

**Strengthening Technology, Research
and Innovation Cooperation between
Europe and South Africa**

MAPPING REPORT

Map of the innovation landscape in South Africa & framework conditions



Southern African Research and Innovation Management Association (SARIMA) with support from APRE, KINNO and DST

2015



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Preface

ESASTAP Plus – Strengthening Technology, Research and Innovation Cooperation between Europe and South Africa.

The European Union and South Africa have long been committed to strategic cooperation in science and technology, dating back to their 1996 Cooperation Agreement, which facilitated cooperation under the Framework Programmes. On the other hand, South Africa has concluded several bilateral cooperation agreements with EU Member States, and is aiming to create a robust national system of innovation to enable its transition to a knowledge economy, achieving sustained growth and development. Moreover, the Innovation Union Flagship Initiative provides a new innovation policy context for the EU with an emphasis on addressing global societal challenges, increasing European competitiveness, and attracting research talents and investments to Europe. South Africa and the EU, thus, share similar objectives and there is rich potential for cooperation in innovation to complement their substantial trade, innovation and development cooperation.

ESASTAP Plus will support the deepening of scientific and technological cooperation with a special focus on innovation. This will be achieved by supporting South Africa's participation in Horizon 2020, but also by promoting reciprocal European participation in South African programmes. Specific input will be provided to enrich the bilateral policy dialogue, notably to identify priority areas for mutually beneficial cooperation. A major focus will be to target coordination of Member States and Associated Countries' research policies and programmes vis-à-vis South Africa, encouraging the development of new joint initiatives implemented by several countries. Synergy between different EU cooperation initiatives will also be encouraged, e.g. between development cooperation and research programmes.

ESASTAP Plus targets four key objectives in order to enhance South African – EU cooperation in science, technology and innovation, namely to:

- (1) Enrich the science, technology and innovation policy dialogue;
- (2) Promote strategic cooperation under the main instruments, chiefly Horizon 2020;
- (3) Better coordinate and exploit synergy between EU and national programmes; and
- (4) Expand cooperation to specifically address innovation partnerships.

The objectives of **ESASTAP Plus** are aligned with the International Cooperation Communication's vision, released recently, for developing mutually beneficial partnerships with strategic partners.

ESASTAP Plus is funded by the European Commission's Directorate-General for Research and Innovation, under the 7th Framework Programme and will last for three years.

ESASTAP Plus is coordinated by the PRAXI Network, a specific unit of FORTH (Foundation of Research and Technology Hellas) in Greece which was created from a strategic alliance of the Research and the Industrial world in Greece. PRAXI is one of the main NCP organisations in Greece, is the coordinator of the Greek Enterprise Europe Network consortium, and runs the liaison office for FORTH.

The partners responsible for implementation and execution of ESASTAP Plus activities include:

- ☒ Department of Science and Technology (DST), South Africa - the national government authority responsible for science, technology and innovation policy in South Africa (SA).
- ☒ Agency for the Promotion of the European Research (APRE), Italy - a non-profit research organisation, created upon the joint initiative of the Italian Ministry of Research and the European Union in 1989, grouping together more than 100 member organisations, including both public and private research centres, industries, industrial associations, chambers of commerce, science parks and 40 universities, with the main objective to promote the participation on national and European RTD programmes.
- ☒ Project Management Agency – part of the German Aerospace Center) (PT-DLR), Germany - is a research funding organisation supporting the Federal Ministry of

Education and Research (BMBF) and the Federal Ministry of Economics and Technology (BMWi), along with other Federal Ministries, in the implementation of programme-related project funding.

- ☒ L'Institut de recherche pour le développement (IRD), France - is a French public research institute addressing international development issues. It reports to the French Ministries of Research and of Foreign and European Affairs.
- ☒ KiNNO Consultants Ltd, Greece - provides services and resources to significantly enhance technology based innovations in SMEs and research organisations.
- ☒ Euresearch, Switzerland - a private association mandated by the Swiss State Secretary for Education, Research and Innovation (SERI) to inform and advise Swiss research organizations and businesses on accessing European Union funded R&D projects and to facilitate them technology and innovation co-operation with partners in Europe and beyond.
- ☒ Academy of Science of South Africa (ASSAf), South Africa - <http://www.assaf.org.za/> the official national science academy recognised by the South African government through the passage of the ASSAf Act, Act No. 67 of 2001, which came into operation in May 2002. ASSAf aspires to be the apex organisation for science and scholarship in South Africa, recognised and connected both nationally and internationally.
- ☒ Southern African Research and Innovation Management Association (SARIMA), South Africa - a stakeholder organisation that provides a platform for the promotion and facilitation of best practise in research and innovation management in Southern Africa.

This report aims at mapping the innovation landscape in South Africa, as well as at identifying the existing support for international cooperation, in particular with Europe. The report offers a robust analysis of the South African National System of Innovation (NSI) and relates its main characteristics against the European NSI. The mapping includes screening recently finished or ongoing mapping exercises (e.g. OECD, ASTII, CeSTII) and identification of organisations with an innovation mandate, identification of leading stakeholders (e.g. TIA, National Advisory Council on Innovation). Another important element of the report is the political and legislative analysis. In addition, the report

examines related cooperation instruments, and identifies best practices and success stories of South African - European cooperation in innovation programmes and activities. The report includes ongoing and past collaborations and initiatives between Europe & Member States and SA.

Lastly, the report aims at setting the ground to foster cooperation on framework conditions, by analysing the strengths and weaknesses of national research and innovation systems in Europe and South Africa. More specifically, section "Framework Conditions for business R&D" offers an overview of the Framework Conditions for innovation.

Through the aforementioned analysis, this report endeavours to offer concrete insight of the South African environment for innovation. In addition, the report takes a leap forward to identify those specific conditions that favour innovation cooperation between Europe and South Africa. The outcomes of the report offer a valuable source of information which allows for political discussion and orientation.

Glossary / Acronyms

Academy Of Science Of South Africa	ASSA
Africa Institute Of South Africa	AISA
Agency For Science And Technology Advancement	SAASTA
Agricultural Research Council	ARC
Council On Higher Education	CHE
Council For Scientific And Industrial Research	CSIR
Companies And Intellectual Property Commission	CIPC
Council For Mineral Technology	MINTEK
Citrus Research International	CRI
Department Of Science And Technology	DST
Department Of Trade And Industry	dti
European Union	EU
Higher Education Institutions	HEIs
Human Sciences Research Council	HSRC
Hydrogen South Africa	HySA
Hartebeesthoek Radio Astronomical Observatory	SAAO
Higher Education South Africa	HESA
Industrial Development Corporation	IDC
Licensing Executives Society International	LESI
Medical Research Council	MRC
National System Of Innovation	NSI
National Intellectual Property Management Office	NIPMO
National Science And Technology Forum	NSTF
National Advisory Council On Innovation	NACI
National Research Foundation	NRF
National Zoological Gardens Of South Africa	NZG
National Institute For Theoretical Physics	NITheP
National Metrology Institute Of South Africa	NMISA
National Empowerment Fund	NEF
National Health Laboratory Services	NHLS
National Youth Development Agency	NYDA
Non-Government Organisations	NGO'S

