

1. THE NATIONAL SYSTEM OF INNOVATION (NSI)

1.1. SOUTH AFRICAN PERSPECTIVE

Since the inception of democracy in 1994, the South African government's main economic objectives have been to create jobs, eliminate poverty and reduce inequality. To enable these goals, it has sought to maintain a stable macro-economic environment conducive to investment and sustainable, diversified economic growth, coupled with increased social spending. The Reconstruction and Development Programme served as the first democratic government's broad planning framework. Within this framework the government recognised the role of STI in achieving these objectives.

But in 1994, the newly elected government inherited a fractured society, a fiscally drained state and an unsustainable resource-intensive economic growth path, which were mirrored in the country's STI system. The pre-1994 period was characterised by a disconnect between science and society (DST, 2014). The STI system was small, exclusive and oriented towards the narrow agenda of the apartheid state. The new democratic government set about addressing this situation through comprehensive policy development, which included the 1996 White Paper on Science and Technology (which introduced the concept of a national system of innovation), the 2002 National Research and Development Strategy, and the Ten-Year Innovation Plan for South Africa (2008-2018), along with various sectoral and cross-cutting STI strategies, for instance, for advanced manufacturing and human capital development.

These policies and strategies aimed to transform the STI system to serve all South Africans, to counter fragmentation and the inadequate leadership of the system, to support economic growth, to expand and transform human resources and support for researchers, to build the required STI institutions, to expand knowledge infrastructure, and to increase innovation.

However, while South Africa's post-1994 development planning has always recognised the importance of STI, the implementation of STI policy was often constrained by matters such as the gap between policy intent and resources, as well as broader socio-economic factors like the poor quality of public education.

South Africa remains a dual economy with one of the highest inequality rankings in the world (NAI, 2016(b)). The percentage of South Africans living below the poverty line (21,5% in 2014) remains very high (ibid.). Access to essential public goods such as education, housing, nutritious food and healthcare remains unequal, contributing to a sense of exclusion and disempowerment among large sections of South African society. The spatial distribution of poverty has not changed significantly since 1994 (ibid.). The extensive South African social protection programme, rather than structural economic change, lies at the heart of much of the poverty alleviation that has taken place. The economy is characterised by a decreasing contribution of the manufacturing and agricultural sectors to the Gross Domestic Product (GDP) – resulting in the contribution of the services sector growing. While this shift towards services is acknowledged, it remains necessary for South Africa to strengthen sectors such as manufacturing, mining and agriculture.

Significant sections of the South African economy are foreign owned (e.g. only eight of the Top 40 firms on the Johannesburg Stock Exchange are more than 75% owned by South Africans) (Hogg, 2015). The National Advisory Council on Innovation (NACI) reports (op. cit.) that the economy currently hosts around 2,25 million small and medium enterprises (SMEs), of which 70% are in the informal economy, with 88% black owned – a direct result of exclusion and high levels of unemployment. In addition, the 2009 Global Entrepreneurship Monitor Report placed South Africa in the lowest quartile of all the countries surveyed in two key measures: opportunity entrepreneurship and new firm activity.

The above economic situation was the environment in which the National Development Plan (Vision 2030) (NDP) was introduced in 2012 as South Africa's long-term planning framework. At the heart of the NDP lies the vision to create a „virtuous cycle of growth and development“, with success „measured by the degree to which the lives and opportunities of the poorest South Africans are transformed in a sustainable manner“ (NPC, 2012).

The NDP sees STI playing a central role in the achievement of its goals. To illustrate, while progress will be required in several areas, according to the National Advisory Council on Innovation (NACI, 2016), three stand out:

- Increasing employment through faster economic growth.
- Improving the quality of education, skills development and innovation.
- Building the capacity of the state.

The 1996 White Paper set out to construct a framework that would support a well-managed and properly functioning national system of innovation. South Africa was one of the first countries to formally adopt the NSI approach, and this approach has served the country well, resulting in the maturation of certain aspects of the NSI. New institutions have been established to build the architecture of the NSI, such as the Technology Innovation Agency (TIA), the National Research Foundation (NRF), and the National Intellectual Property Management Office (NIPMO).

Furthermore, the NSI approach enabled a significant increase in knowledge-generation outputs and the promotion of public funding for STI. This is supported by NACI (2017) in their analysis of the performance of the NSI 1996-2016. The 2017 Draft White Paper on STI therefore proposes that the NSI concept be retained as an organising framework. However, several reviews⁵ show that the NSI approach has not yet translated into significant advances in innovation performance, or fulfilled its potential in contributing to solutions to South Africa's development challenges.

Therefore, now that certain aspects of the NSI have matured, government intends to build on that foundation and to optimise the functioning of the system so that the full benefits of STI can be reaped – not only for South Africa, but also for the continent. This would mean, among other things, enhancing

5 These reviews are the 2007 OECD Review, the 2012 Ministerial Review, the 2013 Academy of Science of South Africa State of the STI System in South Africa study, the 2016(a) NACI Review of the 1996 White Paper on Science and Technology, and the 2016(b) NACI Situational Analysis for next-generation STI policy in South Africa.

the flow of information and resources through the NSI, enabling all actors to play their roles optimally, improving the interactions between actors and the coordination of their activities, and ensuring that the South African government as a whole follows an agreed agenda for the country's innovation priorities.

Fundamental to optimising the performance of the NSI is to incentivise the required behaviour for all NSI actors. In this regard, the DST has initiated a process to develop a new White Paper that spell out an NSI vision for the future. In optimising the functioning of the NSI, the NSI approach also needs to be refined. The field of knowledge on innovation systems has grown significantly in the past 20-odd years (Schot, 2017) and it now recognised that the NSI approach as applied during the early years was overly focused on firms and economically useful knowledge. In certain instances, this has led to environmental degradation and a lack of attention to the potential of innovation to improve government service delivery and alleviate poverty. The 2017 Draft White Paper therefore now uses the opportunity to build on new insights into innovation systems to, for instance, support environmental sustainability and to contribute to inclusive development and improved government performance.

