneurs.
- The processes and measures to create a friendly regulatory environment — an important segment of the business environment — are discussed under the Better Regulation or Regulatory Impact Assessment headings and are all in place in Slovakia, but not always performed rigorously. A proper impact assessment of new regulations needs to happen before implementation. Furthermore, we also suggest scrutinising existing regulations with

⁷² <http://www.startuplessonslearned.com/2010/06/what-is-startup.html>

the intention to reduce compliance costs and regulatory burden. The reforms in late 2015 set out to improve the situation and to relaunch the internal regulatory impact assessment process and align it with the political decision-making process. It is still too early to assess the impact of these changes.

- Both processes — the internal regulatory impact assessment and the re-evaluation of existing regulations — should be complemented with (partly already existing) online crowdsourcing processes that bring in the knowledge and experiences of citizens and companies. In a medium-term perspective, online processes only work if decision-makers in the administration and politics are willing to take the suggestions on board. Additionally, the insight of behavioural economics should be injected into the regulatory process and the design of new support measures. A specialised institution could be tasked with this.
- More concretely, we suggest to abolish or at least to extend the period for loss carry-forward, to turn the R&D tax relief into a premium, and to abolish social security contributions for the first employee of a company for 3 years.

4 INCUBATION, ACCELERATION AND COMMERCIALISATION OF RESEARCH

Favourable framework conditions, vibrant startup communities and entrepreneurial mindset are all important features of a startup ecosystem. They are a platform on top of which practical activities supporting startups can be built. These practical activities rely heavily on bringing competences and experience to help startups build their own competences, develop, establish and grow their business, find investors and access funding, identify and meet potential clients, etc.

These startup support services are typically offered by incubators and accelerators. The underlying idea is to provide environments where startups can learn in a systematic way from competent and experienced advisors as well as from other startups facing similar challenges. Co-working spaces are also a part of the startup ecosystem and may offer similar services, but typically rely much more on the initiative of the startup and do not necessarily offer structured support programmes.

International experience of organising incubation and acceleration services is abundant. While incubation and acceleration services were originally funded — and often also provided — by public organisations, many of the most successful incubators and accelerators are today privately managed and increasingly based on business models leading to or already ensuring self-sufficiency.

Incubators and accelerators are often associated with or collaborate with universities, as students and graduates are a population with high potential for finding future entrepreneurs. Student communities supported by experienced serial entrepreneurs, business angels and other private early-stage investors, as well as by the university are often at the very core of the overall startup community.

Universities are increasingly challenged to demonstrate economic and social impact from their research, which means knowledge transfer should receive more attention at universities. As the startup ecosystem and student-driven startup communities develop, commercialisation of university research in the form of spin-off and/or startup companies has started to receive more attention.

4.1 Incubation

An incubator is a collaborative programme designed to help new startups succeed. Incubators help entrepreneurs solve some of the problems commonly associated with running a startup by providing workspace, seed funding, mentoring, and training. Common incubator services include the following:

- Help with business basics
- Networking opportunities
- Marketing assistance
- High-speed Internet access
- Accounting/financial management assistance
- Access to bank loans, loan funds and guarantee programmes
- Help with presentation skills
- Connections to higher education resources
- Connections to strategic partners
- Access to angel investors or venture capital
- Business training programmes
- Advisory boards and mentors
- Management team identification
- Technology commercialisation assistance
- Help with regulatory compliance
- Intellectual property management and legal counsel.

Incubators are usually non-profit organisations, which are run either by public or private entities. Incubators are often associated with universities. Some universities allow their students and alumni to take part in these programmes. There are several other incubators, however, that are formed by governments, civic groups, startup organisations, corporations or successful entrepreneurs.

While some incubators are independent, they can also be sponsored or run by VC firms, government entities, and major corporations, among others. Depending on the sponsoring party, an incubator can be focused on a specific market or vertical. For example, an incubator sponsored

by a bank may only be looking for financial technology startups. There are also all-purpose incubators that consider all kinds of startups, regardless of industry.

In most cases, startups accepted into incubator programmes relocate to a specific geographic area to work with other companies in the incubator. A typical incubator has shared space in a co-working environment, a month-to-month lease programme, and some connection to the local community, university and corporations.

Co-working is a big part of the incubator experience. It can also be split off as its own separate business offering, with co-working spaces charging rent for access to utilities.

While services are the main form of support offered by incubators, there is often also some form of financial support for startups selected to the incubator. This can be in the form of reduced rent or free services, but it can also include money for the startup team.

4.1.1 Incubation in Slovakia

The first business incubators in Slovakia were founded in 1993-1999 by the regional Business and Innovation Centres (BIC). The network of business incubators was financed from the EU pre-accession funds (the PHARE programme). In 2005 two technology incubators were founded in the Slovak University of Technology in Bratislava and the town of Sládkovičovo (western Slovakia). The technology incubators were financed from the PHARE programme and the 'Cross-Border Co-operation Programme Slovakia — Austria' (EU funding).

By the end of 2009, 16 incubators were established in various regions of Slovakia, using state budget support, pre-accession PHARE Programmes, and Structural Funds. In addition, one virtual incubator was established in Rimavska Sobota.⁷³ These incubators housed 214 companies, had a total staff of 64 and an average occupancy rate of 79 %.⁷⁴ Typically, the maximum incubation period was 3 years.

The Slovak Business Agency did a survey on incubator activities in 2011.⁷⁵ The survey found 13 incubators hosting 88 firms. Comparing these numbers to 2009 clearly indicates that the incubator landscape was far from established.

The business and technology incubators struggled in the 2010s in Slovakia. The EU pre-accession assistance helped in establishing incubators, but did not provide finance for the operating costs of incubators and firms. Some incubators used to be financed from municipal resources and found it hard to get funding. The earning model of incubators was based on limited sponsorship, which offered little possibility to develop or offer high-quality incubation services. Available funds were used to subsidise occupant rents and cover the costs of providing a limited set of incubation services.

The incubators were unable to provide complex services to incubated firms (legal services, business planning, technology counselling). The EU-funded schemes focused on less-developed Slovak regions. Hence, most incubators were established by regional governments outside Bratislava, many of them in far-away corners of Slovakia. The technology and/or research-based spin-offs preferred locations close to universities and/or large businesses in Bratislava. Some incubators claiming technology status found it difficult to find real technology firms, and had to accept any firms.

There are currently 15 active business and technology incubators,⁷⁶ of which 7 claimed 'technology' status by 2015. Unfortunately, further analysis of the incubator landscape is quite difficult, because

⁷³ National Agency for development of small and medium enterprises. (2009), The State of Small and medium enterprises in Slovakia in. Bratislava.

⁷⁴ <http://www.bicbb.sk>

⁷⁵ Last available data

⁷⁶ The webpage of the Slovak Business Agency <http://www.sbagency.sk/> lists 18, but 3 of these terminated their activities in 2015.

there is no systematic monitoring system for collecting the relevant information regarding e.g. numbers and turnover of supported firms, support provided by the public authorities, technology profiles, etc.

Given how the incubators have been set up based on public funding, most incubators in Slovakia are operated by or affiliated to regional governments or universities. However, in recent years, privately operated incubators have also been established. Some of these privately operated incubators have extended their activities towards acceleration services. While Bratislava is clearly the main hub of private incubation in Slovakia, there are similar privately operated initiatives in other regions of Slovakia.

As noted before, specific services typically connected to incubators can also be operated as separate services. One attracting increasing interest in Slovakia is co-working spaces. These are particularly active in Bratislava (e.g. Connect Co-working and Brainhouse).

Given the small size of Slovakia and the relatively recent emergence of the startup ecosystem, it is not surprising that the traditional boundaries between incubation, co-working and acceleration have become somewhat blurred. However, this should not be considered necessarily as a problem. It should rather be seen as an opportunity for developing viable and possibly innovative business models, which can allow co-working and incubation to be operated by sufficiently independent and self-sustainable organisations.

The most common earning models for incubators have traditionally been sponsorship and rents. Incubators can have access to cheap facilities, which they rent out with a small profit. Often incubator programmes are funded by government or some other public or private sponsors. This allows incubators to cover their costs of offering the co-working space and incubation services. This also seems to be the dominant model in Slovakia.

The problem with these earning models is that the incubators remain strongly dependent on government funding or funding from other specific public or private sponsors. Furthermore, unless the sponsors link their funding strongly to the success of the incubated companies, the incubator has little possibilities to reward the success of its staff. As a result, attracting qualified staff might be challenging. Should the sponsors withdraw or reduce their funding, the only remaining source of income are the payments from the incubated companies. Often this results in the incubator becoming a provider of real estate and/or consulting services.

Incubators are therefore searching for other earning models. Increasing numbers of incubators are offering their services against some form of success fee or profit sharing. This can be in the form of shares in the incubated company (typically 5-10 %), or a percentage of revenues or profit (e.g. 5 % for a limited time, e.g. 3 years after leaving the incubator, or making first profit and/or up to a pre-defined maximum amount, e.g. €25,000).

The benefit of these success-based earning models is that the incubator can become more self-sustainable and independent of earmarked government incubator funding or specific sponsorship. Success-based profits can also allow the incubator to attract more qualified and entrepreneurial-minded staff, which is likely to further enhance its performance. Incubators are also looking for models where they are less tied to a specific real estate. While co-working space is still at the core of incubation, it doesn't necessarily mean that all startups need to spend all of their time physically in the same location. Incubators can offer part of their services remotely and organise virtual co-working spaces. This allows incubators to provide their services to companies from more remote areas, for example.

The Slovak incubation landscape is fragmented between regionally established public incubators and university-based incubators operating on a traditional incubation approach, and privately managed incubators operating on a more versatile and modern approach.

University-based incubators struggle with attracting the necessary funding and qualified staff. Hence, they can offer only a limited set of incubation services. Due to the lack of sufficient success- or revenue-/profit-based earning models, the operation relies on government funding or local public sector sponsorship. Links to investor, entrepreneur and company networks are often limited. While these incubators are university based or affiliated, the support they get from the university is often limited. Other public incubators established and supported by regional governments and municipalities face similar challenges.

Privately operated incubators, on the other hand, are gaining momentum. Driven by success and profit/revenues, they can attract professional staff. As their track record develops, the potential for private sponsorship increases. They also have good local entrepreneur, investor and company networks as well as some relevant international connections. However, private incubation is still at

an emergent stage and vulnerable. The startup ecosystem is young and populated with a limited number of professionals. Should the ecosystem become less attractive, these professionals can very quickly move into other activities or even outside of Slovakia.

4.1.2 Challenges and recommendations

Based on the previous discussion, the main challenges faced by incubation in Slovakia are related to networking, management competences, appropriateness of incentives, and availability of sufficient resources.

Networking within the Slovak incubator landscape is limited. In particular, university-based or affiliated and regional public incubators struggle at networking with private actors. While private incubators do have international networks, these are relatively limited. There also seems to be limited interaction between public and private incubators. Unlike in many other countries, there is no incubator association in Slovakia. Furthermore, there is no systematic monitoring of incubators and incubation activities, which makes it difficult to see what the impact of incubation is.

Private incubators operate with more versatile and robust earning models, which allows them to attract competent staff. Public incubators struggle in this respect. Their business model relies on continuous external funding. As universities allocate limited or no funding to their incubators, funding relies on government funding or funding from the local municipality, as is the case with regional public incubators. With these limited resources and the sponsorship approach, they find it very hard to attract competent staff with sufficiently strong personal entrepreneurial and startup experience.

As long as the incentives for public incubators remain as they are, i.e. based on external government or local public funding with a focus on occupancy and provision of services, these incubators are not likely to become relevant actors in the startup ecosystem. The key to changing this is professional management. Without it, they are not likely to develop even with significant injections of additional public funds.

Closely linked with professional management, the public incubators need to develop business models, which rely increasingly on success-based fees and/or profits and revenues from successful companies. This will force these incubators to be selective (choosing only the most promising occupants) and allow them to become more independent and self-sustainable.

The objective should be to develop a sufficiently independent and self-sustainable incubator landscape. However, as the earning models are challenging and reaching full self-sustainability is very difficult, there is a valid rationale for supporting incubation with public funding. Given the current incubator landscape in Slovakia, this should be done carefully.

Public support should be allocated through schemes which particularly address the challenges mentioned here, i.e. networking, management competences and appropriateness of incentives. Key performance indicators as well as other rules should emphasise selectiveness and especially focus on success and impact. Funding should be allocated only to incubators which can attract sufficiently professional and experienced managers. Funding should feature requirements regarding networks with entrepreneurs, investors and companies, and with other incubators. These networks should be local and national, as well as international.

Public support schemes should also address the emergent nature of the incubator landscape. What should be done immediately within the next few years is different from what is appropriate policy action after the incubator landscape and the startup ecosystem in general have matured further.