Protein Research Foundation	PRF
Research And Innovation, Support And Advancement	RISA
Republic Of South Africa	RSA
South African Institute For Aquatic Biodiversity	SAIAB
Small Enterprise Development Agency	SEDA
Support Programme For Innovation In Industry	SPII
South African Environmental Observation Network	SAEON
Square Kilometre Array	SKA
South African Bureau Of Standards	SABS
South African National Accreditation System	SANAS
South African Vanguard Of Technology	SAVANT
Small Enterprise Finance Agency Ltd	SEFA
Southern African Research And Innovation Management Association	SARIMA
South African Nanotechnology Initiative	SANi
South African Institute Of Intellectual Property Law	SAIPL
South African Nuclear Energy Corporation	NECSA
South African National Energy Development Institute	SANEDI
South Africa Biodiversity Institute	SANBI
South African Venture Capital Association	SAVCA
Southern African Innovation Network	SAINe
South African Sugarcane Research Institute	SASRI
Sugar Milling Research Institute	SMRI
Technology Innovation Agency	TIA
Technology And Human Resources For Industry Programme	THRIP
Agreement on trade related intellectual property Rights	TRIPS
Water Research Commission	WRC
World Intellectual Property Organisation	WIPO
World Trade Organisation	WTO

Executive Summary

Introduction

The European Union (EU) and the Republic of South Africa (SA) have long been committed to strategic cooperation in science and technology, dating back to their 1996 Cooperation Agreement, which facilitated cooperation under the Framework Programmes. South Africa has also concluded several bilateral cooperation agreements with EU Member States, and is aiming to create a robust national system of innovation (NSI) to enable its transition to a knowledge economy, achieving sustained growth and development. The experience made in the EU concerning international cooperation in Research and Innovation (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.

South Africa and the EU, thus, share similar objectives and there is rich potential for cooperation in innovation to complement their substantial trade, innovation and development cooperation.

In the context of the SA NSI and international cooperation EU-, National, and 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.

This Report aims to discuss and make recommendations in relation to Innovation Framework Conditions in SA-EU. This requires investigating framework conditions in a comparative and forward looking perspective: complementarities, barriers, market potentials, IPR, trade and innovation including new perspectives which might better support Innovation policy and programmes in the context of international cooperation. Within this context the Report is structured in the following sections:

- Section I: National System of Innovation (NSI)
- Section II: Innovation Stakeholders
- Section III: SA Legislative environment
- Section IV: State of Innovation in SA
- Section V: SA-EU innovation cooperation
- Section VI: Recommendations

I National System of Innovation (NSI)

The South African science landscape has evolved dramatically since the dawn of democracy through government's commitment to transforming the inward-looking and embattled sector into a system that is innovative, flexible and responsive to the needs of its society.

For more than a decade South Africa's democratic government has been developing the National System of Innovation (NSI). The NSI comprises of a multiplicity of innovation stakeholders, institutional structures and relationships, advanced facilities and equipment, modern laboratories, research support, expanded international cooperation that are integral to South Africa's progress and contributing towards an enabling framework for science and technology . The NSI is central to the country's prospects for continued economic growth and socio-economic development.

The Department of Science and Technology (DST) and the Cabinet laid the foundations for the NSI with a series of strategic documents, beginning with the 1996 White Paper on Science and Technology, and followed by the National Research and Technology Foresight (1999) and the National Research and Development Strategy (2002).

Yet for South Africa to rise to the global challenge, the NSI must become more focused on long-term objectives. In particular, the government must urgently confront the failure of the NSI to commercialise the results of scientific research. The DST's conclusions in this regard are mirrored in a peer review conducted by the Organisation for Economic

Cooperation and Development (OECD)¹.

Section I of the Report analyses the NSI.

II Innovation Stakeholders

Innovation Stakeholders in South Africa include Government Departments or Agencies, private companies, research institutes, universities and NGOs that provide funding, support or services to the innovation community in South Africa. Section II of this Report provides general information on all the identified stakeholders. For ease of reference throughout the document a table is inserted at the right top corner of each paragraph, indicating the respective stakeholders' enabling role as potential funder, supporter or intellectual property creator. Furthermore, Section XIII, Resources, contain the contact information of all the Innovation Stakeholders.

III SA Legislative environment

South Africa has been a WTO member since 1995 and is a signatory to the TRIPS Agreement that resulted in expanded commitments to internationally binding guarantees of corporate 'intellectual property rights' over science and technology, production processes and products, such as pharmaceutical drugs². South Africa, like many developing countries, significantly responded to the TRIPS Agreement by tightening IPR protection regimes³. The empirical evidence (notably changes to the Trade Mark Act) suggests that the TRIPS Agreement has been successful in coercing South Africa and WTO member countries to strengthen domestic protection of IPR.

Furthermore, there are more than 30 pieces of legislation in South Africa that directly impact on the NSI, the Report only elaborate on the most recent legislation in South Africa in respect of the innovation landscape, i.e.:

¹ OECD Review Report on South Africa (2006)

² Dot Keet, South Africa's official position and role in promoting the WTO

³ Ryan Cardwell, The Effects of the TRIPS Agreement on International Protection of Intellectual Property Rights, ITJ

- 🔗 Biodiversity Act (§ 2.1.1.1.105)
- 🔗 Intellectual Property Rights from Publicly Financed R&D Act (§ 2.1.1.1.107)
- 🔗 R&D Tax Incentives (§ 2.1.1.1.106)

Intellectual Property Rights from Publicly Financed R&D Act (§ 2.1.1.1.107)

The specific object of this legislation is that intellectual property emanating from publicly financed research and development should be commercialised for the benefit of all South Africans, and protected from appropriation. The IPR Act further provides for an enabling environment for intellectual property -

- 🔗 creation,
- 🔗 protection,
- 🔗 management and
- 🔗 commercialisation and utilisation.

Because this IPR Act impacts on all future EU collaboration agreements a recommendation is made to develop guidelines for the interpretation of the Act by EU partners.

Biodiversity Act

The National Environmental Management: Biodiversity Act builds on the White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, which was published in 1997. The Biodiversity Act is of particular importance to the EU because many collaboration partnerships are based on the transfer of sensitive biological material from South Africa to EU partners by means of Material Transfer Agreements (MTA).

Among other the Act provides for bioprospecting, access and benefit sharing, the establishment of a Bioprospecting Trust Fund into which all moneys arising from material transfer and benefit-sharing agreements must be paid.

A recommendation to harmonise Material Transfer Agreements is made.

Pharmaceuticals and the Patent Act

There is currently a fierce, on-going debate in South Africa on the alleged impact that the Patent Act has on access to free medicine for the poor. This Report does not contain any reference to any formal or informal position of Government, stakeholders or lobby groups on the subject matter, mainly because the debate is at a very early stage. It is, however, one of the recommendations that the envisaged workshop will provide for a session on "Access to medicine, the Patent Act and Innovation in south Africa". This topic will be of interest to many EU partners who sponsor clinical trials at South African Institutions.