1.2. EU PERSPECTIVE ON INNOVATION SYSTEMS

European Union's definition of innovation

There is no one single definition. But innovation as described in the Innovation Union plan (*"Turning Europe into a true Innovation Union, European Commission - MEMO/10/473 06/10/2010"*) broadly means change that speeds up and improves the way we conceive, develop, produce and access new products, industrial processes and services. Changes that create more jobs, improve people's lives and build greener and better societies.

1.2.1. The European Union

By now, the European Union (EU) and Member States have fully recognized that innovation, together with science and technology, is essential to create a leading knowledge-based society, and they have dedicated uncountable efforts to turn the EU into the 'most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth'⁶. Actually, the main means (strategies and instruments) for the development and the integration of innovation, research and education of the highest standards in the EU had been designed by the Europe 2020 strategy, the Innovation Union, Horizon 2020 and the European Research Area⁷.

The Europe 2020 strategy, launched in 2010 as the EU's growth strategy, specifically arise from the belief that Europe's future is connected to its power to innovate, stipulating an investment of 3 % of gross domestic product (GDP) in research and innovation (R&I), across the public and private sectors combined,

⁶ More information is available at: http://europa.eu/legislation_summaries/employment_and_social_policy/eu2020/growth_and_jobs/index_en.htm

⁷ European Commission, Science, technology and innovation in Europe, Luxembourg: Publications Office of the European Union, 2010, p. 1., available at: <http://ec.europa.eu/eurostat/documents/3930297/5969406/KS-GN-13-001-EN.PDF>

clear that the „short-term priority (was) a successful exit from the crisis“, but that „to achieve a sustainable future“, the EU needed „to tackle its structural weaknesses“ and „already look beyond the short-term“. The ambition was to „come out stronger from the crisis and turn the EU into a smart, sustainable and inclusive economy, delivering high levels of employment, productivity and social cohesion.“⁹

The sets out five interrelated headline targets for the EU to achieve by 2020 in the areas of employment, research and development (R&D), climate change and energy, education, and the fight against poverty and social exclusion:

1. 75% of the 20-64 year-olds to be employed;
2. 3% of the EU’s GDP to be invested in R&D;
3. greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990; 20% of energy from renewables; 20% increase in energy efficiency;
4. Reducing the rates of early school leaving below 10%; at least 40% of 30-34-year-olds completing third level education;
5. At least 20 million fewer people in or at risk of poverty and social exclusion.

To catalyse progress at EU level, the EC has also set out seven ‘flagship initiatives’ which provide a framework through which the EU and national authorities can mutually reinforce their efforts in areas supporting the Europe 2020 priorities. Such seven ‘flagship initiatives’ are:

Smart Growth	Sustainable Growth	Inclusive Growth
Innovation «Innovation Union»	Climate, energy and mobility «Resource efficient Europe»	Employment «An agenda for new skills and jobs»
Education «Youth on the Move»	Competitiveness «An industrial policy for the globalisation era»	Social and territorial cohesion «European platform against poverty»
DigitalSingle Market «A digital agenda for Europe»		

Apart from the flagship initiatives, other EU levers such as the European single market, the EU budget and the EU external agenda also contribute to the achievement of the goals of the Europe 2020 strategy. In addition, in order to monitor and advance national implementation of the Europe 2020 strategy, Member

⁹ EUROPE 2020 “A strategy for smart, sustainable and inclusive growth” (COM(2010)2020), 3 March 2010, available at: <http://eur-lex.europa.eu/legal-content/hr/TXT/?uri=CELEX:52010DC2020>

States were invited to set their own targets and to spell out detailed actions as part of their national reform programmes, reviewed annually at EU level as part of the European Semester of economic policy coordination.

The Innovation Union

The Innovation Union¹⁰ is one of the seven flagship initiatives of the Europe 2020 Strategy. It represents the answer for the basis of Europe's future competitiveness and growing challenges, among which climate change, the scarcity of resources and demographic changes. The aim of the Innovation Union is to build a solid R&I system in Europe, where great ideas and excellent research can more easily become products or services. To build this innovation friendly environment, broader partnerships between private and public sectors are to be developed, bringing together researchers, industry, users and public entities. Under the Innovation Union, public authorities are also encouraged to use innovative public procurements spurring companies to find creative solutions to problems, rather than just offering the cheapest bid. Additionally, according to the Innovation Union, bottlenecks, such as rules and laws differing significantly between the Member States or outdated standards, have to be removed in order to make Europe a top-class actor in science and innovation. This should lead to the creation of a true internal market for skills, regulations and capital, allowing ideas and new solutions to come to market more quickly.

In order to achieve such objectives, the following 10-item strategy is proposed:

1. Member States need to continue to invest in education, R&D, innovation and ICT;
2. Reforms should ensure more value for money and tackle fragmentation;
3. Education systems at all levels need to be modernized;
4. The European Research Area must be completed in four years;
5. Access to EU-programmes must be simplified;
6. Research must lead to innovation more often;
7. Barriers for innovation, such as expensive property rights and access to finance, must be removed;
8. European Innovation Partnerships should be launched to accelerate research, starting with the area of health ageing;
9. Social innovation must be stimulated;

Cooperation with international partners must be improved.

¹⁰ Innovation Union Communication (COM(2010) 546), 6 October 2010, available at: http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=none

Open Innovation, Open Science, Open to the World – a vision for Europe¹¹

Following Innovation Union purposes, in May 2016 the European Commission published this book bringing together some of the key conceptual insights behind the „Three Os“ and highlighting actions that are already taking place or are being prepared. This work is based on the fact that EU is the world’s leading producer of scientific knowledge, but too rarely succeeds in turning research into innovation, in getting research results to market and too often, instead, new technologies that have been developed in Europe are commercialised elsewhere. The “Open Innovation” concept aims to overcome these shortcomings through the opening up of the innovation process to all active players in order to allow knowledge to circulate more freely and to be transformed into products and services that create new markets, fostering a stronger culture of entrepreneurship. This supposes that innovation actions are the outcome of a complex co-creation process involving knowledge flows across the entire economic and social environment (public sectors, finance, businesses, academia and citizens).