What is particularly important is to understand the dual nature of the incubator landscape. The needs and challenges of university-based or affiliated incubators as well as regional public incubators differ greatly from those of the private ones. Support measures targeted at incubation should address the needs of both in a way that allows both to develop. While competition between incubators should be encouraged to a degree, support measures should avoid unfair competition with the help of public funding. Furthermore, access to generous public funding often discourages the development of real and sustainable earning models.

Ministries and agencies should carefully monitor the development of the incubation landscape. For this purpose, they should facilitate the setting up of a systematic online monitoring resource. This resource would be managed by the Connecting Hub and provide real-time data on incubators and their activities, as well as incubated companies and their progress and success. This would provide the necessary evidence to support further policy-making and potential support-scheme changes.

Recommendation 4.1: Establish a success- and demand-driven support programme for professionally managed incubators

The proposed approach allows the development of both public (i.e. university-based and affiliated incubators as well as regional public incubators) and private incubators, while addressing all current challenges in the Slovak incubator landscape. An annual open call for the accreditation of incubators should be initiated following demand-led funding and implemented by a private institution.

The recommended programme should include the following features:

1. An annual open call for the accreditation of incubators.

The accreditation would be provisional for the first 2 years, after which those incubators that show good performance would be given a permanent accreditation.

The criteria for accreditation may include:

- Sufficient knowledge, competence and experience in entrepreneurship and incubation activities
- Access to and knowledge of regional and national networks of entrepreneurs, investors, and relevant service providers
- Access to and knowledge of relevant international networks to provide access to international investors, accelerators, potential customers and sources of market knowledge
- A clearly defined and credible business model for allowing the incubator to become sustainable over time
- Ability to attract funding and other support from local investors, HEI, companies, etc.

This feature addresses the challenges related to professional management competences and networking.

2. Demand-driven public funding support for incubation.

This could take the form of a startup incubation voucher (or an incubation grant) made available for companies that are accepted to accredited incubators. The voucher could be e.g. €5,000 per company for the incubation period. We propose a maximum incubation period of 2 years with the possibility to extend this to max 3 years in cases where time-to-market is exceptionally long. This would cover (fully or partially) all incubation services offered by the incubator. The applicant is the startup, but getting the voucher (or grant) is conditional to being accepted into an accredited incubator. The money can only be used for buying services from the incubator.

Consider offering a guarantee for new incubators without previous activities. This could be in the form of startup incubation vouchers, small grants or soft loans given to incubators during the provisional 2-year accreditation period. The amount of this guarantee could be e.g. 50 % of maximum capacity, i.e. equivalent to the income generated by 10 companies in the incubator.

No other earmarked public funding should be offered. Incubators may attract further support from local or corporate sponsors to cover their operational costs and offer more extensive services. This can be in the form of low-rent space (e.g. offered by a local university or municipality), access to specific facilities (e.g. university research infrastructures), or direct financial support. Otherwise, the incubators should be able to cover all their costs with the fees they get from companies and revenue/profit shares they get from successfully incubated companies (Feat 3).

This feature addresses the challenges related to appropriate incentives (paying/demanding customers) and sufficient resources.

3. A model where the incubators can get additional income from successful cases.

For example, incubators could receive a small percentage of the company's revenues for maximum 3 years after they leave the incubator, up to a maximum sum, e.g. €25,000. This would mimic the sweat equity model sometimes used for providing services to (typically

cash-poor) startups, i.e. the service provider is given shares or a share of revenues/profits against the work they have done for the company.

This feature addresses the challenge related to appropriate incentives.

4. Privatisation of incubation activities currently planned for the National Business Centre network.

Instead, assign a supportive role for the business centres with respect to incubators. This role may include:

- Coordinate a group of entrepreneurs in residence from the National Business Centre in Bratislava. These would be offered as an additional resource to all incubators e.g. via teleconferencing.
- Support the networking activities of Slovak incubators, both nationally and internationally. Support setting up joint activities within the incubator network. While the National Business Centre may manage these at the beginning, in time these should be transferred to be managed by the incubator network itself.

This feature addresses the challenges related to networking and fragmentation, and more specifically avoids unfair competition between public and private incubators.

5. A limit for the maximum number of companies per incubator.

The limit could be e.g. 20 active startups at any given time. This will encourage selecting only the most promising companies by the incubators.

This feature addresses the challenge related to appropriate incentives.

6. An association of accredited incubators.

The accredited incubators should be encouraged to establish an association to further enhance networking and collaboration, as well as exchange of good practices. The association should be supported in its efforts to establish an action plan for joint activities. This should include at least the development of success-based earning models and joint training activities.

The association should also be encouraged to set up a network of entrepreneurs in residence in specific thematic areas. This network would be available to serve companies in all incubators via teleconferencing. This would allow incubators to serve a wide range of startups with access to specialised competences through the entrepreneurs in residence network.

This feature addresses all challenges, but later on especially networking.

7. Awareness raising and communication.

This should include a roadshow to increase awareness of international good practices in incubation, showcase success stories, and market incubators to entrepreneurs, investors, companies and potential sponsors. The roadshow is also important in communicating the new programme to the incubators, especially the accreditation criteria and process.

This feature addresses all challenges, but later on especially networking.

8. Real-time online monitoring.

The association of accredited incubators should also be required to set up an online monitoring system, which would allow its members as well as relevant ministries and agencies to monitor the performance of the accredited incubators in real-time.

This feature addresses all challenges, but later on especially networking.

The rationale for this recommendation is based on international experiences, on the fundamental character of the startup ecosystem and its key drivers, and the resources currently available and the maturity of the ecosystem, especially in relation to incubation activities. International-level big universities in some countries have been able to develop successful incubators. However, more often university-based, regional or other publicly operated incubators have proven less successful. Especially in a small, relatively immature ecosystem, with limited if any prior experience or success from incubation activities, the time needed to develop well-functioning incubation structures

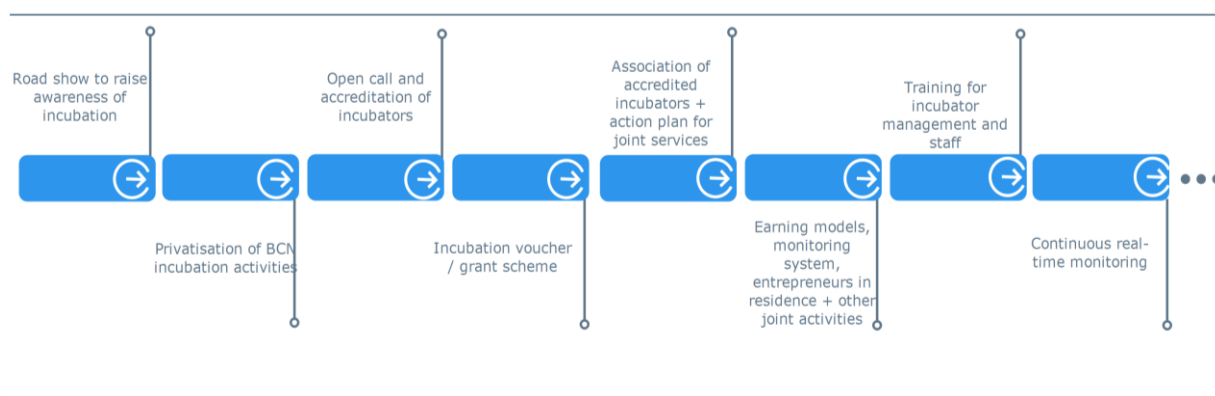
around universities by universities would be quite long. The existing regulatory and governance barriers would further hinder this development.

Therefore, the proposed approach is to rely on a more business-oriented programme in building and managing incubators. This approach builds on already existing and emerging private activity, avoids competing with it, and can in the longer term better ensure sustainable operation with less public funding or investment. Furthermore, it also allows and encourages universities to develop more professionally managed incubators.

Estimating that 10-15 incubators would get the accreditation, the total funding needed at full capacity (20 companies per incubator at €2,500 per year) would be €500,000-750,000 per year. Assuming that not all incubators would run at maximum capacity at the beginning, the funds needed for the first year would probably be at around €250,000-350,000 and would increase to €500,000-750,000 per year during the second or third year.

We propose the implementation timeline illustrated in figure 6.

Figure 6: Implementation timeline for incubation



4.2 Acceleration

Accelerator programmes usually have a set timeframe in which individual companies spend anywhere from a few weeks to a few months working with a group of mentors to build up their business and avoid problems along the way. Y Combinator, Techstars, and the Branderly are some of the most well-known accelerators in the USA.

Accelerators start with an application process, and the top international programmes are typically very selective. Y Combinator accepts about 2 % of the applications it receives and Techstars has to fill its 10 spots from around 1,000 applications.

Companies are typically given a small seed investment, and access to a large mentor network, in exchange for a small amount of equity. The mentor network, typically composed of startup executives and outside investors, is often the biggest value for prospective companies. Mentors advising specific companies may also have some form of profit sharing arrangement, e.g. small equity share.

Accelerator programmes typically end with the startups from a particular programme pitching at some sort of demonstration day attended by investors and media. At this point, the business has been further developed and vetted, making it more attractive for investors.

A company enters an accelerator typically only after it leaves an incubator. This may happen immediately or after a couple of years. Whereas a company residing in an incubator typically develops its product or service and its business model, an accelerator helps a company to access international markets and scale up its business.

4.2.1 Acceleration in Slovakia

Private actors in the startup ecosystem, like The Spot and Rubix Lab offer a range of services, which also cover what typically is offered by accelerators (scoping of international markets, identification and introduction to potential international clients, pitching events, etc.). However, these should be regarded mainly as co-working spaces, incubators and other startup service

providers with extended service offering, rather than dedicated accelerators. Besides these, there are no other public or private actors in Slovakia offering acceleration services.

Developing acceleration services needs therefore to start more or less from scratch. This has both disadvantages and advantages. Disadvantages are mostly related to the availability of experienced startup entrepreneurs and early-stage investors. The limited number of these local professionals means that international mentor networks will have to be built. As individual companies aim for different markets with different products, the mentor network has to be quite extensive. Top accelerators typically have over 100 mentors actively participating in their programmes and often many times that in their networks. Furthermore, the deal-flow in terms of companies that are ready for acceleration is still relatively small in Slovakia. This means that operating an accelerator in Slovakia for Slovak companies cannot be very selective. Due to this, the quality of companies is likely to be much lower on average than in accelerators elsewhere. Hence, the accelerator would have serious difficulties in gaining international recognition, attracting high-quality international mentors, and international or even local investors.

The advantage of starting from scratch is that there are no existing institutional barriers, organisations or practices. This means that introducing policy actions and support measures for acceleration is less likely to face opposition. Furthermore, the acceleration can be developed based on a sufficiently in-depth understanding of the Slovak startup ecosystem.

4.2.2 Challenges and recommendations

The main challenges related to developing acceleration services in Slovakia are:

- Insufficient deal-flow
- Access to competent international level mentors
- Access to potential corporate customers
- Access to experienced early-stage investors

There are, however, some strengths in the Slovak ecosystem. Particularly the presence of large multinational corporations, which can act as demanding first customers offering quick access to international markets. There is also potential in an increasing deal-flow as the startup ecosystem develops.

For acceleration to be successful, it needs to be closely linked to international investor and customer markets. Based on the strengths and weaknesses described above, we propose a dual strategy. This strategy builds on Slovak strengths, addresses the weaknesses and strongly features the necessary international dimension.

The first part of this strategy is establishing a brokering service assisting Slovak companies to apply and access to international accelerators. This offers companies access to the highest quality of mentoring, and international top investors and corporate customers, with relatively small public investment. In time, if the volume and quality of deal-flow increases, this may also attract some international accelerators to establish subsidiary activities in Slovakia. In any case, a number of startups will have to move out of Slovakia once they become successful in order to seize global opportunities and be closer to important customer segments and hotspots in their industry.

The second part of the strategy focuses on the multinational corporate strength of Slovakia. Based on multinational corporate presence and interest in Slovakia, the government could offer the possibility to support the creation of a single privately operated accelerator in a selected smart specialisation area. This accelerator would offer its services internationally, not just to Slovak companies. The attraction would be based on the interest and support of the multinational corporations active in Slovakia. The accelerator should be managed by an experienced international team, perhaps even one from an existing international accelerator in collaboration with local partners. If this single accelerator proves successful, other similar accelerators could be considered in other smart specialisation areas later.

In view of this proposed strategy, all plans to establish publicly operated or funded accelerators should be reconsidered. Based on our analysis of the Slovak startup ecosystem, it is not likely that any attempts to establish Slovak-operated accelerators for Slovak companies would be successful at this stage.

Recommendation 4.2: Provide access to top international accelerators

The proposed approach allows Slovak companies to access top international-level acceleration services with limited national investments. The approach strongly supports the internationalisation of the Slovak startup ecosystem.