R&D Tax Incentives

The tax incentive (up to 150% of R&D expenditure) is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and /or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

A recommendation is made to investigate how this incentive can directly or indirectly benefit EU-collaborators on SA research projects.

IV State of Innovation in SA

EASASTAP Plus used the WIPO Global Innovation Index 2013 as one of many reports generated by stakeholders around the world on the state of innovation in countries such as South Africa. According to this Report SA ranks 58 of 142 countries.

A recommendation is made to review the available reports in depth with the aim to present a short paper at the envisaged workshop.

V SA-EU innovation cooperation

The Trade, development and cooperation agreement (TDCA) constitutes the legal basis for the overall relations between South Africa and the EU. The TDCA covers political dialogue, the establishment of a free trade area over an asymmetrical twelve-year period, development co-operation, economic cooperation, and cooperation in a whole series of other areas. The agreement was signed in October 1999 and it entered into force

in 2000. In addition the Science and Technology Cooperation Agreement was concluded in 1996 and entered into force in November 1997. In terms of the latter agreement Scientific collaboration between South Africa and the EU is monitored and facilitated by the Joint Science and Technology Cooperation Committee (JSTCC), established under the Agreement.

The EU and South Africa have also established a Strategic Partnership, and adopted an Action Plan for its implementation in May 2007. The Action Plan has two strands:

- ☒ enhanced political dialogue and cooperation on regional, African and world issues, and
- ☒ stronger cooperation in a number of economic, social and other areas.

VI Recommendations

Section VI of this report contains a list of recommendations for consideration by the stakeholders. The main recommendation is:

Esastap Plus to facilitate a stakeholder workshop during which the contents of this report will be debated, recommendations considered and suggestions for the improvements to the report in general be made. The Report should then be converted into a useful tool which shall at least include the dissemination of the content of the report on a suitable website.

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1. The National System of Innovation (NSI)

South African Perspective

How is the NSI defined?

The South African science landscape has evolved dramatically since the dawn of democracy through government's commitment to transforming the inward-looking and embattled sector into a system that is innovative, flexible and responsive to the needs of its society.

For more than a decade South Africa's democratic government has been developing the National System of Innovation (NSI). The NSI comprises of a multiplicity of innovation stakeholders, institutional structures and relationships, advanced facilities and equipment, modern laboratories, research support, expanded international cooperation that are integral to South Africa's progress and contributing towards an enabling framework for science and technology . The NSI is central to the country's prospects for continued economic growth and socio-economic development.

National Challenges⁴

The Department of Science and Technology (DST) and the Cabinet laid the foundations for the NSI with a series of strategic documents, beginning with the 1996 White Paper on Science and Technology, and followed by the National Research and Technology Foresight (1999) and the National Research and Development Strategy (2002). The latter emphasised the need to strengthen the place of research and development (R&D) in the economy, proposing an investment target of 1 percent of gross expenditure on R&D as a percentage of gross domestic product (GERD/GDP) for 2008. These direction-setting

⁴ DST 10 Year Innovation Plan, p2

initiatives have yielded measurable progress throughout the NSI and the economy, where GERD/GDP reached 0.92 percent in 2005/06.

Yet for South Africa to rise to the global challenge, the NSI must become more focused on long-term objectives. In particular, the government must urgently confront the failure of the NSI to commercialise the results of scientific research. The DST's conclusions in this regard are mirrored in a peer review conducted by the Organisation for Economic Cooperation and Development (OECD)⁵.

The importance of innovation for development

Scientific⁶ and technological innovations are crucial to developing a more competitive foothold in the global economy, and to addressing pressing developmental needs. However, South Africa has yet to effectively mobilise innovation in support of economic growth. This "innovation chasm" is a major weakness in our economy. This problem was first identified in the National Research and Development Strategy, and flowed from the realisation that the domestic market for medium-high technology products and services on the one hand, and local research on the other, had nothing in common. Inevitably, this led to extensive importation of technology and intellectual property, resulting in an unfavourable technology balance of payments. Some progress has been made in this area – notably through targeted public investment in advanced manufacturing, ICT, biotechnology and resource-based technologies. The system continues to evolve, but it is universally agreed that the current pace of progress is inadequate for South Africa's needs.

Innovation plan of action toward 2018

In 2006 the DST began developing an innovation plan of action informed by other national policies, reports and statistics. The national R&D survey published by the Human Science Research Council (HSRC) showed that in 2005 enterprises accounted for 58.3% of

⁵ OECD Review Report on South Africa (2006)

⁶ DST 10 Year Innovation Plan, p22

the total R&D performance in South Africa compared to 40.1% by the public sector.

The total investment in R&D in 2005 amounted to 0.92% of GDP, demonstrating that South Africa has a realistic chance of achieving the 1% target of GDP set for 2008. It is vital that national public policies and the existing innovation instruments are redesigned to create a strong incentive for innovation. This includes improving access to finance, an innovation-friendly regulatory environment and strengthening the NSI...

From innovation to commercialisation

The major obstacle to commercialisation of technological innovations is financing, due to the high risk and complexity of R&D investments. New creative funding mechanisms that could help address this problem are emerging in some public-private partnerships. Such partnerships have potential to help close the financing gap and to become effective financing vehicles for medium-high tech and high-tech innovations.

EU Perspective on Innovation Systems

1.1.1.1. 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 market⁷ 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

⁷ See European Commission Communication on "Partnering in Research and Innovation", COM(2011) 572 final, p.8-9

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.

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

A. Objectives

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 SMEs⁸.