Two main concepts are relevant in this new approach, renamed also Open Innovation 2.0: the users are in the spotlight, meanings that an invention becomes an innovation only if users become a part of the value creation process (public engagement); creating a well-functioning eco-system, in other words to foster collaboration among relevant stakeholders (at EU, Member States and regional level) along and across industry and sector-specific value chains to co-create solutions to socio-economic and business challenges¹². As a consequence, in this scenario, every actor has a role.

The public sector, first of all, is responsible for the creation of the regulatory environment, where it should stimulate cooperation and the open circulation between other actors in order to develop and market innovative solutions. Secondly, it has to provide better coordination modes among the economic actors so to enhance productivity and value. Finally, public sector can create and stimulate a demand for innovation. The financial sector can increase interest of other actors in investing in innovation through the building of more innovation-friendly financial instruments/institutions and the integration of existing tools and funds. Businesses have the role to bring innovation in the market, maximizing their returns on the resources allocated to innovating, and this will be possible only reducing market fragmentation and fostering faster market access and development.

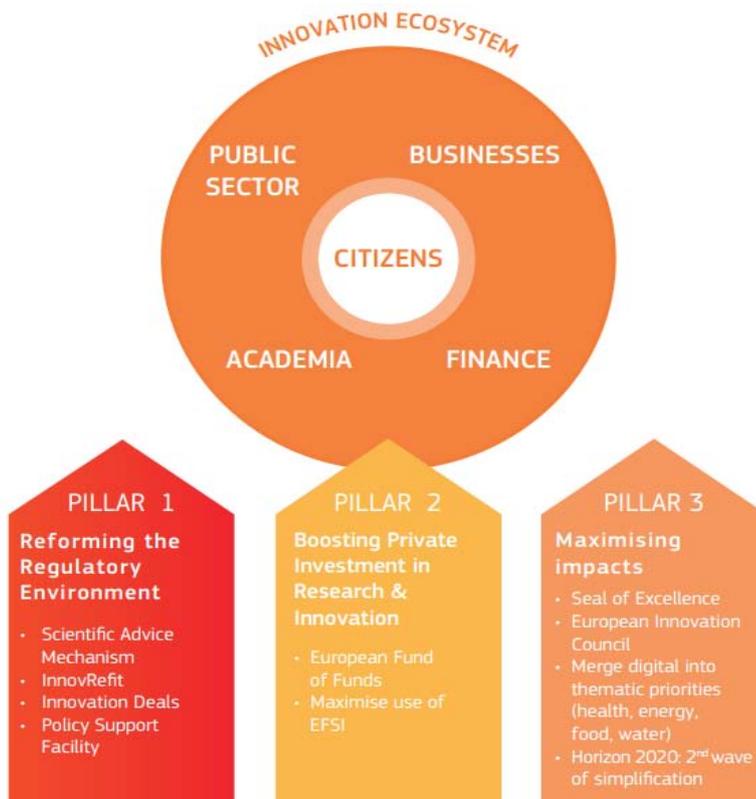
The Academia system, instead, should be considered not only as a knowledge producer, but also as co-creator and generator of skilled human capital: in this field, challenges are the co-creation capabilities of universities, the design of incentives for academics when working with users and the absorptive capacity of academic knowledge within firms. Finally, citizens have the central role for bringing innovation to the market. In fact, they create the demand, they can fund and/or finance projects relevant to them, they can be at the source of innovative ideas and, at the end, they can have a say in what research is meaningful to them and can impact in their lives.

¹¹ The book is available at EU Bookshop website and it is possible download it for free at the following link: <https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe>. Everything contained in this section was extracted from the mentioned source, pp. 11-29.

¹² Id., p. 13

In this scenario, the role of European Commission is to ensure that appropriate framework conditions for innovation are in place through three pillars of its Open Innovation policy:

1. Reforming the regulatory environment;
2. Boosting private investment;
3. Maximising impacts.



The Open Innovation framework and the Commission's three pillars of action¹³

With the first pillar, Reforming the regulatory environment, the EC intends to ensure that regulations are not an obstacle to innovation and, instead, they can support it. For these purpose, Commission is developing the following tools:

- **Scientific Advice Mechanism:** a new scientific advice structure recently created with the aim to improve the quality of EU-legislation; it will complement Joint Research Centre (JRC) work, the Commission's in-house scientific service.
- **InnovRefit:** the Commission's report Better regulations for innovation-driven investments at EU

13 Id., p. 18

level¹⁴ is an in-depth analysis of how regulatory environment at EU level can hamper or stimulate innovation, developed after consultations with Member States and organizations and industry stakeholders. It contains suggestions on the relationship between innovation and regulation, indications of regulatory barriers, and for simpler and more efficient regulation that supports growth and jobs.

- Innovation Deals: a new kind of consultation where innovators and national, regional and local authorities help the EC to identify EU rules that could represent obstacles to innovation. The outcome of this instrument would be a clarification of how the EU rule or legislation applies, together with better guidance on its intention, through a better cooperation between innovators and institutions in order to demonstrate how the solution could be implemented. A first pilot is being launching by the EC in the field of Circular Economy.
- Horizon 2020 Policy Support Facility: a practical support offered to Member and Associated H2020 States to sustain their policy reforms aimed to make the regulatory environment more innovation-friendly, to stimulate business engagement in research and innovation, to maximize the impact of research and innovation investments.