Recommendation 4.3: Establish an international accelerator in Slovakia

The proposed approach builds on the strong presence of multinational corporations in Slovakia. It explores the possibility of establishing an international accelerator capable of attracting foreign startups to Slovakia. The approach strongly supports the internationalisation of the startup ecosystem.

The key features of the recommended approach are listed below. All these features address the challenges related to access to competent international level mentors, access to potential corporate customers, and access to experienced early-stage investors. In time, they will indirectly also address the insufficient deal-flow.

1. An open call for setting up a brokering service for startups and potential growth SMEs to help them select and access the best international accelerators.

This should be a privately managed service with formal or informal agreements with best international accelerators. The earning model used to cover the costs would be based on a service fee paid by companies accepted to the international accelerators. The broker would not get any fees from startups that are not accepted. Hence, this will encourage the broker to be selective and offer its services only to the most promising startups.

Criteria for the selection of the service provider may include:

- Knowledge of best international accelerators
- Agreements and other arrangements with the best international accelerators
- Knowledge of the national startup ecosystem and its key activities
- Model for evaluating companies' readiness to enter international acceleration
- Model and competence in coaching companies to make them ready for international acceleration.

2. A funding scheme for companies accepted into international accelerators.

The funding would be applied by the startup after it has been accepted into the accelerator. The funding should cover 100 % of costs (e.g. *de minimis*) or at least a relatively high share (not less than 80 %).

Funding could cover the cost of acceleration and a service fee to the national service provider, e.g. €15,000 per accepted company, of which they would pay €5,000 to the broker.

Assuming a volume of 20 companies per year get access to an international accelerator via this service, the needed funding allocation would be €300,000 per year. The share of the service provider would be €100,000 per year.

3. An international open call for setting up and managing an accelerator in a specific smart specialisation area.

This would initially start by selecting only one accelerator, collecting experience, adjusting the model if necessary and opening potential future calls later.

Criteria for the selection of the accelerator may include:

- Convincing international track-record of setting up and managing successful acceleration activities

- Knowledge of the startup ecosystem and its key activities, industry and international corporations, and scientific research in Slovakia, with a specific focus on the selected thematic area (smart specialisation)
- Business model ensuring sustainable operation in long term
- Models for evaluating companies' readiness to enter acceleration, coaching companies, introducing companies to international investors and potential customers, etc.

An initial period of 2 years should be allowed, during which the accelerator should be able to build up and stabilise its business models and key activities.

The proposed business model may also include pre-acceleration for screening the most potential companies.

The accelerator should be required to establish an early-stage venture capital fund to allow it to make investments into the most promising accelerated companies. Alternatively, if the accelerator is able to collaborate with local and international investors and venture capital funds, the accelerator may use the sweat equity approach and take shares against acceleration services. The financial instruments used should encourage follow-up investors to give partial or full exit from these investments. These may include royalty or revenue-based reimbursement models. The business model proposed by the accelerator should feature a significant share of income from investments after the initial 2-year period.

4. A funding model for companies accepted into the international accelerator operating in Slovakia.

This funding model could be based on the following two components:

- A company accepted to the accelerator will get a grant (e.g. €50,000) allowing them to develop their business and pay for the acceleration services.⁷⁷ Allow maximum 20 % of this to be used for services provided by the accelerator itself during the initial 2-year period. After that, reduce this percentage to zero over time.
- Best company or companies can get up to €500,000 matching (50/50) investment from the public venture capital fund after the acceleration period

Assuming that this accelerator manages two batches of companies per year, with maximum 10-15 companies in each, the funding needed would amount to €1-1.5 million per year in grants and €1-2 million in matching venture capital investments.

Features 1 and 2 cover the first part of the dual strategy, while the second part is covered by features 3 and 4. Given the current context, the first part of the strategy should be implemented immediately, while the second part may be implemented 1-2 years later.

Normally, such initiatives should be accompanied with awareness and communication activities, especially as they are new to the ecosystem. However, in this case as there are only single actors (the broker, the accelerator) and their success is strongly based on good networking within the ecosystem and internationally, all awareness and communication activities can be allocated to these actors. No external awareness or communication support is necessary.

The underlying rationale is that the number of companies mature enough for acceleration in Slovakia is not sufficient to allow the necessary specialisation and thereby international level competences in a number of purely national accelerators. The only exceptions from this might be found from specific smart specialisation areas, where strong scientific research competences are,

⁷⁷ While this is easy to organise for Slovak companies, foreign companies may present a problem. However, offering access to this grant would significantly increase the interest of foreign companies to apply to this accelerators, thus ensuring a large enough deal-flow, high selectivity and eventually high quality. If direct grants to foreign companies prove not to be the appropriate approach, funding companies through the accelerator may also be considered. In this case, the accelerator acts as an intermediary, so any fees to the accelerator should be paid separately from the funding allocated to the startup. In the case of structural funds, a justification for sufficient benefits to the region will also have to be established.

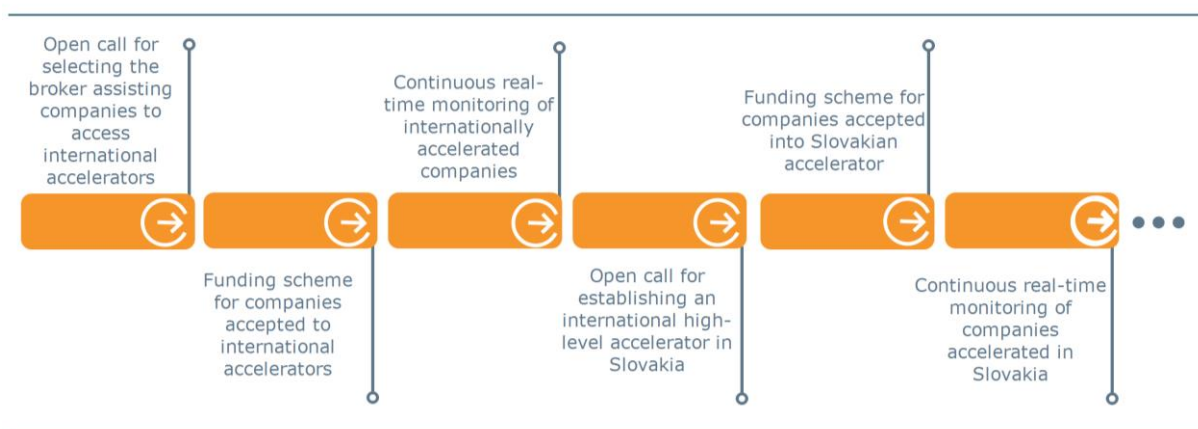
or can be, linked to a vibrant startup community and to large corporations active in Slovakia. However, as the quality of nationally managed accelerators needs to be high and international level, these should be introduced gradually to see if and when the deal-flow matures enough to ensure the necessary quality. Furthermore, the startup and investor community is still relatively small with little or no experience of acceleration. Given that they are already requested to launch several other activities we propose that acceleration would be assigned to an international team.

On the other hand, there are a large number of existing international acceleration programmes that accept companies from all over the world. These accelerators have access to much larger deal-flows, which allows them to be more selective and to specialise in specific markets, applications and technologies. We therefore propose that Slovak companies are supported in making use of these international accelerators, which can more effectively and efficiently provide them with the specific acceleration they need in accessing relevant international markets.

The proposed funding models feature a demand-driven approach with emphasis on success-based remuneration for the managers of acceleration and related services. They also take into account that setting up these services will require an initial investment.

The implementation of the recommended dual strategy should follow a timeline presented below.

Figure 7: Implementation timeline for acceleration activities



4.3 Commercialisation of research

Knowledge and research generated in public research is diffused through a variety of channels — mobility of academic staff and graduates, scientific publications, conferences, consultancy, contract research with industry and licensing. Systematic technology transfer often focuses on research collaboration and contract research with industry and commercialisation via startup companies.

Building the required institutional capabilities at universities is central to public efforts to commercialise public research. Following the Bayh-Dole legislation in the United States — which gave public research institutions incentives to patent and license academic research — many countries have developed technology transfer and licensing offices (TTOs) at universities. However, only a few countries and a few institutions have been able to achieve a solid track record in commercialising the results of public research through TTOs.

Many countries such as Canada, the Netherlands, Germany, and Sweden have combined the institutional and legal support for technology transfer and commercialisation with support to entrepreneurship: university startups, incubators and accelerators, mentoring and training for academic entrepreneurs, and policies to promote venture and angel capital, government seed funds or platforms to link angel investors and SMEs.

One of the most important aspects of technology transfer is IPR. This has been addressed in many countries through targeted support for IPR management through funding, guidelines and skills training. National funding agencies and individual institutions have also made efforts to develop standard licensing agreements for academic research results and to use collaborative intellectual property mechanisms such as patent pools, IP clearing houses, and IP sharing agreements.

4.3.1 Commercialisation of research in Slovakia

Traditionally universities in Europe — especially in Eastern European countries — have focused only on education and scientific research. This also seems to be the case in Slovakia. Universities do not have a legal requirement to engage in commercialisation, or what is often also referred to as the 'third mission' of universities. Subsequently, technology transfer results (e.g. number of university startups) is not recognised or rewarded in the model the ministry uses in allocating funds to universities. Although universities have the necessary power to allocate their funds, the internal governance structures make it virtually impossible to redirect more funds to technology transfer and spin-offs (where there is a strong role of faculties).

Universities do not seem to have systematic — let alone ambitious — technology transfer strategies. Also, there seems to be very little collaboration among universities related to IPR or technology transfer activities.

The legal framework is not supportive of technology transfer in Slovakia. Currently, all IPR resulting from research are owned by the university, but as universities have very little resources allocated to IPR or technology transfer, their efforts to commercialise it are relatively limited. Universities have no shared models for managing IPR or transferring IPR to startups. Furthermore, significant challenges have been identified in using university research infrastructures to address research needs of companies. There are also legislative limitations related to universities holding shares in university spin-offs.

Technology transfer activities at Slovak universities have been developed mostly over the last 5–6 years. They focus mainly on the protection of IPR, which — although necessary — is a relatively limited view of technology transfer. One national and eight regional technology transfer centres offer support in patenting as well as in searching for partners and marketing technologies.

It is not clear what the role of the technology transfer centres in universities is. The technology transfer centres report very little success, while individual universities seem to have much more experience and results. For example, TU Bratislava has been actively supporting entrepreneurship for the last 10 years, and during that time has worked with 50 startups, has shares in 6–7 companies and produced over 40 patent applications last year. TU Kosice has started more recently and has 8 startups in its centre, 4 of which have received venture capital funding.

University students seem to be linked to the entrepreneurial communities. However, university staff is typically not. Universities don't seem to offer any support for students or researchers when they want to explore the possibility to become entrepreneurs and set up spin-off companies. Models such as the EXIST programme⁷⁸ in Germany could be considered.

The Slovak government has already identified several of these challenges.⁷⁹ In 2011, the government's knowledge-economy strategy MINERVA 2.0 highlighted specific measures addressing commercialisation of research. These included the implementation of a unified national system for technology transfer, designed to support and manage the commercialisation of intellectual property generated in academia. The system was aimed to focus on technology transfer through licensing and the formation of spin-offs. It was supposed to be a system consisting of a national centre (its role will be to perform some of the role of the existing institutions or a newly created institution) and universities and other research institutions that would ensure their interests in the commercialisation of their research outputs and development and protecting the rights of intellectual property.

MINERVA 2.0 also recognised the need to address the regulatory regime. It foresaw the implementation of a new unified legislative framework, including specific legislative changes concerning the intellectual property in the academic and research spheres. A detailed analysis of the legal environment of the Slovak Republic concerning the IP in the academic and research

⁷⁸ <http://www.exist.de/EN/programme/About-EXIST/content.html;jsessionid=85FC470026D861F8440AD101CADD62F9>

⁷⁹ <https://www.oecd.org/sti/outlook/e-outlook/sticountryprofiles/slovakrepublic.htm>

spheres was to be prepared in cooperation with a specialised international expert institution. The relevant Slovak legislation (interaction of IP law, acts governing the management of state property, acts governing the operations of universities, etc.) was to be compared to best foreign practices. Internal IP rules, employment and other contracts between universities, their employees and related firms was to be compared to the best foreign TT practices. In addition, model guidelines and contracts that would motivate Slovak universities and their employees to support applied research and technology transfer were to be prepared.

It is not clear to what extent the MINERVA 2.0 strategy was eventually implemented. There are little signs of implementation or impact regarding these two technology transfer-related initiatives. The challenge — it seems — is more related to the ability and competence to implement reforms than not being able to identify barriers or how to address them.

On a more positive note, it should be recognised that entrepreneurial topics are and have already been introduced at all levels of the education system. Furthermore, as in many other countries, the entrepreneurial activity inside and around universities is developing fast among students. In time, this is likely to change the culture at universities to be more conducive for entrepreneurship, startups and technology transfer. Our other recommendations related specifically to incubators will — if adopted — further support the development of entrepreneurial and startup support and culture at and around universities.