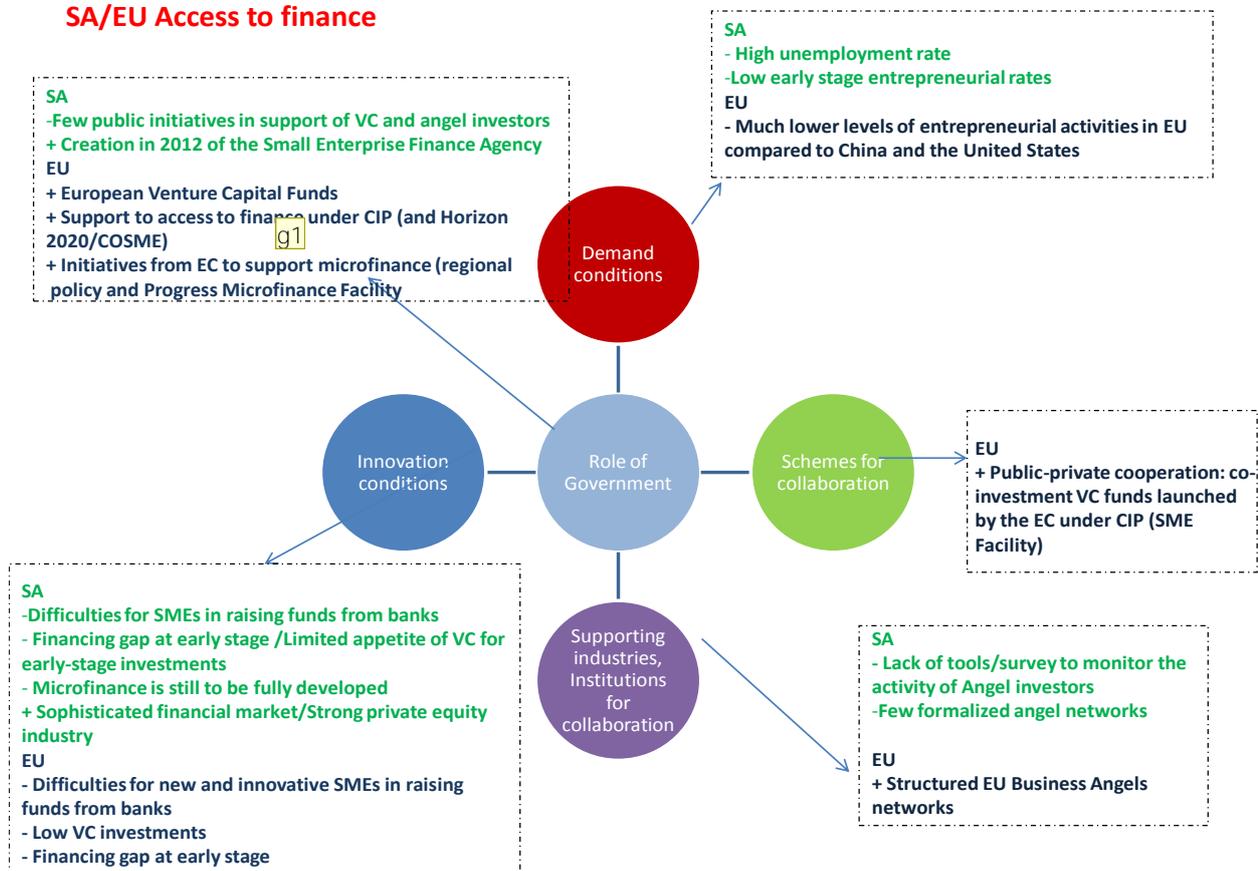
In EU, access to finance is **considered as the second most pressing problem facing EU SMEs after finding customers**⁹. In a similar way, finance was cited by 43% of the experts surveyed by the Global Entrepreneurship Monitor 2012 as one of the three most constraining factors to developing entrepreneurship in South Africa.

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

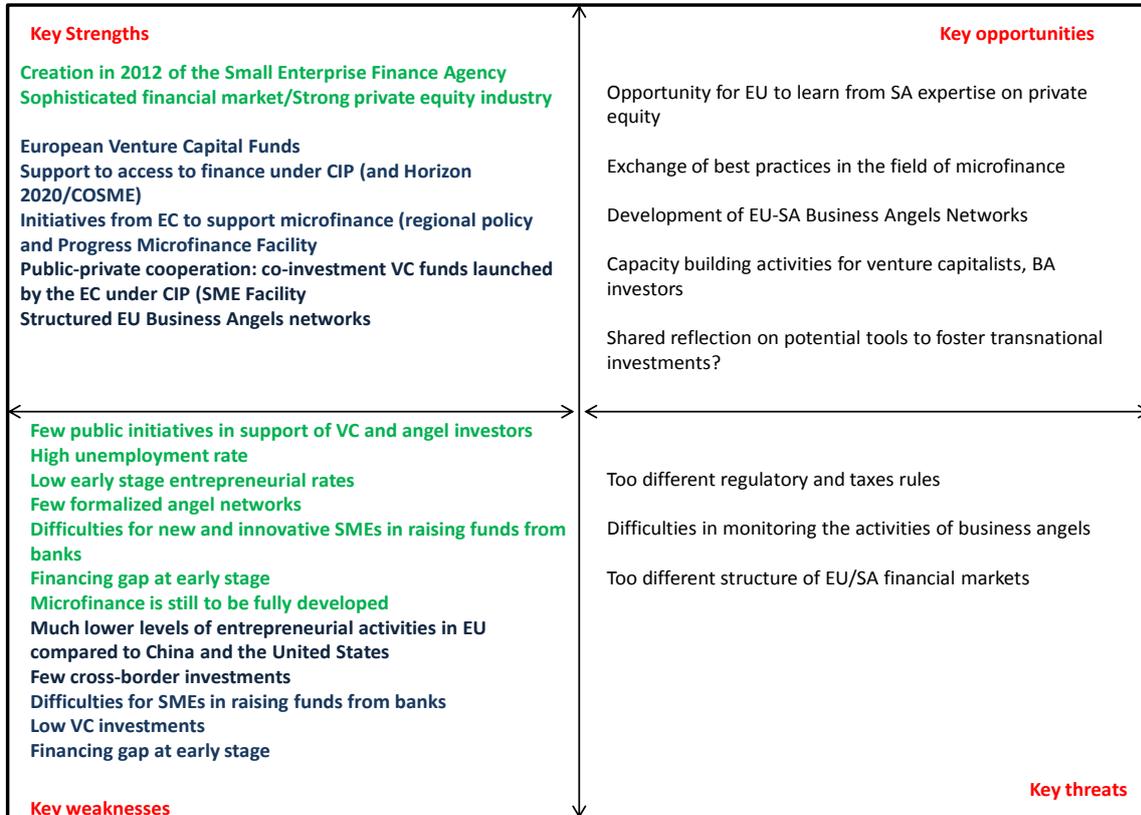
⁸ European Commission, Innovation Union Competitiveness Report 2011, p.330

⁹ European Commission (2011), SME's access to finance Survey 2011, p.6

SA/EU Access to finance



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.



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 guarantees¹⁰.

Similarly, according to the survey led by the European Commission on SMEs access to

¹⁰ OECD (2012), Financing High Growth Firms: the role of Angel Investors, p.22

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”¹¹.

- 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.¹²

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 finance¹³.

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 funds¹⁴. 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

¹¹ Natasha Turton, Mike Herrington (2012) Global Entrepreneurship Monitor 2012 South Africa, p.45

¹² OECD (2012), Financing High Growth Firms: the role of Angel Investors

¹³http://ec.europa.eu/enterprise/policies/finance/data/enterprise-finance-index/access-to-finance-indicators/venture-capital/index_en.htm

¹⁴ KPMG and SAVCA (2013), VC and Private Equity Industry – Performance survey of South Africa

(Europe: 1.5%; UK: 3.7%; North America: 2.8%).¹⁵

But Venture Capitals are also very sensitive to market cycles both in terms of amounts invested and in terms of the stage of investment¹⁶. 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 firms¹⁷.

C. Easing access to finance between EU and SA

☒ Public/Private VC funds

Public-private partnerships (e.g. co-investment VC funds)¹⁸ would allow VC to consider smaller and riskier deals while protecting, thanks to the public guarantee, against the firm failure¹⁹.

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.

¹⁵ Thomas Dickinson (2009) Private Equity: Helping Fill Africa's Financing Gap?