The second pillar, named Boosting private investment in research and innovation, aim to ensure access to finance and better conditions for private sector to invest in innovation, using the following tools (that will be described in-depth further):

- The European Venture Capital Fund-of-Funds (FoF): the Commission created a large fund that can accept large private-sector investments and offer an adequate return on investments, with the aim to overcome shortcomings that until today have impeded the growth of the Venture Capital market.
- Maximise the use of the European Fund for Strategic Investments (EFSI)¹⁵: through the EFSI, Commission expects to mobilise private funding both for strategic investments in infrastructures and innovation and also for risk finance to small business. Commission predicts to mobilise at least EUR 315 billion in additional investments in Europe by 2018¹⁶.

With the third pillar, Maximising impacts, Commission aims to simplify research and innovation programmes (including H2020) and other public funding sources and, moreover, to create synergies between them, allowing to excellent projects to access funding from different sources more easily.

- Seal of Excellence: a quality label awarded to project proposals submitted for funding under H2020 that succeeded in passing all of the selection and award criteria but which could not be funded with the available budget. It represents a recommendation for funding from alternative sources, whether public or private, national, regional, European or international. First application was in H2020's SME Instrument.
- European Innovation Council: a tool that Commission is considering in order to overcome the

14 https://ec.europa.eu/research/innovation-union/pdf/innovrefit_staff_working_document.pdf

15 https://ec.europa.eu/priorities/jobs-growth-and-investment/investment-plan_en

16 Open Innovation, Open Science, Open to the World – a vision of future, p. 25.

lack of sufficient disruptive market-creating innovation, necessary to turn best ideas into new opportunities, businesses and jobs.

- Merging the digital into societal challenges: the Commission want to boost the potential of digitization into the societal challenges (health, energy, food and water are the four areas considered as priorities for action), not only to a better tackle of them, but also for their capacity to increase European competitive advantage and to create new jobs.
- A second wave of H2020 simplification: with the aim to reduce administrative burden for participation, the Commission is considering a new wave of simplification in order to improve and extend the use of two-stage proposal evaluation, to promote a revision of the template, to continue the permanent process of improving of Participant Portal and Commission's guidance, documentation and help service.

1.2.3. Actors supporting the innovation process in Europe

Beyond the general policies dedicated to innovation and growth in Europe, actors and instruments have been developed in order to provide evidence of this process. In particular, the European investment bank, the European Investment Fund (EIF) and InnovFin are conceived to boost and support innovation in Europe.

EUROPEAN INVESTMENT BANK (EIB)

The EIB is one of the major partner in Europe supporting projects to develop innovation and skills for a growing economy, from financing ambitious large-scale research to backing small, specialised spin-outs or funding digital networks¹⁷. It is jointly owned by the EU countries and in 2014 alone, the Bank provided EUR 13.3bn in finance for this area. Backing investments that are geared towards innovation, skills and greater competitiveness is part of the EIB's mission to support growth and jobs in Europe¹⁸. Among its targets, the EIB seeks indeed to:

- boost Europe's potential in terms of jobs & growth
- support action to mitigate climate change
- promote EU policies outside the EU.

Since its foundation in 1957, the mission of the EIB has been to contribute to the balanced and steady development of the common market in the interest of the Community. To this end, the Bank is authorized to provide long-term loans for financially sound development projects. The Bank performs activities in countries outside the EU on the basis of mandates that are aligned with the goals of European Development Policy and Policy Coherence for Development¹⁹. In regard to the ACP zone (African, Caribbean and Pacific

¹⁷ http://www.eib.org/attachments/thematic/innovation_and_skills_en.pdf

¹⁸ Idem

¹⁹ Glopolis, Prague Global Policy Institute – THE EUROPEAN INVESTMENT BANK INVESTMENT IN DEVELOPMENT?, July 2011, <http://glopolis.org/soubory/4e1c/study-european-investment-bank.pdf>

countries (ACPs) the EIB aims to generate long-term private sector-led sustainable economic growth and reduce poverty through job creation and improved access to productive resources. The Bank also supports public sector infrastructure projects that are vital to underpin private sector development and create a thriving business environment, particularly for SMEs, which are the foundation of developing countries' economies. EIB financing in the ACPs covers the following sectors: development of local financial sectors and small and medium enterprises (through credit lines and equity); infrastructure projects in the energy, water, transport and telecommunications sectors; local industries and manufacturing; the expansion of Public R&D spending. State aid in the context of overall public financing of business research

In May 2014 the EC has adopted a revised General Block Exemption Regulation (GBER) for state aid²⁰. The tertiary sector; access to sufficient and safe food supplies.²¹

EUROPEAN INVESTMENT FUND (EIF)

The EIF is a part of EIB and it is a specialized fund dedicated exclusively to SMEs improving their access to finance through a wide range of selected financial intermediaries (venture, growth and mezzanine capital funds to banks, guarantee funds and microfinance institutions). Specifically, it provides guarantees to banks lending to small and medium-sized firms and – at a later stage – invest in venture capital funds providing start ups and fast-growing firms with equity. By supporting through these instruments entrepreneurship and innovation, the EIF represents the Europe's main provider of risk financing for small and medium sized enterprises (SMEs) and mid-caps²².

InnovFin – “EU Finance for Innovators”

INNOVFIN is a joint initiative launched by the European Investment Bank Group (EIB and EIF in cooperation with the European Commission under Horizon 2020 . Its objective is to facilitate and accelerate access to finance for innovative businesses and other innovative entities in Europe²³. In particular, InnovFin consists of a series of integrated and complementary financing tools covering the entire value chain of research and innovation (R&I) in order to support investments from the smallest to the largest enterprise in Europe. Its tools include InnovFin Large Projects, InnovFin MidCap Growth Finance, InnovFin MidCap Guarantee, InnovFin SME Guarantee, InnovFin Advisory services.