It should also be noted that universities are able to show some technology transfer results. Although these are relatively modest so far, they are noteworthy as they have been achieved in quite challenging framework conditions.

4.3.2 Challenges and recommendations

The main challenges in Slovakia with respect to commercialisation of research are:

- legal barriers (e.g. no recognition of commercialisation in university regulations or funding model, university ownership in startups);
- governance barriers (e.g. university internal model of allocating funds, use of research infrastructures for commercial purposes);
- barriers related to existing practices and culture (e.g. lack of systematic or ambitious technology transfer strategies, lack of systematic technology transfer processes, lack of collaboration between universities, lack of shared technology transfer models);
- lack of competences (e.g. IPR, entrepreneurship);
- insufficient commercialisation support networks (e.g. investors, entrepreneurs);
- lack of commercialisation incentives and support for students and staff.

To address these challenges, the government should consider the actions listed below. This list is not exhaustive, but rather indicative of the possible actions government could take in order to address the current barriers and challenges related to the framework conditions.

- Reform university regulations to recognise and support tech transfer, and remove existing regulatory barriers, e.g. university ownership in startups.
- Require all HEI to establish a technology transfer strategy and action plan.
- Support university technology transfer only with matching external funding, i.e. the same amount the university invests itself.
- Support the development of joint university technology transfer principles and processes.
- Establish common principles concerning university spin-offs.⁸⁰

⁸⁰ This should be done keeping in mind the simple principle that as long as the project is inside the university and doesn't aim at developing a business for the university itself (e.g. university managed testing, research or other service), it can be fully funded from public funds. As soon as it is transferred out of the university, it is

- Establish a model and clear rules concerning the use of research infrastructures for commercial purposes.⁸¹
- Establish feasibility grants for students and researchers.

Framework conditions for commercialisation of research are obviously not very developed in Slovakia. As the list above indicates, several measures could be taken to improve the conditions. Many of the barriers and challenges referred to here have already been recognised in earlier studies and strategies, some with specific planned actions to address them⁸². However, very little progress has been made. For this reason, we propose that efforts are made only in selected areas highly relevant for commercialisation of research via startups.

Recommendation 4.4: Improve selected framework conditions for commercialisation of research

The proposed actions address the key barriers to commercialisation of research currently in Slovakia, particularly related to commercialisation via startups.

We recommend that the government takes the following actions, here below, to remove barriers and facilitate the commercialisation of university research.

The first three actions should be implemented without any delays, since they are necessary and not contingent on political or any other high-level decisions. They address challenges related to governance barriers and barriers related to existing practices and culture. Indirectly they also address lack of competences and insufficient commercialisation support networks. Furthermore, they offer a significant potential for improving the framework conditions for commercialisation of research.

The remaining two require more detailed analysis and higher-level or political decisions, hence it will take some time before these proposed reforms can be implemented. However, efforts should be taken to initiate the preparation of these reforms without any significant delays. Especially since earlier strategies and analyses are already available. *The last two* actions address challenges related to legal barriers, governance barriers, barriers related to existing practices and culture, and lack of commercialisation incentives and support for students and staff. Indirectly they also address lack of competences and insufficient commercialisation support networks.

1. Support the development of joint principles and processes for universities regarding technology transfer and spin-offs.

subject to state aid rules. However, as long as the transfer is made according to the rules, the transfer can be made.

Transfer pricing is based on the idea of full market price, but the rules allow quite a bit of flexibility as to how the full market price is determined. It can also be partly or fully covered in the form of shares, options, royalty arrangements, etc. with the spin-off, as long as the value can be argued to represent full market price (taking also into account the risks related to commercialisation). Limited licensing arrangements can also be used to lower the full market price (exclusive licenses are more expensive than those limited to specific applications, markets, etc.).

Often universities with less professional technology transfer capabilities, and concerns related to the use of university facilities to support commercial activities, tend to push students and researchers out to set up their companies too early, even though the entrepreneurial team could work within the university much longer and enjoy the facilities and support it can offer.

⁸¹ Research infrastructures can be used for commercial purposes by establishing separate accounting, with or without joint marketing, through a technology transfer office, a separate infrastructure unit within the university (also with separate accounting) or through a separate university-owned infrastructure company (or a company owned by several universities and research institutes). Normal collaborative R&D projects with industry can be implemented without any limitations.

⁸² See in this context the Slovakia RIO Country Report, the Research and Innovation Strategy for Smart Specialisation of the Slovak Republic (RIS3 SK), and the Smart Industrie for Slovakia report by the Ministry of Economy.

Establish platforms where all relevant stakeholders are invited to develop these joint principles, models and practices. Encourage universities to take leadership in this process. Publish and communicate the results and make any future funding contingent on adopting these. Encourage universities to establish a more permanent platform after this process for exchanging experiences and cross-fertilisation of commercialisation competences and external commercialisation networks.

Besides common principles, the developed model(s) should include impact-oriented key performance indicators (e.g. volume of private investments attracted by spin-off companies, turnover of spin-off companies, number of jobs at spin-off companies, volume of licencing fees, value of research contracts with companies, etc.) as well as templates for relevant contracts (e.g. research contracts with companies, transfer of IPR to spin-offs, exclusive/non-exclusive licencing, etc.) based on the agreed principles.

2. Support universities to establish a model and clear rules concerning the use of research infrastructures for commercial purposes.

Establish a joint university working group with state aid specialists to come up with model(s) for commercial utilisation of research infrastructures. Request DG Competition to confirm that the model(s) comply with EU-level regulations.

3. Require all universities to establish a technology transfer strategy and action plan.

The strategy and plan should be a precondition for receiving government funding. This plan should preferably be part of a university overall strategy and action plan. Offer a template for creating the strategy and action plan, or alternatively offer the possibility to use external assistance in drafting these. The latter can be in the form of international experts contracted by the ministry and made available to universities.

4. Reform university regulations to recognise and support technology transfer.

Identify and remove existing regulatory barriers, e.g. university ownership in startups. Consider revising the university funding model to recognise commercialisation and technology transfer and thus support cooperation with the private sector.

5. Support university technology transfer only with matching external funding.

Funding should preferably be limited to the amount the university invests itself (*pari passu*) in technology transfer. However, given the current conditions, the initial period could also be based on a more favourable matching (e.g. 25/75) and later change to 50/50.

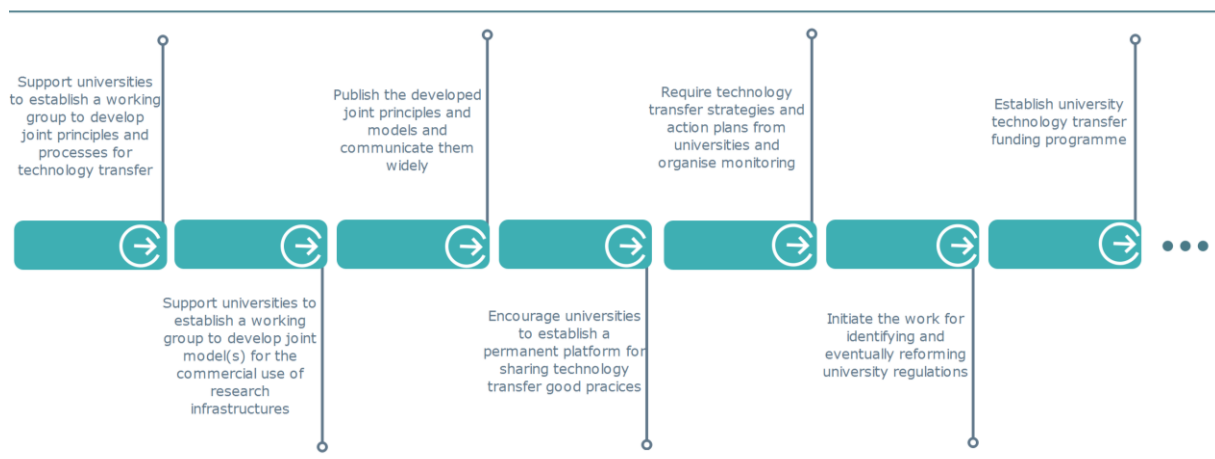
Funding should be for a fixed time only with the aim to develop a more sustainable business model. Funding should be in stages, e.g. (1) 1-2 years for most promising ones, (2) additional 3-4 years for those showing best progress/results during the first 1-2 years. Consider offering preference in funding to joint university initiatives.

The rationale for the proposed activities stems from the fact that technology transfer activities are relatively new to universities. Furthermore, several barriers and problems related to activities have already been identified, but not yet sufficiently addressed. Instead of all universities trying to solve these by themselves, these can much more effectively and efficiently be addressed jointly in collaboration between universities, ministries, agencies, and relevant public sector representatives such as early-stage investors, entrepreneurs and private incubators.

There are several other measures that could also be taken to improve commercialisation of public research. However, unless these problems are properly addressed, these other measures are likely to prove less successful. Once these problems have been sufficiently addressed, further steps can be taken.

The implementation of the recommended actions should follow a timeline presented in Figure 8.

Figure 8: Timeline for the commercialisation of research



4.4 Summary

The Slovak incubation landscape is relatively immature, in transition and fragmented between public incubators operating based on a traditional incubation approach, and privately managed incubators operating on a more versatile and modern approach. Public incubators struggle with attracting the necessary funding and experienced professional staff, and can offer only a limited set of incubation services. Links to investor, entrepreneur and company networks are often limited. Privately operated incubators are gaining momentum. Their management is more professional and they have much better local entrepreneur, investor and company networks, as well as some relevant international connections. Their business models are primarily based on success of incubated companies, thus providing a route towards a more sustainable operation.

The objective should be to develop a sufficiently independent and self-sustainable network of incubators in Slovakia. Any public funding or support measures targeting incubation should be designed recognising the current dualistic character of the incubator landscape in Slovakia, and ensuring that possible policy initiatives don't unfairly compete and thereby stifle the emergent positive development of private incubation.

To address the current challenges in Slovakia, **we propose** that **a success- and demand-driven support programme for professionally managed incubators** be launched. The recommended approach allows the development of both public and private incubators while addressing all current challenges in the Slovak incubator landscape. The programme should be based on accreditation of incubators and limited public funding for companies accessing these.

Only incubators which can attract sufficiently professional and experienced managers/advisors should be accredited. Accreditation should feature requirements regarding local, national and international networks with entrepreneurs, investors and companies, and with other incubators. Incubators should have limited occupancy so as to ensure a quality- and success-based earning model, to ensure longer-term sustainability. Incubators should establish a national association. Government should not operate its own incubators, hence, incubation activities currently planned for the Business Centre Network should be privatised. To support all this, the government should organise awareness raising and communication as well as real-time online monitoring.

The main challenges related to developing acceleration services in Slovakia are insufficient deal-flow, access to competent international-level mentors, potential corporate customers, and experienced early-stage investors. While some private incubators and co-working spaces in Slovakia offer some services typically offered by accelerators, there are no dedicated accelerators in Slovakia. For acceleration to be successful, it needs to be closely linked to international investors and customer markets. The presence of large multinational corporations in Slovakia can therefore be regarded as a strength.

We propose a dual strategy for acceleration in Slovakia. The strategy builds on strengths, addresses the weaknesses and strongly features the necessary international dimension. The first part of the strategy is establishing **a brokering service assisting Slovak companies to apply and access top international accelerators**. This offers companies access to the highest-quality mentoring, and international top investors and corporate customers, with relatively small public investment.

The second part of the strategy is based on multinational corporate presence and interest in Slovakia. The government could offer the possibility to support the creation of a single **privately operated international accelerator in a selected smart specialisation area**. This accelerator would offer its services internationally, not only to Slovak companies. The attraction would be based on the interest and support of the multinational corporations active in Slovakia. The accelerator should be managed by an experienced international team, perhaps even one from an existing international accelerator in collaboration with local partners.

Framework conditions for commercialisation of research could be significantly improved in Slovakia. Many of the legal, governance, competence and networking barriers, as well as challenges related to appropriateness of incentives or existing university practices and culture, have already been recognised in earlier studies and strategies, some with specific planned actions to address them. However, very little progress has been made.

For this reason, **we propose** that **efforts are made only in selected framework conditions highly relevant for commercialisation of research via startups**. These include: (1) development of joint principles and processes for universities regarding technology transfer and spin-offs, (2) support for universities to establish a model and clear rules concerning the use of research infrastructures for commercial purposes, (3) requirement for all universities to establish a technology transfer strategy and action plan. Later on, further efforts should be taken in reforming university regulations to recognise and support technology transfer, and supporting university technology transfer only with matching external funding.