¹⁶ European Commission, Innovation Union Competitiveness Report 2011, p.332

¹⁷ Roberto Zavatta (2008), Financing technology entrepreneurs and SMEs in developing countries: challenges and opportunities, InfoDev Publication, p.49

¹⁸ Report of the Chairman of the expert group on the cross border matching of innovative firms with suitable investors, European Commission, 2012

¹⁹ 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.”²⁰

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 entrepreneurs²¹.

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 Europe²².

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 companies²³. 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.

²⁰ Global Entrepreneurship Monitor 2012 – Recommendations for policy and practice, p.77

²¹ OECD (2012), Financing High Growth Firms: the role of Angel Investors, p.30

²² <http://fr.slideshare.net/FliksGmbH/angel-groups-in-south-africa-seminar-at-uct>

²³ Roberto Zavatta (2008), Financing technology entrepreneurs and SMEs in developing countries: challenges and opportunities, InfoDev Publication, p.49

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 innovations²⁴.

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 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)²⁵.

Regarding South Africa, a World Bank report²⁶ 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.

²⁴ ProINNO Europe (2009), Microfinance and innovation, Mini-Study 06, p.6

²⁵ <http://ec.europa.eu/social/main.jsp?langId=en&catId=836&newsId=1093&furtherNews=yes>

²⁶ S. Aggarwal, L. Klapper, D. Singer (2012), Financing Business in Africa : The role of Microfinance, The World Bank

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 Africa²⁷. With a view to tackling this gap, the South African government created the Small Enterprise Finance Agency (Sefa) in 2012, 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.

The Conceptual Framework for the NSI within the context of EU - SA Innovation Policy and Programmes

Introduction

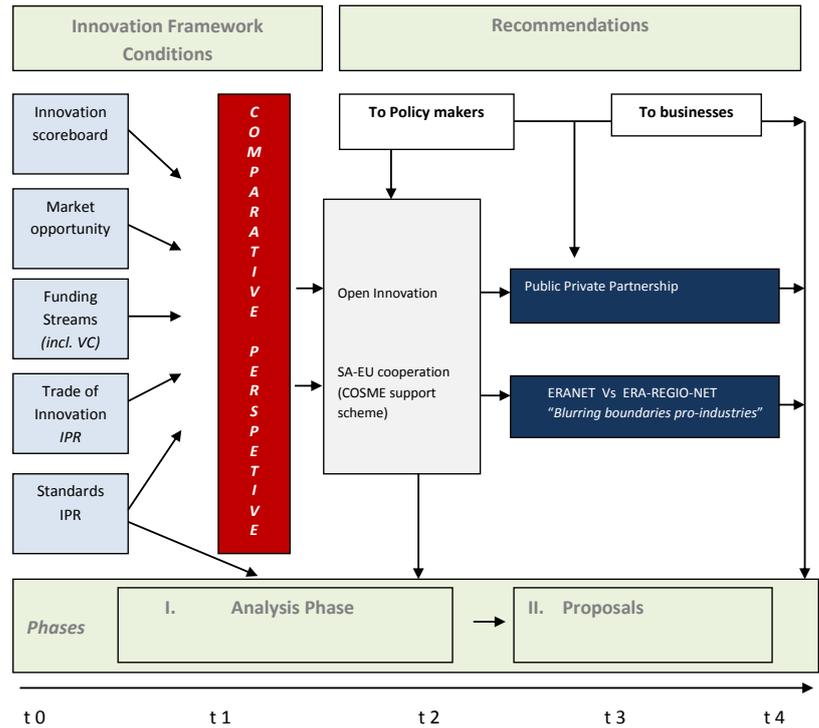
In the context of the SA NSI and international cooperation, EU/National/Regional *Innovation policy and programmes* are increasingly considered an appealing framework to explore opportunities for collaboration, new partnerships and instruments for coordination mechanisms. This is particularly relevant 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.

²⁷ Global Entrepreneurship Monitor South Africa 2012, p.46

A common strategic ground for cooperation has to be in place from 2014 onwards. This requires investigating framework conditions in a comparative and forward looking perspective: complementarities, barriers, market potentials, IPR, trade and innovation including new perspectives which might better support Innovation policy and programmes in the context of international cooperation.

Proposed Methodology



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 (e.g., *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.

2. Innovation Stakeholders

Introduction²⁸

Innovation Stakeholders in South Africa include Government Departments or Agencies, private companies, research institutes, universities and NGOs that provide funding, support or services to the innovation community in South Africa. Section II of this Report provides general information on all the identified stakeholders. For ease of reference throughout the document a table is inserted at the right top corner of each paragraph, indicating the respective stakeholders' enabling role as potential funder, supporter or intellectual property creator. Furthermore, Section XIII, Resources, contain contact information of all the Innovation Stakeholders.

Government

2.1.1.1.1. Department Of Science and Technology (DST)

<http://www.dst.gov.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Department pursues the following strategic objectives in support of its mission:

- ☒ To develop the innovation capacity of the NSI and thereby contribute to socio-economic development.
- ☒ To enhance South Africa's knowledge-generation capacity in order to produce

²⁸ The content of Section 2 was sourced from stakeholders' websites or annual reports that are in the public domain. In most instances the text has not been edited. Copyright is retained by the stakeholders.

world-class research outputs and turn some advanced findings into innovation products and processes.

- ☒ To develop appropriate science, technology and innovation (STI) human capital to meet the needs of society.
- ☒ To build world-class STI infrastructure to extend the frontiers of knowledge, train the next generation of researchers and enable technology development and transfer as well as knowledge interchange.
- ☒ To position South Africa as a strategic international RDI partner and destination through the exchange of knowledge, capacity and resources between South Africa and its regional and other international partners, thereby strengthening the NSI.

Legislative mandates

(a) Intellectual Property Rights from Publicly Financed Research and Development (IPR) Act, 2008

This Act provides for the more effective use of intellectual property emanating from publicly financed research and development, through the establishment of the National Intellectual Property Management Office (NIPMO), the Intellectual Property Fund, and offices of technology transfer at institutions.

(b) Technology Innovation Act, 2008

This Act is intended to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements, and for that purpose establishes the Technology Innovation Agency (TIA).

(c) South African National Space Agency Act, 2008

This Act establishes the South African National Space Agency to promote space science research, cooperation in space-related activities, and the creation of an environment conducive to the development of space technologies by industry.

(d) Natural Scientific Professions Act, 2003

This Act establishes the South African Council for Natural Scientific Professions, and legislates the registration of professional natural scientists, natural scientists-in-training, natural science technologists and natural science technologists-in-training.

(e) National Research Foundation Act, 1998

This Act establishes the National Research Foundation to promote basic and applied research, as well as the extension and transfer of knowledge in the various fields of science and technology.

(f) National Advisory Council on Innovation Act, 1997

This Act establishes the National Advisory Council on Innovation to advise the Minister of Science and Technology on the role and contribution of science, mathematics, innovation and technology in promoting and achieving national objectives.

(g) Africa Institute of South Africa Act, 2001

This Act establishes the Africa Institute of South Africa to promote knowledge and understanding of African affairs by encouraging leading social scientists to act in concert and across all disciplines, and by collecting and disseminating information on African affairs.