Background on InnovFin products²⁴

InnovFin Large Projects aims to improve access to risk finance for R&I projects emanating from large firms and medium and large midcaps; universities and research institutes; R&I infrastructures (including

20 More info is available at: <http://ec.europa.eu/digital-agenda/en/news/state-aid-commission-adopts-new-general-block-exemption-regulation-gber>

21 <http://www.eib.org/projects/regions/acp/index.htm>

22 For more information about the EIF, please visit the dedicated website at <http://www.eif.org/index.htm>

23 <http://www.eib.org/products/blending/innovfin/?lang=fr>

24 http://europa.eu/rapid/press-release_IP-14-670_en.htm

innovation-enabling infrastructures); public-private partnerships; and special-purpose vehicles or projects (including those promoting first-of-a-kind, commercial-scale industrial demonstration projects). Loans from €7.5 million to €300 million will be delivered directly by the European Investment Bank.

InnovFin MidCap Growth Finance offers senior and subordinated loans or guarantees (including mezzanine and quasi equity financing), in order to improve access to finance mainly for innovative larger midcaps (up to 3,000 employees), but also SMEs and small midcaps. Loans from €7.5 million to €25 million will be delivered directly by the European Investment Bank to eligible beneficiaries in EU Member States and Associated Countries.

InnovFin MidCap Guarantee offers guarantees or contingent loans of between €7.5 million and €25 million, in order to improve access to finance for innovative larger midcaps (up to 3000 employees) in particular. This facility is implemented by the European Investment Bank, and is to be delivered through financial intermediaries – banks and financial institutions – in EU Member States and Associated Countries. Under this facility, financial intermediaries will be guaranteed against a portion of their potential losses by the EIB, which will also offer counter-guarantees to guarantee institutions.

InnovFin SME Guarantee provides guarantees and counter-guarantees on debt financing of between €25,000 and €7.5 million, in order to improve access to loan finance for innovative small and medium-sized enterprises and small midcaps (up to 499 employees). This facility is implemented by the European Investment Fund, and will be rolled out through financial intermediaries – banks and other financial institutions – in EU Member States and Associated Countries. Under this facility, financial intermediaries will be guaranteed by the EIF against a proportion of their losses incurred on the debt financing covered under the facility.

InnovFin Advisory services, provided by EIB on the basis of up to €28 million from the Horizon 2020 budget, aim to improve the 'bankability' and investment-readiness of large projects that need substantial, long-term investments. It will also provide advice to improve the conditions for access to risk finance for R&I. The main clients foreseen are promoters of large R&I projects that meet Horizon 2020's Societal Challenges. The advisory services are expected to accelerate the development of projects with an investment value of some €20 billion.

1.2.4. Framework Condition for Innovation in Europe

Public R&D Spending: State Aid in the context of overall public financing of business research

In May 2014, the EC has adopted a revised General Block Exemption Regulation (GBER) for state aid.²⁵ Regulation is part of the State Aid Modernization (SAM) initiative²⁶ setting an ambitious reform programme

²⁵ More info is available at: <http://ec.europa.eu/digital-agenda/en/news/state-aid-commission-adopts-new-general-block-exemption-regulation-gber>

²⁶ On 8 May 2012, the EC set out an ambitious State aid reform Program in the Communication on State aid modernization. More info on the SAM is available at: http://ec.europa.eu/competition/state_aid/modernisation/index_en.html The Communication on State aid modernization (COM (2012) 209), 8 May 2012, is available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52012DC0209>

of state aid control fostering sustainable, smart and inclusive growth. One of the components of SAM is the increased flexibility given to Member States to grant state aid without prior notification and approval by the EC, provided that certain conditions are met. Its objectives are:

- significantly extends the possibilities for Member States to grant „good aid“ to companies without prior EC scrutiny;
- simplifies the award of state aid and reduces the duration of processes for aid beneficiaries;
- introduces ex-post requirements for Member States such as the requirement to evaluate large aid schemes and introduce more transparency on aid measures.

The GBER is already used (to a varying extent) by aid granting authorities (i.e. national governments, as well as regional and local authorities). However, thanks to the recent revision, the 3/4 of today's aid measures and about 2/3 of total aid amounts granted by Member States could be covered by the Regulation. This could even extend to up to 90% of all aid measures, if Member States use the GBER to the full extent by designing their measures in order to fit its requirements. Namely, the GBER has been extended to the following new categories of aid:

- aid to innovation clusters and aid to process and organisational innovation,
- aid schemes to make good the damage caused by natural disasters,
- social aid for transport residents of remote regions,
- aid for broadband infrastructure,
- aid for culture and heritage conservation, including aid schemes for audio-visual works,
- aid for sport and multifunctional recreational infrastructures,
- investment aid for local infrastructure.

As from 1 July 2014, aid measures designed in line with the provisions of the GBER in all these categories do not need to be notified to the Commission any longer before being implemented. Moreover, categories which were already covered by the previous GBER are broadened. This is the case of the following types of aid:

- a wider scope for risk finance aid,
- investment aid for research infrastructure,
- a new simplified provision on start-up aid,
- environmental aid categories: aid for the remediation of contaminated sites, district heating and cooling, waste management, operating aid for electricity from renewable sources, energy infrastructures,

- a wider definition of the notion of disadvantaged workers for employment aid to the youngest,
- aid for compensating the costs of assistance provided to disadvantaged workers,
- regional operating aid for outermost regions and sparsely populated areas and for urban development schemes.

The new GBER also sets higher notification thresholds and aid intensities, for instance:

- R&D projects notification thresholds are doubled
- risk finance: the previous annual tranches of €1.5 million are replaced by a total limit that an eligible undertaking can receive of €15 million (see also IP/14/21),
- for investment aid for sports and multifunctional infrastructures: EUR 15 million or the total costs exceeding EUR 50 million per project and for investment aid for culture and heritage conservation: EUR 100 million per project;

This means that only the cases with the biggest potential to distort competition will remain for ex-ante assessment by the Commission before they can be granted to beneficiaries. This increased use of the GBER will have a strong impact on aid beneficiaries and on granting authorities, as it will allow for immediate access to aid (no notification, no prior compatibility assessment) and a lower administrative burden. This can also contribute to easier absorption of structural funds, when projects are funded in such a way.