5 ACCESS TO FINANCE

5.1 Introduction

Financial capital is a central part of any (new) company and can be responsible for its continued existence or its collapse. But ultimately, money is just another means to bring entrepreneurs and their organisations closer to their actual goal — namely to create outstanding products and services that satisfy customers, fulfil needs, solve problems and hopefully make the world a better place.

Especially in the early phase, entrepreneurs are very often left on their own. They **invest their own funds** — and often without paying themselves a salary — to get their business going. In addition, they often reinvest the first profits they generate through the sale of their product or service right back into the company. This funding method is also known as "*bootstrapping*". In the early stages, entrepreneurs are often also financed by **loans from their family and friends**. Very often it is the personal connection, trust and faith in the person (rather than the expected return) that motivates these people to financially support the founder.

Business angels are usually successful founders or experienced managers who generated a considerable fortune, and now are willing to support emerging startup companies in their endeavours. They **invest in the early stages** of a new venture and, thus, are closing a gap in the funding landscape, as banks usually do not provide loans to companies in this high-risk/high-gain early phase. For business angels, in addition to altruistic reasons, the return rate and the founder or founding team is central to their decision making⁸³. They pay attention to the background and experience of the entrepreneurs and trust their **personal assessment** of whether he or she "has what it takes" to successfully build the company. For reasons of risk diversification, experienced business angels therefore usually do not just invest in one young company, but in several at the same time (e.g. **investment portfolio**). In addition, business angels support the founders through advice and feedback and open their personal network to them. Thus, they are not only financiers, but also take on an important role as **mentor**.

Many young companies, especially in the web and IT sector, are encouraged to grow quickly in order to stay ahead of their competition and not to lose market share. To be able to **finance the scaling** of the business, many companies need large sums of capital and therefore seek financing from **venture capitalists**⁸⁴. Venture capitalists are professional investors who invest large sums of capital from wealthy individuals or financial institutions (e.g. pension funds) in new ventures. The main interest of a venture capitalist is to **increase the valuation** of the new company they are investing in. If these companies are acquired by a larger company or go public, the **venture capitalist receives a share of the profits** (usually around 20 %). Still, investing in new companies is an extremely risky business and a difficult task — even for experienced venture capitalists⁸⁵.

The **founder** has to be aware that he/she **hands over some control** with any raising of external capital. She/he also has to understand that a liquidation of the company is also possible, for example through a merger or an acquisition. This scenario, however, is usually desirable for all parties involved, since it leads to a financially lucrative exit from the company. The basic legal conditions (share distribution, voice, etc.) for investors, founders and early employees are agreed on in the *term sheet*. In this context it is advisable for all parties involved to negotiate well from the beginning, in order to preserve their own interests.

⁸³ Mason C. and Stark M. (2004) What do Investors Look for in a Business Plan? A Comparison of the Investment Criteria of Bankers, Venture Capitalists and Business Angels, International Small Business Journal, SAGE Publications (London, Thousand Oaks and New Delhi).

⁸⁴ The border between business angel and venture capitalist overlaps both in the services rendered for the entrepreneur and the amounts invested. Empirically 95 % of business angels close deal below €750000 according to the European Business Angel Network (EBAN).

⁸⁵ Freeman J., Engel J. S. (2007). Models of Innovation: Startups and Mature Corporations, Fall 2007, Vol. 50, No. 1, UC Berkeley.

But the role of venture capitalists is not just that of the financier; analogous to the business angel, a good venture capitalist helps a founder to build his company⁸⁶. Active venture capitalists provide **assistance in strategic decision-making and allow access to a wider network of business contacts**.⁸⁷ Moreover, they can help to raise additional finance, recruit key employees and professionalise the company⁸⁸. The assumption that increasing the supply of venture capital will automatically imply better **support for high-tech small firms** is falsified if venture capitalists provide “more money than advice”.⁸⁹

Governments in ecosystems with less maturity in venture capital funding provide capital to **close the financing gap**. This public support is essential to jump-start new business and fund the earlier stages of a new venture. But by doing this too excessively the marketplace for venture financing gets distorted and private equity investors eventually move to other markets. To establish a link to the private investment market is important as the market applies the law of natural selection^{90 91}. Furthermore, developing a functioning ecosystem also requires that public authorities and private companies jointly invest in promising areas and thus co-create the basis for a sustainable innovation landscape and a dynamic entrepreneurship ecosystem together.

Crowdfunding is a method of financing that allows a large group of people, through small sums of money from each, to finance new projects. There are different models that see the paid amount of money as a donation (e.g. *Kickstarter* = *crowdfunding*) or as an investment with participation rights in future profits or in exchange for a reward (e.g. *Conda*, *Seedr*, *Crowdcube* = *crowdinvesting*). Through *corporate venturing*, companies invest in external new ventures who are (potential) business partner or potential takeover candidates. More and more well-known companies (e.g. SAP, Google, Eli Lilly, Samsung, BMW and Novartis) set up so-called **Corporate Venture Capital Funds** in order to be in close contact with innovative, young companies and to establish a relationship with them early on. Other companies, such as Coca Cola, REWE, German Telekom, Telefónica, Frequentis and the New York Times, go one step further and establish **Corporate Incubators/Accelerators** that provide capital, office space, business services and valuable contacts from their network to the accepted companies.

This chapter focuses on request of the Slovak government on three particular issues: building and reinforcing business angel networks, co-investment schemes, and tax incentives for early-stage investors.

5.2 Business angels in startup ecosystems

5.2.1 Kick-starting business angels

A business angel is — according to the definition of the European Business Angel Network (EBAN)⁹² — an individual investor that invests his money directly in startup companies. Business angels make their own decisions, possess enough financial resources to deal with a total loss of their

⁸⁶ Senor, Singer (2001). “Start-Up Nation The Story of Israel's Economic Miracle”. Council on Foreign Relations. April.

⁸⁷ Hellmann, T., Puri, M. (2002). Venture capital and the professionalization of startup firms: Empirical evidence. *Journal of Finance*, 57, pp. 169–197.

⁸⁸ Dushnitsky, G. (2006). Corporate venture capital: Past evidence and future directions. In M. Casson, N. Wadeson, N. Yeung, & A. Basu (Eds.), *The Oxford handbook of entrepreneurship*. Oxford: Oxford University Press.

⁸⁹ Bottazzi, L., & Da Rin, M. (2005), Financing entrepreneurial firms in Europe: Facts, issues, and research agenda. In V. Kanninen & C. Keuschnigg (Eds.), *Venture capital, entrepreneurship, and public policy*. Cambridge, MA: MIT Press.

⁹⁰ Isenberg, D. (2010), “How to Start an Entrepreneurial Revolution” *Harvard Business Review*. Retrieved June.

⁹¹ Isenberg, D. (2011). The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship, Presentation at the Institute of International and European Affairs, May 12, 2011, Dublin, Ireland.

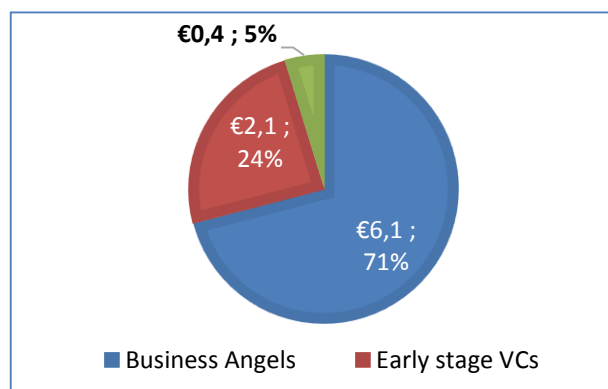
⁹² www.eban.org

investment and provide strategic support for the entrepreneur in a medium- to long-term timeframe.

In Europe, business angels invest 2–3 times more money into **early-stage startups** than do venture capitalists⁹³ and thus play an important role in startup ecosystems — a role that often is misunderstood or underdeveloped for a number of reasons:

1. Business angels are the largest supplier of equity in startups after family, friends and founders. While this is remarkable, the really remarkable trait of a well-functioning business angel system is that the invested money is “smart”. Many of the challenges faced by entrepreneurs are not solved by pouring more money into the venture. Instead the lack of knowledge of how to transform a good idea into a viable business, and the essential know-how of securing access to customers and building distribution networks, are the factors that cause ventures to fail. The equity gap is not just a money gap, it is a skills gap and a networking gap as well.
2. The public sector is often reluctant to support business angels and their investments.⁹⁴ Business angels are considered wealthy and thus further support is not warranted. In reality, European business angels invest about €50,000 per year and the vast majority — 99 % in some estimates — are not millionaires but have far less in their bank accounts.
3. The rationale for supporting business angels lies in the increased investments in innovative products and services that solve problems and foster economic development through job creation. A study⁹⁵ on the impact of business angels concluded that through 3,600 business angel investments studied across 37 European countries, the supported firms grew on average from 5 employees to 16, over a 3-year period. This is an indication that business angel activity creates jobs, retaining high-qualified people in the country.
4. Business angels do not just invest when needed. As most countries lack a business angel tradition — which is mostly restricted to the Anglo-Saxon area — an investment culture has to be developed in the first place. This is a “chicken and egg” problem and thus demands some public action and investments at the beginning. Otherwise, potential business angels will continue to invest their money in “safer” bets like real estate or opt for the stock exchange.

Figure 9: Early-stage investment by business in billions — 2015



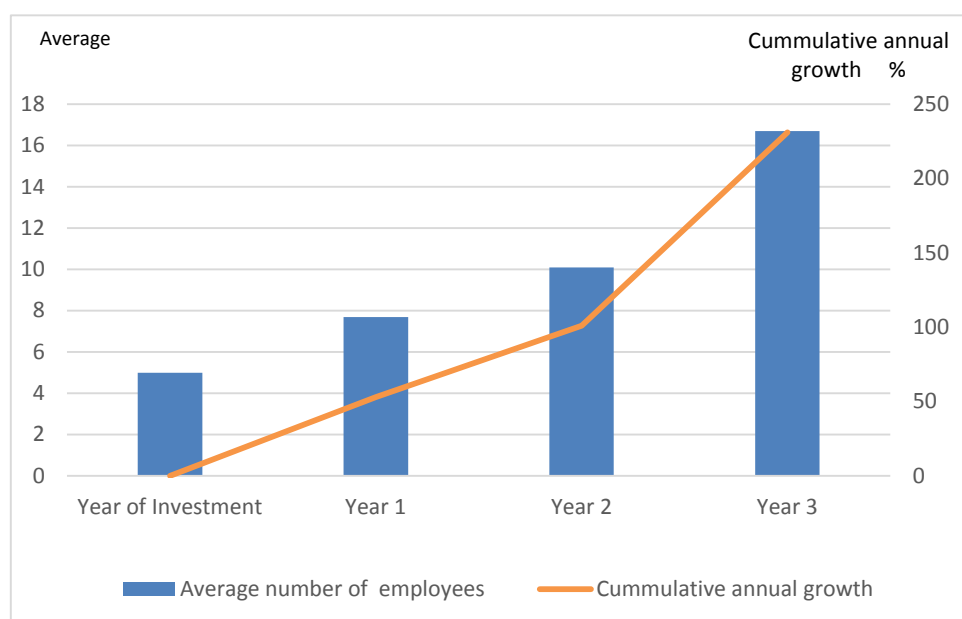
Source: EBAN Statistics compendium 2015 and CrowdSurfer Dashboard

⁹³ EBAN Compendium and EVCA 2014, www.evca.eu or www.investeurope.eu

⁹⁴ Lundström, A., Vikström, P., Fink, M., Crijns, H., Glodek, P., Storey, D., Kroksgård, A. (2013), See Measuring the Costs and Coverage of SME and Entrepreneurship Policy: A Pioneering Study, Entrepreneurship Theory and Practice, May.

⁹⁵ Moreno, L. (2014). The economic impact of business angel investment unveiled, presentation at EBAN Annual Congress, Dublin, 19th May. see <http://www.eban.org/research-the-economic-impact-of-angel-investment/-/V20gKpOLThc>.

Figure 10: Average employment in companies financed by business angels



Source: EBAN⁹⁶

Box 5.1 : Activities to be performed by a business angel network

- Identify potential business angels in the region
- Educate business angels and entrepreneurs on early-stage investment practice
- Raise awareness locally about early-stage investment and attract new business angels
- Take part in the national programme for certification of business angels
- Disseminate national or international programmes targeting business angels
- Support the creation of business angel syndicates (group of investors who jointly invest in one or more early-stage companies)
- Be a contact point for entrepreneurs looking for investors
- Be a contact point for business angels or other business angels' networks looking for co-investors
- Act as filters for potential investment deals and help entrepreneurs to gather important information to be given to business angels. This approach increases the likelihood of investments taking place
- Gather data for analysis.

5.2.2 Business angels and venture capital in Slovakia

Business angels — much like the startup ecosystem — are at an initial stage in the Slovak Republic. There are three business angel networks (BANs): 42 Angels, Business Angels Club Slovakia, managed by the Young Entrepreneurs Association, and Tatrabank's angel network managed in partnership with Crowdberry.