(h) Human Sciences Research Council Act, 2008

This Act provides for the continued existence of the Human Sciences Research Council, which carries out research that generates critical and independent knowledge relative to all aspects of human and social development.

(i) The Scientific Research Council Act, 1988

This Act refers to the activities of the Council for Scientific and Industrial Research, one of the leading scientific and technological research, development and implementation organisations in Africa, which undertakes directed research and development for socio-economic growth in areas including the built environment, defence, the environmental sciences, and biological, chemical and laser technologies.

(j) Astronomy Geographic Advantage Act, 2007

The Act provides for the preservation and protection of areas in South Africa that are uniquely suited to optical and radio astronomy, and for intergovernmental cooperation and public consultation on matters concerning nationally significant astronomy advantage areas.

Policy mandate

The Department's major policy documents are the White Paper on Science and Technology (1996), the 2002 National Research and Development Strategy (NRDS), the "New Strategic Management Model" for South Africa's science and technology system (2004) - with its "Policy on Governance Standards for Science, Engineering and Technology Institutions and Framework for the Development of a National Science and Technology Expenditure Plan" - and the 2007 Ten-Year Innovation Plan (TYIP).

Programmes

Programme 1:
Corporate Services & Governance

Programme 2:
Research Development & Innovation

Programme 3:
International Cooperation & Resources

Programme 4:
Human Capital & Knowledge Systems

Programme 5:
Socio-Economic Partnerships

2.1.1.1.2. **DST ENTITIES**

2.1.1.1.3. **Technology Innovation Agency (TIA)**

www.tia.org.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Technology Innovation Agency (TIA) was established in terms of the TIA Act, 2008 (Act No. 26 of 2008), with the objective of stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations.

TIA's core business objective is to support the development and commercialisation of competitive technology-based services and products. The Agency primarily uses South Africa's science and technology base to develop new industries, create sustainable jobs and help diversify the economy. It invests in the following technology sectors: Advanced Manufacturing, Agriculture, Industrial Biotechnology, Health, Mining, Energy and ICT.

General information

The Agency seeks to achieve its mandate by providing Financial and Non-Financial Support to its stakeholders, namely, Science Councils, Public Entities, Higher Education Institutions, private research institutions and entrepreneurs.

Funding Philosophy and Assessment Criteria

TIA will seek out and catalyse opportunities for investment funding where there exists: Creative new technology based ideas for either new or improved products, processes or services; or Existing technology based ideas for new or improved products, processes or services that can be further improved, developed and exploited by South Africans, whether directly or in collaboration with foreigners where a win-win partnership can be forged; or Development of infrastructure and capacity that will reduce the barriers to technological innovation in South Africa; and The stage of development of the idea is beyond basic research and before production expansion; and Where there are

insufficient other resources available to progress the opportunity.

To give effect to this philosophy, TIA will assess investment opportunities in terms of:

- ☒ The current stage in the innovation chain and the planned path for innovation.
- ☒ The potential attractiveness of the product or service in the targeted market.
- ☒ The potential intensity of social and economic impact that the opportunity is likely to achieve including GDP growth and increased taxation revenue, meaningful job creation, increased and value added exports, increased competitiveness of industrial sectors, increase in highly skilled capacity and knowledge base, lowered net intellectual property cost, increased capabilities for technology innovation, solutions to national needs and improvement in quality of life, responsiveness to social and developmental needs including poverty alleviation.
- ☒ Alignment with the TIA sector strategies and alignment with national policy.
- ☒ The technical and commercial viability of the plan
- ☒ The ability of the team to implement the plan.
- ☒ The extent of prior investment, partnership and leverage of other resources.
- ☒ Prospect of promoting of BBBEE.
- ☒ Investment risk and expected outcomes relative to the TIA portfolio.
- ☒ Potential financial return.
- ☒ Availability of funds

2.1.1.1.4. Africa Institute of South Africa (AISA)

<http://www.ai.org.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Africa Institute of South Africa Act 68 of 2001 outlines these predetermined objectives for the Institute:

- ☒ To promote knowledge and understanding of African affairs through leading social scientists acting in concert and across all disciplines and through training and education on African affairs;

- ☒ To collect, process and disseminate information on African affairs, give effective advice and facilitate appropriate action in relation to the collective needs, opportunities and challenges of all South Africans; and
- ☒ To promote awareness and consciousness of Africa at grassroots level.

2.1.1.1.5. Human Sciences Research Council (HSRC)

www.hsrc.ac.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

Corporate support the core business of the Human Sciences Research Council (HSRC) is to conduct large-scale, policy-relevant, social-scientific projects for public-sector users, non-governmental organisations and international development agencies. We do this in partnership with researchers globally, but specifically in Africa. Our commitment to cutting-edge research which supports development nationally, in the Southern African Development Community (SADC) and in Africa is evident, but it is our commitment to the dissemination of that research that demonstrates the remarkable and measurable impact of our work. As the national social science council of South Africa, the HSRC wishes to serve as a knowledge hub to bridge the gap between research, policy and action; thus increasing the impact of research. This is achieved through collaboration with key constituencies, including government, other research organisations, multinational agencies, universities, non-government organisations, and donor and development organisations. With a dedicated staff complement of almost 500, consisting of professional researchers, technical and administrative support staff, based in five offices in four different provinces across South Africa, the HSRC is well equipped to respond flexibly and comprehensively to current and emerging needs. Its six multi-disciplinary research programmes and research centres are focused on user needs.

Research Programmes

The following units make up the HSRC.

- ☒ Centre for Science Technology and Innovation Indicators
- ☒ Democracy, Governance and Service Delivery
- ☒ Economic Performance and Development
- ☒ Education and Skills Development
- ☒ HIV/AIDS, STIs and TB (including the Africa-wide research network SAHARA) Human and Social Development
- ☒ Population Health, Health Systems and Innovation

Publishing

The HSRC Press, the publishing arm of the HSRC, is South Africa's only open access publisher and is committed to the dissemination of high quality, social science research-based publications, in print and electronic form. HSRC Press publishes the research output of the HSRC as well as externally authored works. A formal peer-review process guarantees the highest academic quality and the Press has a very active local and international marketing programme, in addition to collaborating with foreign publishers on specific titles.

2.1.1.1.6. Academy Of Science of South Africa

<http://www.assaf.co.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The key objective of the Academy is to promote and apply scientific thinking in the service of society. To this end, the Academy shall:

- ☒ Use the common ground of scientific knowledge and activity to remove barriers between people and obstacles to full development of their intellectual capacity;
- ☒ Endeavour in every possible way to inspire, promote and recognise excellence in scientific and technical practice;
- ☒ Investigate and publicly report on various matters, in its own discretion or at the request of government or organisations in civil society, in order to promote and

- apply scientific thinking in the service of society;
- ☒ Promote science education and a culture of science in the population at large;
- ☒ Maintain strict independence while consulting other organisations and individuals in the widest manner possible;
- ☒ Endeavour to establish and develop close relations with scientific organisations in South Africa and with similar academies in other countries; and
- ☒ Take any other action that it may consider necessary towards the attainment of its key objective.