1.2.5. From Innovation to Market: drivers in support of SA-EU businesses cooperation:

The role of industry in fostering competitiveness and growth

Public-private partnerships in research and innovation can be a highly effective instrument to bridge the gap between research outputs and the market²⁷ as long as a consolidated framework for collaboration between public research and businesses is in place. Public-private partnerships provide industries with incentives to foster R&I activities and facilitate better interaction between industry and public research by capitalizing strategies and producing marketable innovative products.

The development of strong and efficient public-private partnerships is closely related to the interest of R&I stakeholders to engage and invest in such schemes. Therefore, public-private partnerships should be implemented step by step and according to a bottom-up approach so as to gradually develop trust and mutual understanding between all involved stakeholders and around identified common objectives.

1.2.6. The market of Innovation in EU and SA (VC, intermediaries, facilities)

A. Objectives

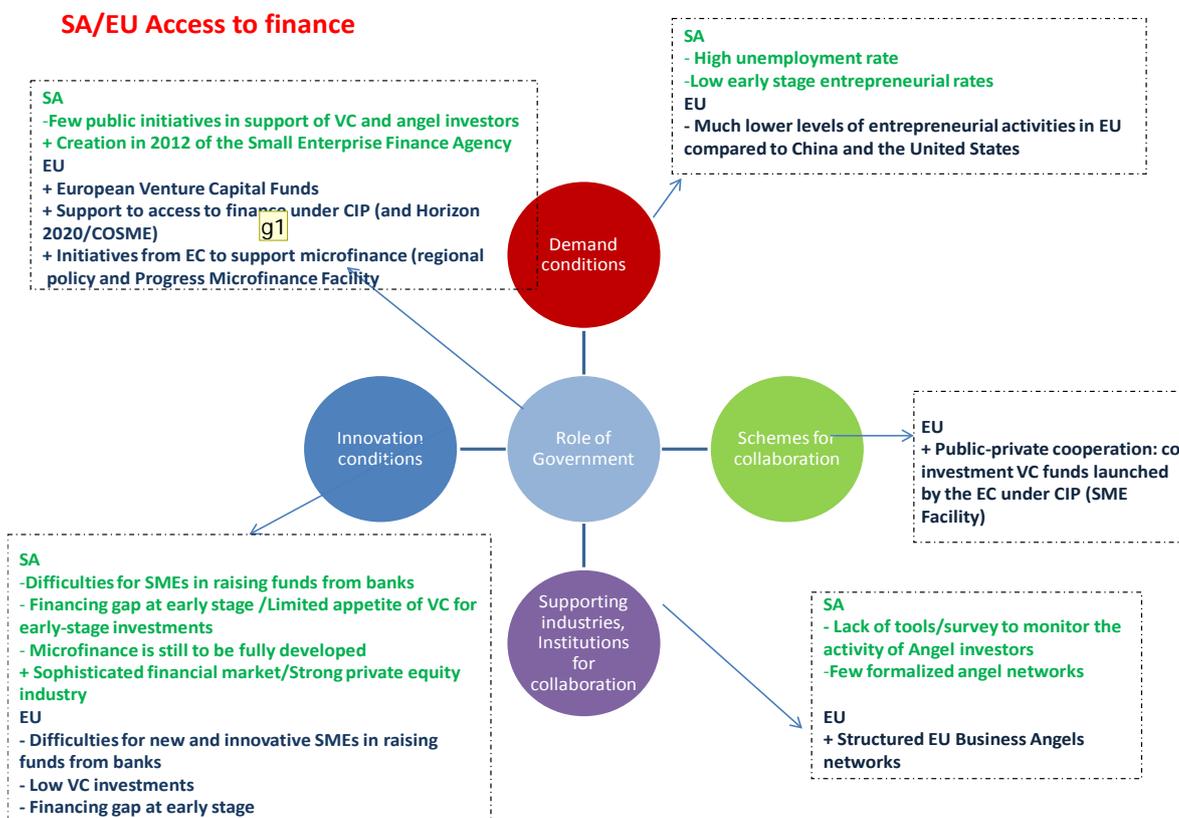
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See European Commission Communication on "Partnering in Research and Innovation", COM(2011) 572 final, p.8-9

Access to financial services by firms is crucial when it comes to the supply of research and technology innovation by private firms and especially by SMEs²⁸.