⁹⁶ see <http://www.eban.org/research-the-economic-impact-of-angel-investment/> - .V20qKpOLTHc

There has been no support from the government for business angels so far and the statistics about investment activities are missing. It is thus difficult — apart from anecdotal evidence — to assess the impact of business angels so far. Likewise, success stories are hardly found.

The Slovak government attempted to reduce the early-stage equity gap through a venture capital fund that was managed by the Slovak Business Agency. There are not the statistics available to assess deals, successes, failures, learning for the future, etc.

Additionally, two venture capital funds — Neulogy Ventures and Limerock — targeting early-stage investments were created with the help of EIF (European Investment Fund). This initiative, with the help of the Slovak government, had a very positive impact in the market, bringing private and public money to the early-stage ecosystem. It also brought transparency, as all deals are public and there is some competition to get the best deals.

Still, there is substantial potential to strengthen this facet of the budding ecosystem. Interest in Slovakia for business angel investments is strongly increasing despite — as some commenters mentioned — the general risk aversion of well-off citizens in Slovakia. The missing link is thus not capital but the experience needed to take proper investment decisions that neither harm the investor nor the entrepreneur.

A thriving entrepreneurial ecosystem needs to have well-established early-stage lending mechanisms, and well-established business angels and venture capitalists.

5.3 Creation and support of business angel networks in Slovakia

Business angel networks are important entities in supporting the development of a startup ecosystem in any country (see box 5.1). In ecosystems without a business angel tradition, policy interventions are designed to speed up the creation of networks. These networks are either led by members — sometimes with support by a paid manager — or by a paid manager.

Amongst the various initiatives to support business angels (e.g. UK, Netherlands, France), the Spanish programme led by *Secretaría General de Industria y de la Pequeña y Mediana Empresa*⁹⁷ is considered the most advanced scheme. It is in many ways the blueprint for the recommendations made here.

Recommendation 5.1: Speed up the development of a business angel culture by supporting the creation of business angel networks, help set up a national association of business angels and sponsor a roadshow to popularise the idea.

Accelerating the activities of business angels can be fastened if a concerted intervention is made with the aim to provide more investments for startups⁹⁸. Without such an intervention, startups may be faced with problems in financing early-stage ventures.

Measures to establish a business angel culture would try ascertaining that:

- Business angels know the techniques to invest into early-stage companies.
- Business angels form a community or communities that allow exchange of information and common assessment of opportunities.
- Business angels are increasingly certified and thus reliable and accountable players in startup ecosystems.
- Statistics are available on all relevant activities in the business angel sector.

Training sessions for business angel network managers and business angels will have to be organised to make progress in this direction. Furthermore, certification services for business angels have to be provided by the public sector.

Policies that have worked in one country may not necessarily work the same way, or be as

⁹⁷ <http://www.minetur.gob.es/PortalAyudas/Business/Solicitudes/Paginas/solicitudes.aspx>

⁹⁸ See also the various measures across Europe in the Startup Europe Policy Tracker, section 3.2.

successful, in another country. So it is of utmost importance to analyse local circumstance and constantly monitor the progress of the interventions.

Public support can play an important role in launching associations and networks but it should be structured in a way that sets clear benchmarks or provides incentives for these organisations to move to a self-sustaining model over time. Unlike angel groups, which consist entirely of angel investors, business angel networks (BANs) include service providers and other non-investors. If public support is given to BANs, it is important to make sure the angel networks are generating an appropriate level of angel investment activity.⁹⁹

The creation of business angel networks would be supported by an annual grant that is awarded in a competitive process for covering administrative costs, conditional on meeting the agreed performance goals, e.g. minimum number of business angels in the network, training sessions, investments made (see Annex for a complete list).

Both business angel models (member-led and manager-led BAN) should be able to apply for support. Overall about 6–10 business angel networks in Slovakia may be created in Slovakia, most of them in the bigger cities like Bratislava, Kosice, Zilina, Presov, Nitra, Banská Bystrica.

If a BAN does not meet the minimum obligations agreed upon, funds should be suspended. The minimum obligations and performance criteria should be adapted to each region's potential.

BANs have to take a share of the network management costs and are free to seek other sources of funding for their activities, e.g. as sponsors for events, membership fees, European projects, training events, etc.

Slovak government should launch a call for proposals for the creation and support of BANs through one of the agencies. This agency should organise a roadshow (see annex for more details) in the country, showing the business angels' and BAN's importance and encourage potential business leaders and existing business angels to apply for the creation of a BAN. Businessmen associations, local chambers of commerce, business clubs, etc. should be the target of the roadshow. Potential applicants are encouraged to seek premises without monthly costs and to partner with local municipalities. Potentially, members of a diaspora network could apply as well.

One criteria for receiving funds from this business angel network support scheme is the obligation to contribute to setting up a national business angel federation and being part of it. The federation's main role is to reduce the cost of duplication for certain tasks that would have to be done individually by each network in the absence of an association. The federation also represents the Slovak business angel community vis-à-vis other stakeholders and the government, represents Slovakia internationally, and fosters the establishment of a sound investment culture by providing information on best practices, collecting data on activities and spreading information about the role of business angels with the aim of popularising the idea.

The establishment of a national federation of BANs allows the government to deal with a representative or a delegation of this federation of BANs, rather than dealing individually with each BAN.

The full members of this federation should be business angel networks and investment vehicles (companies created by business angels to invest together). Associate members can be individual investors, banks, governmental agencies, etc. The governmental agency should not be involved in the day-to-day politics of the federation, allowing total freedom for the BANs and investment vehicles to get self-organised.

Given the infant stage of business angels in Slovakia, training courses for network managers and business angels employing experienced international coaches should be organised. Again, part of the costs may be covered by the government but a substantial contribution should come from business angels and BANs.

⁹⁹ See OECD, Financing High-Growth Firms: The Role of Angel Investors, Paris, 2012.

The Federation of Business Angels may — once it is up and running — set up a campaign aiming at activating interest in this activity. The federation should team up with local communities, companies and business angel networks to run this campaign. Structural funds may help cover part of the costs. A blueprint for a campaign “Proud to be a business angel in Slovakia” can be found in the Annex.

In order to monitor the real impact of the activity of business angels in Slovakia, it is important that there is a platform for monitoring the number of angels in the networks, the number of deals submitted to the networks, the funded deals in each of the business angel networks, and the performance of the companies funded under the co-investment scheme (see Box 5.2). Receiving public funds brings the obligation to share the requested data with the monitoring platform for the Slovak ecosystem (see chapter 2 for more details).

Box 5.2: Data to be collected and privacy levels

There are three different levels of privacy of the data collected by the federation of business angels:

- Data on name and fiscal number of companies invested, size of funding per BAN or investment vehicle, and the sectors invested should be in the **public domain**.
- **Internal data** — to be submitted to and published by the institution monitoring the ecosystem — is information on entrepreneurs and companies that received investments (address and contact details, project title, sector) and a list of members of the business angel networks.
- **Private data** that is given to the federation but not the monitoring platform are the valuation of the companies, the terms of those negotiations (e.g. term sheets, valuations, preferred shares, common stock), private data of business angels, details of the projects of entrepreneurs (unless they request to be available online).

5.4 Co-Investment scheme

There is growing interest in co-investment funds that leverage public money with private money and also support the professionalisation of the industry.¹⁰⁰ Governments that implement co-investment have different motivations:

- Co-investing with the “best” business angels to achieve a good return on investment. In this case the government selects 5-15 business angels in one country and co-invests with them. This has a very limited impact in the ecosystem. The EAF (European Angel Fund) in Germany is an example for this mode.
- Co-investing with the existing business angel community to increase the availability of early-stage funding. This allows a larger number of existing and experienced business angels to co-invest with the government. One example is the UK Angel Cofund.
- Creating a community of business angels to kick-start business angel activities. In this case, experienced business men and women with good mentoring skills are invited to become business angels and invest alongside more experienced investors. Portugal created a co-investment fund with this motivation.

Designing a co-investment scheme brings many decisions to be taken by the government. The most prominent concern the mode of investment and the decision-making process:

- Should the government invest directly in the startup or through an investment vehicle created by business angels?

¹⁰⁰ OECD, Financing High-Growth Firms: The Role of Angel Investors, Paris, 2012.

- Should the decision of the investment be decided only by the business angels or should it also be validated by an independent expert group (e.g. Angel Cofund in UK)?
- Downside protection for the business angels or not?

The Dutch Seed Instrument — i.e. the former Technopartner co-investment scheme — is another example of such an instrument where the government invests alongside business angels. It has raised about €40 million annually since 2005. In the Dutch model, at least three business angels create an investment vehicle in which they may invest up to €4 million. The government makes a special loan up to €4 million. This scheme was successfully transferred to Portugal. The experiences of UK Angel Cofund, EAF (by EIF), the Scottish co-investment scheme and EC ICT Pilot co-investment scheme are also relevant for Slovakia and were taken into consideration in our proposal.

Recommendation 5.2: Create a co-investment scheme for Slovakia

In the context of Slovakia, a co-investment scheme would aim at creating a community of hands-on business angels that support Slovak startups. The already existing community is a good starting point for triggering a broader development in Slovakia. The co-investment scheme helps to get business angels out of their “comfort zone”. The scheme should be designed to promote joint investments of business angels, thus reducing the risk of fraud dramatically. The management fees for running the co-investment vehicles should be moderate and thus focus the minds of investors on growing the value of the companies they are invested in.¹⁰¹

At least three certified business angels are needed to apply for funds out of the co-investment scheme. Certified foreign business angels should be incentivised to participate. In case of a successful application, business angels create an investment vehicle (IV) in which certified business angels hold the majority of shares.

Once the investment vehicle is set up, 1/3 of the funds will be put into the vehicle by business angels. Funds will be invested in companies that were established no longer than 5 years ago. Some sectoral restrictions may apply (e.g. banking sector).

Every time the investment vehicle intends to invest in a company, the management authority has 2-3 weeks to analyse the proposal in term of conflicts of interest, obedience of restrictions, etc. In case of a successful evaluation it will transfer two thirds of the resources needed for the deal to the investment vehicle. The latter transfers 100 % of the money to the final recipient. All legal documents to conclude a deal between an investment vehicle and a startup should be standardised and pre-approved by the management authority to avoid high legal costs and to speed up deals.

The maximum loan of the management authority to an investment vehicle should be €500,000, resulting in €750,000 available overall for investments into startups. The loan should have a 10-years’ duration while the investment period of the investment vehicle should be no longer than 3 years. The investment vehicle may charge a management fee of up to 10 % to cover legal costs and salaries of staff but this will not benefit business angels.

When divesting, the split is one third for business angels and two thirds for the managing authority, up to the break-even point. Resources beyond this point are distributed asymmetrically with up to 90 % going to business angels. When applying for co-investment funds, applicants must suggest competitively the asymmetric distribution on the upside, ranging from 35 % to 90 % to business angels.

¹⁰¹ See also priority area 3.1 and 3.2 of the [Startup Manifesto Policy Tracker](#).

Box 5.3: How to certify business angels?

The co-investment scheme and tax relief both require a certification process for business angels. Across Europe various certification procedures can be found that differ depending on the purpose of the certification. For granting tax credits, certification procedures tend to focus more on the financial endowment and income while for co-investment schemes seasoned business angels are preferred.

The certification may be done by the management authority or funding institution, a panel of business angels or a business angel network. Ultimately the state has to set the rules or organise the certification process.

Business angel networks may play a particular role in the certification process as they know investors and thus should be able to testify for a particular investor in the process.

To attract foreign business angels, the acceptance of certification processes should be considered.

A certification process must be in place in due time to allow business angels to get certified in advance of applying for resources. See more on documents to be supplied when asking for certification in the annex.

Box 5.4: International best practice

In Portugal, the government started only after persistent lobbying by the few business angels to develop and implement policies to foster this investment form in 2009. The launch of the business angel co-investment fund saw 70 investment vehicle applications that stood for more than 350 business angels. In the end more than 260 business angels were certified and 54 investment vehicles were approved (€770,000 per investment vehicle). It was a huge surprise for the government to witness the quantity and quality of the applications. Just 3 years after the effective launch of investment vehicles and other policies, business angels became the main source of funding for startups in Portugal. Today, in 2016, business angels are the first option for entrepreneurs looking for equity for their projects. Nonetheless, the business angel community needed this initial support by the government to develop critical mass.

Another example is the UK, the largest business angels market in Europe. British government supported BANs and national campaigns highlighting the role and importance of business angels. Two co-investment schemes¹⁰² — the Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS¹⁰³) — with €128 million (£100 million), and fiscal incentives triggered investments in startups of more than €2 billion in 2014.