2.1.1.1.7. SciELO

The Scientific Electronic Library Online (SciELO) SA is South Africa's premier open-access (free to access and free to publish) searchable full-text journal database in service of the South African research community. The database covers a selected collection of peer-reviewed South African scholarly journals and forms an integral part of the SciELO Brazil project.

SciELO SA is managed by the Academy of Science of South Africa (ASSAf), funded by the South African Department of Science and Technology and endorsed by the South African Department of Higher Education and Training (DHET).

2.1.1.1.8. South African National Space Agency

<http://www.sansa.org.za/overview/history>



Mandate and objectives

The South African National Space Agency Act, 36 of 2008, mandated the establishment of a National Space Agency to provide for the promotion and use of space and cooperation in space-related activities, foster research in space science, advance scientific engineering through human capital and support the creation of an environment conducive to industrial development in space technologies within the framework of

national government policy.

On 9 December 2010, South Africa's space landscape was transformed with the launch of the South African National Space Agency (SANSA). The intent is to converge and optimise resources and maximise the benefits of space services and applications to society.

SANSA comprises a corporate office which oversees the overall operational capability of SANSA, the Earth Observation directorate (currently based in Hartebeesthoek), Space Operations directorate (formerly the Satellite Application Centre - located in Hartebeesthoek) and Space Science directorate (former Hermanus Magnetic Observatory - located in Hermanus).

2.1.1.1.9. Council for Scientific and Industrial Research (CSIR)

<http://www.csir.co.za/>



Mandate and objectives

The CSIR in South Africa performs multidisciplinary research and technological innovation with the aim of contributing to industrial development and the quality of life of people of this country -- and increasingly on the wider continent. We employ people who are experts in their fields and passionate about creating a better future through science.

Constituted by an Act of Parliament in 1945, the CSIR is one of the leading science and technology research, development and implementation organisations in Africa. The CSIR's main site is in Pretoria, while it is represented in other provinces of South Africa through regional offices.

Core focus on science

The CSIR transfers the knowledge generated through research activities by means of technology and skilled people. The generation and application of knowledge reside at the core of the CSIR. This takes place in domains such as biosciences; the built environment; defence, peace, safety and security; materials science and manufacturing;

and natural resources and the environment.

Emerging research areas:

These are areas of science, explored by the CSIR, that could be unique to local circumstances or successful internationally and need to be established for local competitiveness. Examples include nanotechnology, synthetic biology and mobile autonomous intelligent systems.

National research centres:

The CSIR houses specialist facilities of strategic importance for African science. These include information and communications technologies; laser technology; and space-related technology.

Supporting national imperatives

South Africa's national imperatives and global challenges provide the macro-strategic framework within which the CSIR conducts its research. In an effort to contribute to placing our continent on a path of sustainable growth and development, the organisation supports and actively participates in the New Partnership for Africa's Development (NEPAD).

The CSIR contributes to the national programme of development by:

- 🔍 Building and transforming human capital
- 🔍 Strengthening the S&T base
- 🔍 Performing relevant knowledge-generating research and transferring technology and skilled human capital.

The CSIR receives an annual grant from Parliament, through the Department of Science and Technology (DST), which accounts for close to 40% of its total income. The remainder is generated from research contracts with government departments at national, provincial and municipal levels, the private sector and research funding agencies in South Africa and abroad. Additional income is derived from royalties, licences and dividends from IP management and commercial companies created by the CSIR. The parliamentary grant is focused on the knowledge base and facilities in the CSIR to ensure these stay at the leading edge of technological development. It is invested in developing

new areas of expertise, undertaking 'pre-competitive' research too risky for the private sector to fund and for training young researchers. The CSIR's shareholder is the South African Parliament, held in proxy by the Minister of Science and Technology.

2.1.1.1.10. SANReN

The South African National Research Network (SANReN) is part of a comprehensive South African government approach to cyberinfrastructure to ensure successful participation of South African researchers in the global knowledge production effort. Together with the Centre for High Performance Computing (CHPC) and the Very Large Databases (VLDB) project, SANReN forms a key component of this cyber infrastructure as a core scientific infrastructure for South Africa.



The SANReN is a high-speed network dedicated to research traffic and research into research networking and broadband infrastructures. It is being rolled out in a phased manner and will connect up to 204 sites across the country with research networks hosting over 3 000 research and education organisations from all over the world in the first two phases, which commenced in 2007.

Conceptualisation

The SANReN initiative was conceptualised in 2003 in partnership with the then Department of Arts, Culture, Science and Technology. Extensive planning and consultation on the South African approach to high performance computing and research networking were conducted since then. The SANReN and CHPC were discussed in Cabinet and the budget line items as part of the research infrastructure budget of DST were approved and announced during Minister Mangena's budget speech in 2006.

The responsibility for the implementation planning was given to the CSIR Meraka Institute, at that stage already involved with the process of establishing the CHPC, in the beginning

of 2006 to ensure a comprehensive and holistic approach to cyberinfrastructure development. A three-year contract was signed between the CSIR and DST in 2006 for the implementation and management of this project ending in financial year 2009/10. This includes all aspects of the research, design, planning, implementation and monitoring of the network for the period. The SANReN project subsequently forms part of the approved CSIR Meraka Institute business plans from 2006 onward.

The CSIR has identified TENET as a crucial partner in the deployment of SANReN. TENET currently operates the SANReN network on behalf of the CSIR, and has been intimately involved in the planning of many aspects of the network and further roll-out.

2.1.1.1.11. Agency for Science and Technology Advancement (SAASTA)

<http://saasta.ac.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

SAASTA is a business unit of the National Research Foundation (NRF).

The purpose of the NRF science advancement function and SAASTA is to promote and communicate the value and impact of science, technology, engineering, mathematics and innovation (STEMI). Science advancement activities support government priorities such as the Human Resource Development Strategy (2002), the National Strategy for Mathematics, Science and Technology Education (2004), the Youth into Science Strategy (2006), and the DST Ten Year Innovation Plan (2008). Activities are designed to increase the number of skilled professionals and to create a bigger and more competent pool of human resources that may opt for science-based careers and/or pursue research at a postgraduate level.

The target audiences for science engagement include educators and learners, the tertiary education sector, the science community, the science awareness sector, industry and the general public.

The NRF interacts closely with a network of science centres, higher education institutions, science councils, professional science associations and a host of other science-based entities at national and international levels.

SAASTA and the National Research Facilities have adopted a matrix approach, ensuring that a cross-cutting science advancement strategy is implemented, without encroaching on the operational activities of the facilities.

Funding

SAASTA derives its core funding via the NRF from the Department of Science and Technology (DST). The NRF itself is a science council and as such is a non-profit entity.

2.1.1.1.12. National Intellectual Property Management OFFICE (NIPMO)

www.nipmo.org.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The management of intellectual property (IP) emanating from publicly financed research and development has become a critical factor in ensuring that the public derives greater returns from the increasingly significant R&D investments made by government. The South African Government introduced the Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008 (referred to as the IPR-PFRD Act) to provide a regulatory framework for the management of this type of IP.