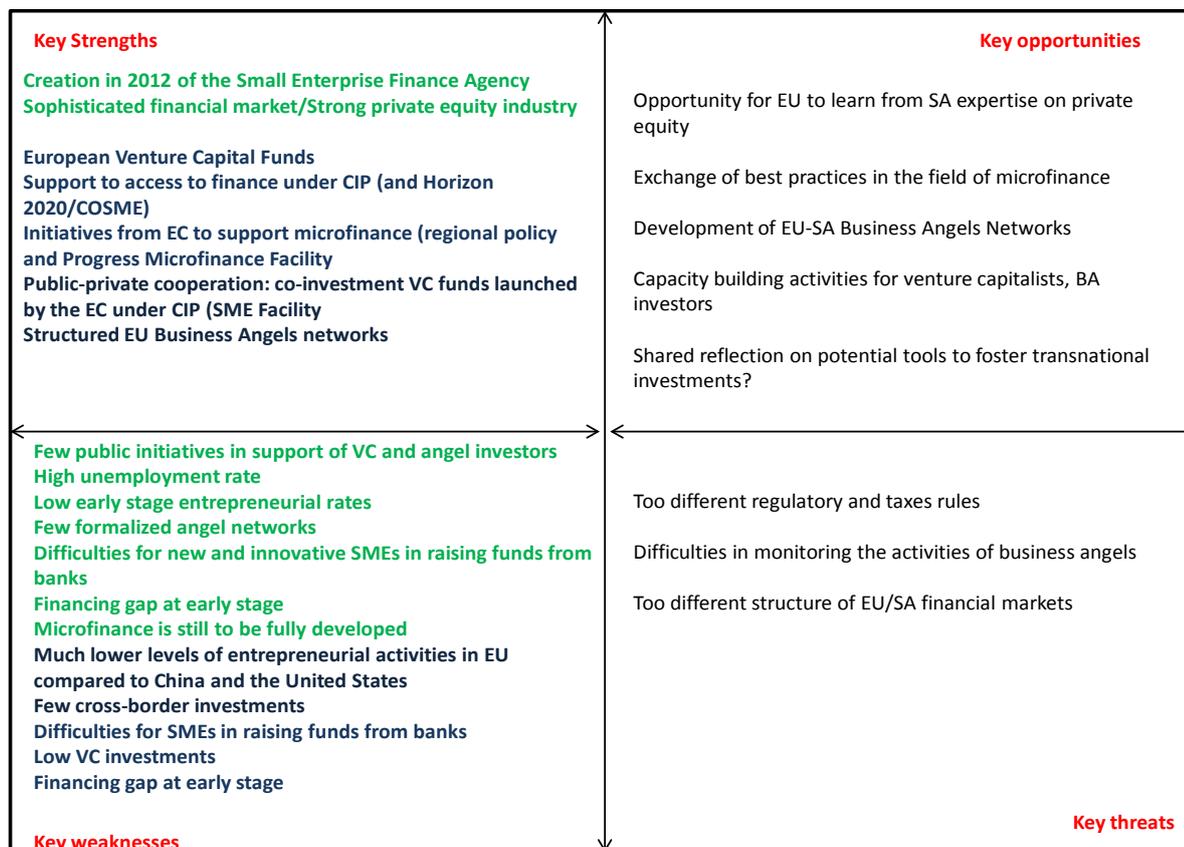
In EU, access to finance is considered as the second most pressing problem facing EU SMEs after finding customers²⁹. In a similar way, finance was cited by 43% of the experts surveyed by the Global Entrepreneurship Monitor 2012 as one of the three most constraining factors to developing entrepreneurship in South Africa.

The chart below provides a summary of main findings in analyzing four critical dimensions in relation to innovation Framework Conditions in SA and EU.



The public sector in Europe seems to be increasingly dedicated to stimulating initiatives in support of access to finance. SA is characterized instead by structured models of private market of equity and VC funds.

²⁸ European Commission, Innovation Union Competitiveness Report 2011, p.330
²⁹ European Commission (2011), SME's access to finance Survey 2011, p.6



B. Access to finance in the seed, start up and early growth phase

- **Debt finance: Overview of the traditional financial system in EU and SA**

According to data published by the OECD in 2011, whereas banks loans remain the main source of external financing for SMEs, these are being hardly affected by tighter credit conditions as a result of the current economic crisis. SMEs are being faced with increased interest rate spreads, shortening maturities and increased requests for collateral and guarantees³⁰.

Similarly, according to the survey led by the European Commission on SMEs access to finance in 2012, 27% of surveyed SMEs reported that banks had become less willing to provide a loan, with 13% more willing and 33% unchanged. The South Africa Global Entrepreneurship Monitor 2012 pointed out a similar trend, outlining that “banks are becoming more conservative, requiring more security and a longer track record which many new and innovative firms do not have”³¹.

30 OECD (2012), Financing High Growth Firms: the role of Angel Investors, p.22

31 Natasha Turton, Mike Herrington (2012) Global Entrepreneurship Monitor 2012 South Africa, p.45

- Equity finance: Availability of early stage venture capital and private equity

Equity finance plays a crucial role in the seed and early stage of innovative SMEs development.³²

Venture Capitals and Angel investors have a great role to play in supporting young and high-growth firms to access to finance. Nonetheless, in most EU countries, the performance of VC in financing start-up firms remains quite low. Overall, the EU has considerably lower rates of venture capital investments than the USA. In 2011, the total VC investment for EU member countries was just under €3.4 billion in 2011. This represents a tiny proportion of the total investment in SMEs compared to other types of finance³³.

On the contrary, the development of private equity in South Africa has benefited from the global trends led by the US and UK towards recognizing the role of private third party investors in fostering local economic development and investments. Therefore, South Africa can rely on a sophisticated private equity industry, with different funds at all stages of business development, from start-up venture capital funds through to late-stage and buy-out funds³⁴. The South African private-equity industry is the largest on the African continent, at 1.7% of GDP, a figure comparable to that of many developed markets (Europe: 1.5%; UK: 3.7%; North America: 2.8%).³⁵

But Venture Capitals are also very sensitive to market cycles both in terms of amounts invested and in terms of the stage of investment³⁶. Depending on market conditions, and in particular when profit expectations are less clear and the risk higher, venture capitals might invest more in the later stages of development. Therefore, and as a consequence of the current economic crisis, in EU, as well as in developing countries, fewer and fewer venture capitalists are investing to finance the early developments of innovative firms³⁷.

Easing access to finance between EU and SA

- Public/Private VC funds

Public-private partnerships (e.g. co-investment VC funds)³⁸ would allow VC to consider smaller and riskier deals while protecting, thanks to the public guarantee, against the firm failure³⁹.

As an example of such public-private cooperation schemes, the European Commission, between 2007 and 2013, has allocated resources to the European Investment Fund (EIF) under the Competitiveness and Innovation Framework Programme (CIP) to the High Growth and Innovative SMEs facility (GIF). Under this facility, the EIF invests in venture capital funds which cover early and growth stage investments with a view to improve access to finance for SMEs. This SMEs facility scheme will be continued in 2014-2020 under both Horizon 2020 and COSME.