Overall two calls should be launched, the first at the end of 2016 or in early 2017, the second in 2019. Assuming that between 20 and 25 investment vehicles will be selected in each round, the initiative will need €27.5 million (including the management fee) from the operational programme. This will trigger at least €27.5 million investment by business angels. Given that the average investment will be around €200,000, more than 250 startups will be financed over the next 4-5 years. In case there is no demand for these resources, the second call should be cancelled.

5.5 Implementation of tax incentives for early-stage investors

Tax credits for investors are an instrument that has been used to increase the level of early-stage funds available in an ecosystem. There is an increasing number of countries that are contemplating the introduction of tax incentives or have already done so. The UK has started such schemes on top of an already mature market for early-stage investment in 1994. While the scheme has been

¹⁰² <http://www.angelcofund.co.uk/>

¹⁰³ <https://www.gov.uk/topic/business-tax/investment-schemes>

successful in terms of money raised, the overall impact — as far as can be inferred from available evaluations — has been mixed:

1. The economic effects of the Enterprise Investment Scheme, its sub-programme Seed Enterprise Investment Scheme (SEIS), and Venture Capital Trusts (VCT) were modest.¹⁰⁴ Companies that received investment showed a significant but very small increase in equity, turnover, employment and labour productivity (only Enterprise Investment Scheme). There was no difference in profits, investments, survival rate, and labour productivity between companies that received investment out of these programmes *vis-a-vis* unsupported companies.
2. The tax loss for every Pound invested in the Enterprise Investment Scheme in the first phase of deployment in the 1990s was between 55-66 cents. Thus the government paid — through tax exemptions for the investment, sale of the shares or loss of the investment — between half and two thirds of the total investment. A level of support that is extremely generous.¹⁰⁵ It has to be noted that this evaluation concerns the first of the Enterprise Investment Scheme. This study also showed that 52 % of the Enterprise Investment Scheme and 87 % of VCT investments were additional.

A recent study commissioned by HM Revenue & Customs (UK Government)¹⁰⁶ surveyed companies that received funding and produced positive feedback:

- The income tax relief appeared to be the key driver of investors' decisions to invest. 79 % of respondents said that this was either very important or essential for the investment.
- The tax-break schemes were linked to increases in sales (a median growth rate of 0.4 %), jobs (a median growth rate of 33 %) and productivity, as well as greater innovation in products and services.
- Only 11 % of the companies felt that their proposed investment would definitely have gone ahead without the tax-break schemes.
- 71 % of investees said that their company had grown. Companies contracted in terms of employee numbers since they first sought Enterprise Investment Scheme or VCT investment in 8 % of cases. Among investees whose companies had grown, 90 % attributed at least part of their growth in employee numbers to their Enterprise Investment Scheme or VCT investments.

Tax relief made investors more willing to invest because the relief meant the value of the investment could fall by a substantial amount before they would start to lose money. While certain investors would have invested regardless of the tax relief — especially those investing for entrepreneurial or philanthropic reasons — they pointed out that the relief enabled higher amounts to be invested. Similarly, certain investors said they had made riskier investments than they normally would due to the tax relief. Overall, the schemes were generally working as intended.

Given the lack of proper evaluations, assessing the costs and benefits of tax-relief schemes for early-stage investments is difficult and far from conclusive. Mazars¹⁰⁷ presented scenarios for

¹⁰⁴ Cowling, M., Bates, P., Jagger, N., Murray, G. (2008). Study of the impact of the Enterprise Investment Scheme and Venture Capital Trusts (VCTs) on company performance. HM Revenue & Customs Research Report 44, Brighton.

¹⁰⁵ PACEC (2003), Research into the Enterprise Investment Scheme and Venture Capital Trusts, Cambridge – London.

¹⁰⁶ Colahan, M. Higton, J., Joyce, L., Klahr, R., Navin Shah, J., Cowling, M. (2016). The use and impact of venture capital schemes, HMRC Research Report 355.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/497288/Venture_Capital_Schemes_report_v11_PUBLICATION.pdf

¹⁰⁷ <http://www.fnaba.org/> and Mazar (2011). Study on the impact on the State Fiscal Revenue of tax incentive of 30 % granted to Business Angels' investments. see http://www.eban.org/wp-content/uploads/2013/09/Study_Mazars_Tax_Break_30-2011_English_Final.pdf

different investment cases (i.e. from total loss to highly successful ventures) and calculated the tax loss due to tax relief granted to investors *vis-a-vis* the increased taxes through new business activities due to startups created by seed money. They suggest that the overall balance for governments is positive even if the investment is a total loss for the investor. In any case, more research is needed for a thorough assessment of tax-relief schemes. This entails a comparison of the impact of tax relief on the supported companies to a control group and an estimation of the additional investments that were triggered by the tax relief.

Recommendation 5.3: Introduce tax incentive only if the other measures don't perform

Presently, tax credits are only relevant for Slovakia if the other suggested measures don't perform. In any case — as pointed out by OECD¹⁰⁸ — tax incentives "...can be difficult to structure and target appropriately so monitoring and evaluation is important. In addition, tax incentives are a hot political topic, particularly in today's economic environment". Thus tax reliefs should not be considered before 2019.¹⁰⁹

Tax incentives have proved to be a good tool to transfer money from e.g. real estate investments or the stock market into startup investments¹¹⁰ but do this at a cost. Tax incentives do not guarantee know-how transfer and networking opportunities for the startups. Hence, the priority should be to develop co-investment schemes first. In any case, the particularities of the local system have to be taken into account when designing tax relief. This is particularly true for Slovakia, which already has a very favourable tax system for investment given that there is almost no taxation of capital gains.

Box 5.5: Tax credits for early-stage investments

- In Turkey, the government has implemented an early-stage investment tax break of 75 % in 2014, but it is only accessible to professional investors registered by accredited business angel networks.
- In Malaysia the government implemented a 100 % tax break for early-stage investors.¹¹¹
- In Germany the government decided in 2014 to implement an investment incentive where investors receive a 20 % refund of their investment in highly innovative companies.
- In Finland, in 2013, the government decided to implement a 50 % tax break, which allows to postpone the payment of the personal income tax bill, until the investor exits the investee.
- In Australia, the government implemented in 2016 for the first time a tax break for early-stage investors.¹¹²
- Portuguese government has just announced (May 2016), a new tax break¹¹³ for early-stage investors.
- In USA, more than 20 states offer early-stage tax incentives.¹¹⁴
- It is clear that the number of countries implementing early-stage tax breaks is increasing.

The sequencing of policy interventions proposed in this chapter is detailed in figure 11.

¹⁰⁸ OECD (2012). Financing High-Growth Firms: The Role of Angel Investors, Paris.

¹⁰⁹ See also action lines 3.2. and 3.3. of the [Startup Manifesto Policy Tracker](#)

¹¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/497288/Venture_Capital_Schemes_report_v11_PUBLICATION.pdf

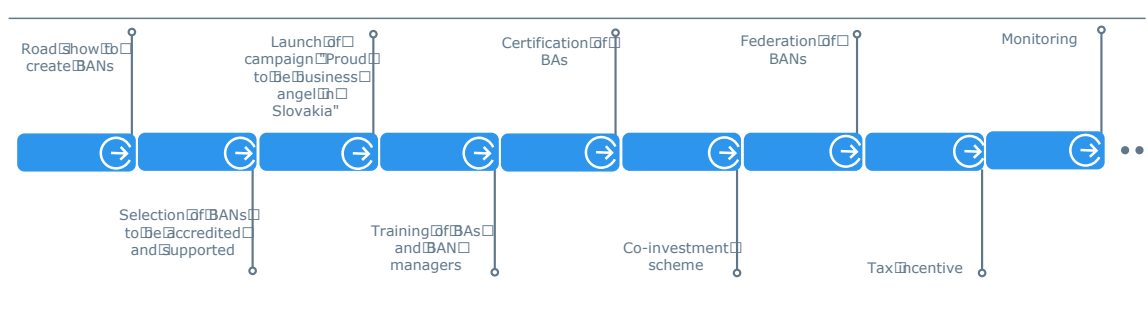
¹¹¹ <http://www.pwc.com/my/en/assets/publications/2016-malaysian-tax-business-booklet.pdf>

¹¹² <https://www.ato.gov.au/General/New-legislation/In-detail/New-tax-incentives-for-early-stage-investors/>

¹¹³ <http://startupportugal.com/>

¹¹⁴ <http://www.angelcapitalassociation.org/>

Figure 11: Timeline of the policy measures



5.6 Financing these recommendations

Developing a business angel culture needs some investments from the public sector at the beginning to increase the number and abilities of business angels in Slovakia. The overall intention is to increase the level of smart money from experienced and networked business angels. This is an important ingredient for the further development of the startup ecosystem.

The amounts needed to start this process amount to €1.7 million between 2016 and 2020 (see table 3). For the co-investment scheme another €27.5 million are demanded but should be repaid once the investments are concluded. The tax loss due to tax incentives does not have a price tag, nevertheless the introduction of this instrument is conditional on the performance of the other measures.

More information on how these amounts were calculated are to be found in the annex.

Table 3: Estimation of resources needed to fund the proposed measures supporting business angels

Budget 2016-2020	EUR
Support to BAs	840,000
Federation of BAs	140,000
Campaign: Proud to be a business angel in Slovakia	220,000
Training sessions	100,000
Certification	20,000
Co-Investment Scheme	60,000
Statistics + platform	200,000
Advisory group	120,000
Total	1,700,000

5.7 Summary

Access to finance is an issue in each and every startup ecosystem. While “old” ecosystems have developed and refined the availability of smart money by business angels and venture capitalists, this is a scarce resource in most budding ecosystems. Slovakia is no exception.

Here a set of initiatives is suggested to create a vibrant early-stage ecosystem. There is — as with most issues — no one perfect intervention that solves the problems, but a bundle of initiatives that have to be introduced in a coordinated way:

- The creation of business angel networks and of a national association of business angels is of great importance and the basis for all further steps. Public support should be given for a professionalisation of business angels, the management of business angel networks and

the national association. These funds should leverage private engagement and be phased out in a medium-term perspective.

- More advanced promotion measures need a group of certified business angels to be launched. The government has to take care that the certification process is in place in a timely manner and allows to start a co-investment scheme in early 2017 and again in 2019. Tax reliefs may be considered should these measure not yield the expected activation of business angel money.

Implementing the suggested initiatives. If the proposed initiatives are implemented, about 10 business angel networks will emerge and a group of 200-300 business angels will start investing regularly in startups.

Assuming that an average business angel will invest around €20,000 p.a. — which is the European average according to EBAN in 2015 — would bring €4–6 million into the Slovak startup ecosystem. Adding public money increases the investment level by €12–24 million annually or the funding of 30–100 highly innovative companies.

ANNEX: DETAILED SUGGESTIONS FOR THE IMPLEMENTATION OF BUSINESS ANGEL MEASURES

Criteria to select and award business angel networks

The following criteria should be assessed in the accreditation and selection process of BANs:

- a) Organisational structure of the business angels' network for the development of the activities covered in the application. The number of business angels in the network and the capital allocated specifically to the development of the activities are taken into account (0–15 points).
- b) Level of activity of the network during the past year. The number of projects received, the number of projects presented to investors, the amount of investment in operations closed and the number of information activities, dissemination and training are taken into account (0–30 points).
- c) National and international implementation. Collaboration with other national and international networks and the capacity to attract foreign investors are taken into account (0–25 points).
- d) Actions defined in the application: definition, objectives, content and appropriateness of the activities to be undertaken to achieve the objectives, planning, resource availability, adequacy of schedule, performance indicators and evaluation, detailed and adjusted costs to the activities described. BANs focused in Slovak smart specialisation sectors have priority (0–30 points).

For entities applying for support to create new networks of business angels, only criteria a), c) and d) are taken into account (weights are 20, 50 and 30 points, respectively).

In order to receive a grant, a minimum score of 50 points needs to be obtained.

According to the evaluation criteria mentioned above the governmental agency should shortlist submitted applications according to the highest scores obtained and award grants till exhaustion of credit available.

The support of the governmental agency should be based on a 4-year agreement and have two components:

1. Fixed: €15,000 per year per BAN, linked to a minimum set of objectives (MSO)
2. Variable: Up to another €15,000 per BAN per year, dependent on performance objectives to be agreed upon between the parties (e.g. amounts invested by business angels of that network in highly scalable companies)

Referring to the Minimum Set of Objectives (MSO) a BAN agrees to:

- attract a minimum number of business angels per year and retain a percentage of existing ones in the network
- provide a specific number of training sessions for BANs and entrepreneurs
- present a minimum number of deals to the business angels of the network per year
- participate as BAN in a specific number of events per year (e.g. as speakers)
- maintain an active webpage
- maintain at least one full-time staff member
- provide data and statistics to the governmental agency
- have a specific number of investments done.