32 OECD (2012), Financing High Growth Firms: the role of Angel Investors

33 http://ec.europa.eu/enterprise/policies/finance/data/enterprise-finance-index/access-to-finance-indicators/venture-capital/index_en.htm

34 KPMG and SAVCA (2013), VC and Private Equity Industry – Performance survey of South Africa

35 Thomas Dickinson (2009) Private Equity: Helping Fill Africa's Financing Gap?

36 European Commission, Innovation Union Competitiveness Report 2011, p.332

37 Roberto Zavatta (2008), Financing technology entrepreneurs and SMEs in developing countries: challenges and opportunities, InfoDev Publication, p.49

38 Report of the Chairman of the expert group on the cross border matching of innovative firms with suitable investors, European Commission, 2012

39 Roberto Zavatta (2008), Financing technology entrepreneurs and SMEs in developing countries: challenges and opportunities, InfoDev Publication

The Global Entrepreneurship Monitor 2012 for SA states also that “South Africa must link its universities to policies aimed at growing the economy. For example, choose the tertiary institution which is best at information technology, and assign it a VC fund for the exploitation and commercialisation of ideas coming from that institution.”⁴⁰

This common interest suggests that a useful follow-up to this study could be a review of existing public-private VC funds in South Africa and EU so as to identify potential best practices and propose new cooperation topics on this basis.

- Business Angel networks

Business Angels networks have a growing role to play to fill the financing gap of innovative SMEs at their early-stage.

Since the creation of the first business angel networks in 1997 by the UK government, in Europe and other parts of the world, more and more structured business angel networks are forming as a way to facilitate match making between potential angel investors and entrepreneurs⁴¹.

In South Africa, angel investment is still a young, but fast-growing, sector. Therefore, angel investors tend to be more and more active in South Africa but slightly less structured than in other parts of the world as USA or Europe⁴².

The InfoDev report on financing innovation in developing countries outlines, as one of the report recommendations, the role of business angels networks in increasing the volume of equity financing available to smaller companies⁴³. The development of cooperation between angel networks from SA and EU might become a powerful tool to foster cross-border business and innovative activities as well as to monitor the performance and activities of angel investors.

- Microfinance initiatives

Microfinance could play a substantial role, complementary to VC and business angels, in enabling smaller firms to undertake innovative activities, in particular relatively small-scale and/or less capital-intensive innovations⁴⁴.

In this context, the European Commission and the EIF launched a series of initiatives with the aim to develop microfinance in support of innovative activities. Firstly, the role of microfinance in regional cohesion policy has been reinforced, through two dedicated programmes: Joint European Resources for Micro to Medium Enterprises (JEREMIE) and Joint Action to support microfinance institutions in Europe (JASMINE). JEREMIE

40 Global Entrepreneurship Monitor 2012 – Recommendations for policy and practice, p.77

41 OECD (2012), Financing High Growth Firms: the role of Angel Investors, p.30

42 <http://fr.slideshare.net/FliksGmbH/angel-groups-in-south-africa-seminar-at-uct>

43 Roberto Zavatta (2008), Financing technology entrepreneurs and SMEs in developing countries: challenges and opportunities, InfoDev Publication, p.49

44 ProINNO Europe (2009), Microfinance and innovation, Mini-Study 06, p.6

allows EU countries to use EU structural funds to support small and very small businesses whereas JASMINE aims at improving the capacity of microcredit providers and helps them become sustainable and viable operators in the credit market.

The European Commission also launched in 2010 The European Progress Microfinance Facility to increase the availability of microcredit for setting up or developing a small business. These activities will be continued and scaled up under the programming period 2014-2020 as part of the new EU programme for Employment and Social Innovation (EaSI)⁴⁵.

Regarding South Africa, a World Bank report⁴⁶ showed that small business owners were much more likely to use bank services or products than non-bank services or products such as microfinance. Nonetheless, if further developed, microfinance in South Africa could potentially play a substantial role to fill gaps in the market such as those created when commercial banks are not able to fund small businesses.

The “lack of micro-finance initiatives” was actually listed by the Global Entrepreneurship Monitor 2012 as one of the constraints faced by early-stage entrepreneurs in South Africa⁴⁷. With a view to tackling this gap, the South African government created in 2012 the Small Enterprise Finance Agency (Sefa), merging three public organisations, namely Khula Enterprises, the SA Microfinance Apex Fund and the Industrial Development Corporation’s (IDC).

As microfinance can play a potential role in supporting some type of innovative activities of smaller businesses both in EU and SA, this topic might be worth exploring as a potential opportunities for further policy cooperation. On the one hand, European initiatives in developing support for microfinance may be usefully extended to South Africa. On the other hand, as the microfinance market is still quite young in Europe, the EU might benefit from experiences and lessons learnt from other regions as South Africa.

1.3. THE CONCEPTUAL FRAMEWORK FOR THE NSI WITHIN THE CONTEXT OF EU - SA INNOVATION POLICY AND PROGRAMMES

In the context of the SA NSI and international cooperation, EU/National/Regional Innovation policy and programmes are increasingly considered an appealing framework to explore opportunities for collaboration, new partnerships and instruments for coordination mechanisms. This is particularly relevant considering the current scenario of economic crisis where scarce resources and fragmentation of actions poses serious challenges.

The experience made in the EU concerning International Cooperation in R&I is a tangible example of how collaborative international R&I frameworks can promote coordinated efforts opening up opportunities for new strategies via dedicated bilateral programmes.

45 <http://ec.europa.eu/social/main.jsp?langId=en&catId=836&newsId=1093&furtherNews=yes>

46 S. Aggarwal, L. Klapper, D. Singer (2012), Financing Business in Africa : The role of Microfinance, The World Bank

47 Global Entrepreneurship Monitor South Africa 2012, p.46

This Report aims to discuss and propose new ideas in relation to Innovation Framework Conditions in SA-EU. Some of the existing tools at EU level (eg., Innovation Scoreboard) will be discussed in order to capture innovation landscape in those countries. A few novelties and ideas for new instruments supporting innovation at policy and programme level will be introduced. Similarly, potential tools to enhance cooperation between the public and private sector will be suggested in an “Open Innovation” framework.