Campaign "Proud to be a business angel in Slovakia!"

It is important to have a campaign in Slovakia to raise the awareness of the business angel activities and its benefits, and explain the business angel networks, etc.

A good international best practice example is "Angels in the City" in UK.¹¹⁵

Without a proper campaign, it will be hard for the stakeholders to comprehend the importance of business angel activities for the startup ecosystem.

The campaign should target some other important markets, like Austria for instance, and all investors around the world are welcome to invest in Slovak companies. Especially also the Slovak diaspora should be included in this campaign.

The title of the campaign can be different to the one suggested, but it should transmit a positive notion of being a business angel in Slovakia.

This campaign should be conducted during last-quarter 2016 and in 2017 by a governmental agency in connection with the business angel networks in Slovakia, in case the federation of business angel networks is not established yet. From 2018 until 2020, this campaign should be managed by the federation of business angel networks (if existent at that time).

It should be organised as a roadshow around the country and in neighbourhood countries, especially in Austria, and should be covered on different types of media: online, offline, events.

Potential business angels should be able to apply to existing business angel networks.

A code of conduct for business angels should be adopted and published online on the portal of this campaign, so potential business angels know the expectations when becoming a business angel.

It is estimated that in 2016/2017 an average investment should be €130,000, while in 2018–2020 the investment should be €30,000 per year just for maintenance of the previous campaign. The amount of €30.000 is suggested based on the experience of national federations in Spain, Ireland, Portugal and Estonia.

Total estimated budget: €220,000

Training sessions for BAN managers, business angels and entrepreneurs

As there is a lack of knowledge in terms of BAN management (e.g. how to map, attract and recruit private investors, how to create a sustainable BAN) and investment readiness, a specific programme should be created to train the BAN managers, business angels and coaches.

If BAN managers do not know how to run a BAN, even with all the money in the world, things will not happen.

In terms of BAN management two training sessions (2 days each) should be envisaged targeting BAN managers. One session should occur in 2016 and the other session could occur early 2017.

At least one training session (2 days) targeting business angels should occur in each of the business angel networks.

At least two training sessions (2 days each) should target the "Train the trainers", in order for the participants to deliver in the future, training sessions on investment readiness for entrepreneurs. These sessions should occur in 2016 and early 2017.

¹¹⁵ <http://www.angelsinthecity.org.uk/about-angels-in-the-city/>

All above training sessions should be delivered by international experienced coaches on the above topics.

It is estimated a global budget of €100,000 for these training sessions.

The tasks of the business angel federation

The business angel federation should deal with the following tasks:

- Represent the Slovakia business angel community in meetings with stakeholders (including the government).
- Suggest changes in laws, rules and regulations that can help the development of the business angel community.
- Represent Slovakia in international organisations and in international events.
- Create a set of documents (e.g. shareholder agreements, code of conduct) that can be shared between all BANs.
- Translate booklets on "*How to invest in early-stage companies*", targeting potential and actual business angels, and "*How to raise money from business angels*", targeting Slovak entrepreneurs. These booklets can be used by all BANs.
- Be the link (matchmaking) between the international community of business angels and the local business angel networks.
- Share international best practices in Slovakia.
- Collect data and provide statistics at the national level on business angel activity in Slovakia.
- Promote relevant international training sessions in Slovakia about angel investment, inviting international experts from different fields.
- Manage the campaign "*Proud to be a business angel in Slovakia!*"
- Help the creation of new business angel networks.

Rules for managing the co-investment fund

The following rules are recommended for managing the co-investment funds:

- At least three certified business angels apply to a public tender to be launched by the Slovak Government/agency. The inclusion of foreign-certified business angels should receive additional points in order to attract international investors. If approved, the business angels create a company — the investment vehicle (IV).
- Certified business angels must have the majority of the shares of the investment vehicle and must have the control of the management of the investment vehicle. This rule allows virgin business angels to be shareholders of investment vehicle and learn with more experienced ones. Control of the management means that the decisions of investment and divestment are taken exclusively by the certified business angels. However, business angels can hire a person or an entity to take care of the administrative issues that happen daily in an investment entity.
- After business angels are selected (by the Scheme Management Authority — MA) based on the expertise of business angels and on the capacity to mentor the companies, they create the investment vehicle, where they will put one third of all the money to be invested in each deal. Target SMEs must have fewer than 5 years of existence.
- There will be several restrictions in terms of the investment: it must be a SME, some sectors will not be allowed (e.g. banking sector), listed companies will not be allowed, conflict of interest will not be allowed, money must be invested in Slovakia, companies must have potential of growth with IRR superior to a certain level, etc.
- There will be a 10-year loan agreement between the investment vehicle and MA, with conditions described below.
- The investment period of an investment vehicle should not exceed 3 years after the signature of the loan agreement
- Every time the investment vehicle wants to invest in a company, it informs the MA, and the MA will have 2-3 weeks to analyse the documents (e.g. verify the conflict of interest,

restrictions) and transfer to the investment vehicle two thirds of the money needed for the deal. The investment vehicle will transfer 100 % of the money to the final recipient.

- The maximum loan of the MA on each investment vehicle will be €500,000 which means that each investment vehicle will have €750,000 of investment in startups to be leveraged
- The investment vehicle may charge 10 % of management fees to cover legal costs and salaries of Investment Vehicle full-time or part-time staff. Management fees cannot be used for the direct benefit of business angels.
- On the divestments, up to break-even the distribution is naturally one third for BAs and two thirds for MA. After the break-even (including the management fee), the asymmetric distribution can go up to 90 % for BAs and 10 % for MA.
- In the applications for the call for tenders, applicants must suggest competitively the asymmetric distribution on the upside, ranging from 35 % to 90 % to business angels

Documents needed for the certification of business angels

Both the co-investment scheme and a tax relief demand a certification process for business angels. Across Europe different certification procedures can be found.

The applicant wanting to apply for co-investment through the co-investment funds, should deliver the following documents:

- CV which can prove that he/she has at least 5-years' management experience or 5-years' experience in investing in startups
- Description of previous early-stage investments (if they exist) and the outcomes of those investments
- Self-declaration stating that he/she has own funds needed for the co-investment and he/she is not insolvent
- Certificate showing that he/she is not owing any money to the state in terms of taxes
- Criminal record showing that he/she was never condemned for mismanagement
- Declaration of an accredited business angel network stating that the applicant is qualified to perform early-stage investments and is a member of the business angel network.

Through one of the agencies, government should accredit the reliable business angel networks to issue the declarations of investment readiness of business angels. These BANs can also be outside of the country (e.g. Austrian Angel Investors Association).

There are three main advantages to certifying the business angels backed by declarations of business angels' networks:

1. Due diligence on reputation of the business angel is done locally by the BAN. Local BANs will be in much better position to testify the respectability of a person than the central government/agency.
2. Skin in the game (meaning that BANs are risking their reputation). BANs will feel responsible if any of its members will not respect rules or try to commit fraud. In this way they will do a good selection of members and they will not always blame the government if something does not work well.
3. Creating critical mass of investors in the business angel networks is very important. Potential business angels should be encouraged to join a business angel network

However, in the case of foreign business angels, or Slovak business angels that are not members of any accredited business angel network, the government should replace the mandatory declaration issued by the business angel networks, by an alternative process that should include a personal interview to the applicant. If the applicant is outside of Slovakia, probably an interview by Skype or other similar tools should be considered.

In order to incentivise people to join the business angel networks, this alternative model should be charged (fee) to individual business angels in Slovakia. For foreign business angels, it should be free of charge.

The certification can be withdrawn at any moment in case there is a change in the situation of the business angel.

There is an estimation of €20,000 for consultancy fees (e.g. lawyers) in implementing this certification process.

Foreign business angels should be invited to be certified business angels in Slovakia. Attracting Austrian business angels should be on the list.

For all the certified business angels, a ceremony could be envisaged where the prime minister or the President of the Slovak Republic could hand over the certificates. This would highlight the importance of those that invest their own money in the success of Slovak entrepreneurs.

How to design tax incentives while avoiding the most common pitfalls

As there are some cons in early-stage investor tax breaks, there is also a set of initiatives Slovak government can implement in order to avoid them:

1. Start step by step. In the first year, only a few sectors (strategic ones referred in the smart specialisation strategy) should benefit from the tax breaks.
2. Create two certification types — one for professional investors (business angels) and another for other individual early-stage investors. With the two certification types in place, the government may allow in a first phase only the professional investors to benefit from the tax break (following Turkish government example). Once the scheme is showing good results, the government should increase the number of investors benefiting from the tax break.
3. In case there are two certification types, there could be a requirement of a lead angel investor (certified as a professional investor) investing in the company or a venture capital fund. This will ensure investor mentoring and networking, as well as realistic valuations. It will also allow non-professional investors to learn from professional investors.
4. Government may allow investors in early-stage companies to only do it through regulated venture capital funds, in order to be able to deduct taxes. In this way, government ensures that the companies receive professional support, as well as that investment terms are market terms, so they don't destroy the market with not being realistic. This situation is also present in the UK through the VCT (venture capital trusts) tax break.
5. Government may create a committee approving the companies who are eligible for tax breaks, and only the innovative ones can benefit from the tax-break scheme. This will reduce the number of companies eligible for the tax break. Only the really innovative and scalable companies will be able to be eligible.
6. In order to avoid losses in tax revenues, when a startup receives an investment, it pays back the same amount of money via tax that was originally claimed by the investor's tax incentive. Although this specific suggestion has not been implemented anywhere, we believe due to the specific environment in Slovakia, it can help to reduce some risks in the implementation process.
7. Allow a maximum of 50 % of the money invested in a company to be eligible for tax breaks. This would mean that startups would need to raise money (at least half from other investors).
8. Constant monitoring of the scheme implementation will allow to stop the scheme at any time if any major problem occurs.

Estimating the costs for a dedicated business angel policy

Activity	Description	Costs
Business Angel Federation	For the support of this federation the governmental agency should allocate €35,000 per year, with regard to a minimum set of objectives (MSO) linked with the role of a federation mentioned above, to be agreed upon between the governmental agency and the federation. The total budget for 4 years (€35,000 x 4 years) is estimated to be €140,000.	140,000
Training for BAN managers, business angels and future trainers	In terms of BAN management two training sessions (2 days each) should be envisaged targeting BAN managers. One session should occur in 2016 and the other session could occur early 2017. At least one training session (2 days) targeting business angels should occur in each of the business angel networks. At least two training sessions (2 days each) should target the "Train the trainers", in order for the participants to deliver in the future, training sessions on investment readiness for entrepreneurs. These sessions should occur in 2016 and early 2017. All above training sessions should be delivered by internationally experienced coaches on the above topics. A global budget of €100,000 is estimated for these training sessions.	100,000
Campaign: Proud to be a Slovak business angel	It is estimated that in 2016/2017 an average investment should be €130,000, while in 2018–2020 the investment should be €30,000 per year just for maintenance of the previous campaign. The amount of €30,000 is suggested based on the experience of national federations in Spain, Ireland, Portugal and Estonia. Total estimated budget: €220,000.	220,000
Legal costs for setting up the certification process	Consultancy fees (e.g. lawyers) in implementing this certification process are estimated to be €20,000.	20,000
Pre-approved legal documents for co-investment scheme	The external costs due to consultancy fees in elaborating all the calls, legal documents, off-shelf documents, etc. are estimated to be around €60,000.	60,000
Federation of Business Angels	For the support of this federation the governmental agency should allocate €35,000 per year, with regard to a minimum set of objectives (MSO) linked with the role of a federation mentioned above, to be agreed upon between the governmental agency and the federation. The total budget for 4 years (€35,000 x 4 years) is estimated to be €140,000.	140,000
Advisory group	An estimated cost of €30,000 per year x 4 years = €120,000. This advisory group can help the Slovak government in advising and implementing some of the recommendations.	120,000

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A 'Policy Support Facility' (PSF) has been set up by the Directorate-General for Research & Innovation (DG RTD) of the European Commission under the European Framework Programme for Research & Innovation 'Horizon 2020', in order to support Member States and associated countries in reforming their national science, technology and innovation systems.

The Slovak authorities expressed their interest in receiving specific support under PSF in the context of the "Strategy to support start-ups and further develop the start-up ecosystem" adopted by the Government of the Slovak Republic in June 2015. The aim of the specific support to Slovakia was to provide guidance and recommendations to:

- improve the business environment in order to promote entrepreneurship, start-ups and boost business investments in research and innovation.
- improve the incubation/acceleration system in Slovakia and to attract external investors to create new incubators/accelerators.
- establish and implement a transparent and effective scheme to support business angels.

The PSF expert panel, consisting of four independent experts, worked from April 2016 to August 2016 and arrived at a set of policy messages highlighted upfront in the report. The specific recommendations, 21 in total, provide concrete guidance and a road map for the implementation of the recommended actions.

Studies and reports