The National Intellectual Property Management Office (NIPMO) was established in mid-2011 in terms of the Act to promote and manage the objects of the Act. These include the identification, disclosure and statutory protection, and management and commercialisation of the IP referred to it by a recipient of public R&D funds. NIPMO has been set up as an interim office within the Department of Science and Technology as a sub-programme within Programme 2 - Research Development Innovation, pending its establishment as a Government Component within a two-year time frame.

NIPMO aims to ensure that recipients of funding from a government funding agency assess, record and report on the benefit to society of IP emanating from publicly financed R&D. Recipients must protect IP emanating from publicly financed R&D from appropriation and ensure that it is available to the people of South Africa. A recipient

must identify commercialisation opportunities for IP emanating from publicly financed R&D.

Human ingenuity and creativity must be acknowledged and rewarded: the people of South Africa, particularly small enterprises and BBBEE entities, must have preferential access to opportunities arising from the production of knowledge from publicly financed R&D and the resultant IP.

Finally, the State may use the results of publicly financed R&D and the resultant IP in the interests of the people of South Africa.

2.1.1.1.13. National Science and Technology Forum (NSTF)

www.nstf.org.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The NSTF is broadly-representative, Represents wide-ranging expertise and experience, Plays a powerful consultative and lobbying role in SETI policy matters and organises the annual NSTF Awards. The NSTF has a proud history of involvement with SETI policy issues and the promotion of discussion about SETI matters, as well as experience since 1998 organising the prestigious NSTF Awards.

Strategic objectives

- ☒ To influence and catalyse quality delivery of SETI policy
- ☒ To monitor and promote the health of the SETI system
- ☒ To celebrate, recognise and reward excellence within the SETI sector

Structure

The NSTF comprises the following sectors:

- ☒ Science councils and statutory bodies
- ☒ Small, medium and large business and state utilities
- ☒ Civil society and labour
- ☒ Higher education sector

- 🔗 Government sector
- 🔗 Professional bodies and learned societies.

2.1.1.1.14. **DST NANOTECHNOLOGY INNOVATION CENTRES**

2.1.1.1.15. **Mintek Nanotechnology Innovation Centre (NIC)**

<http://www.nic.ac.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The DST/Mintek Nanotechnology Innovation Centre (NIC) is a national facility that is geographically spread across the country and was established at Mintek in 2007 by the Department of Science and Technology. The Mintek NIC activities are aimed at addressing national priorities highlighted by both the national nanotechnology strategy and national research and development (R&D) strategy. Importantly, the Mintek NIC structure was built on the foundation of the national system of innovations (NSI) to focus on driving South Africa's transformation from resource-based economy towards knowledge based economy using nanotechnology. The Mintek NIC activities focus on a number of issues, including the development of research platforms, encouraging and promoting the formation of collaborative networks, addressing human capital development and bridging the "innovation chasm".

Through the DST/Mintek NIC, collaborative networks have been established locally, allowing various Universities such as the University of Western Cape, Rhodes University at the University of Johannesburg undertaking and coordinating research activities in bio-labels, sensors and water respectively. Specifically, the activities of NIC focus on the R&D of various nanostructured materials or nanominerals and their applications in health (diagnostics, therapeutics), water (monitoring and remediation) and other related fields. This basically entails the development of various nanostructured materials as semi-commercial products which are further used as therapeutic systems or tools. Importantly,

the nanomaterial systems are used for the development of rapid point-of-care (POC) diagnostic prototypes (either optical or electrochemical) and to enhance the performance of membrane systems for water treatment.

Within the NIC, the Water Research Commission (WRC) and the Medical Research Council (MRC) are actively involved at the development platforms, thereby, turning nanoscience into nanotechnology. Mintek NIC hosts world class characterisation and fabrication facilities and has expertise in computational modelling.

2.1.1.1.16. DST CENTRES OF EXCELLENCE

<http://www.nrf.ac.za/coes.php>



Mandate and objectives

Centres of Excellence (CoEs) are physical or virtual centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines and institutions on long-term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and capacity development.

In 2004, following consultations with experts from various countries, the Department of Science and Technology (DST) and the National Research Foundation (NRF) developed a CoE Programme Framework document, or guide, for the establishment of CoEs. The DST and the NRF signed a memorandum of agreement (MoA) through which the NRF was appointed to perform the operational management of the CoE programme for "...a maximum of ten (10) years, until the winding up of [the] CoE programme, or as otherwise agreed between parties...". The DST-NRF CoE Programme was launched in 2004 focusing primarily on South Africa.

2.1.1.1.17. **DST CENTRES OF COMPETENCE**

<http://www.hysainfrastructure.org/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

- ☒ HySA consists of three DST Centres of Competence
- ☒ HySA Infrastructure
- ☒ HySA Catalyst and
- ☒ HySA Systems.

The HySA Infrastructure (Hydrogen Production, Storage and Delivery) Centre of Competence, HySA Infrastructure in short, co-hosted by the North-West University (NWU) and Council for Scientific and Industrial Research (CSIR),

2.1.1.1.18. **OTHER DST INITIATIVES**

2.1.1.1.19. **R&D Tax Incentives**

<http://www.dst.gov.za/index.php/services/the-rad-tax-incentives-programme>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Taxation Laws Amendment Act 2011 introduced specific enhancements to the existing scientific and or technological research and development (R&D) tax incentive provided under Section 11D of the Income Tax Act. These changes are effective from 1 October 2012.

A company undertaking R&D in the Republic of South Africa qualifies for a 150% tax deduction of its operational R&D expenditure. This incentive is available to businesses of all

sizes in all sectors of the economy that are registered in South Africa.

All the eligible R&D expenditure will qualify for an automatic 100% tax deduction. An additional 50% uplift applies to expenditures on R&D activities that have been approved by the Minister of Science and Technology, based on the provisions of Section 11D of the Income Tax Act.

The incentive is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and /or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

2.1.1.1.20. National Advisory Council on Innovation (NACI)

www.naci.org.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The National Advisory Council on Innovation (NACI) has been created by legislation to advise the Minister of Science and Technology of South Africa, and through the Minister, the Cabinet, on the role and contribution of science, mathematics, innovation and technology, including indigenous technologies, in promoting and achieving national objectives, namely to:

- ☒ improve and sustain the quality of life of all South Africans
- ☒ develop human resources for science and technology
- ☒ build the economy
- ☒ strengthen the country's competitiveness in the international sphere.

The membership of NACI is broadly representative of all sectors and is constituted in a manner that ensures a spread of expertise and experience regarding: national and provincial interests; scientific and technological disciplines innovation the needs and opportunities in different socio-economic fields; and research and development in all sectors.

2.1.1.1.21. National Research Foundation

www.nrf.ac.za



Mandate and Objectives

The NRF receives its mandate from the National Research Foundation Act (Act No 23 of 1998). According to Section 3 of the Act, the object of the NRF is to:

- ☒ promote and support research through funding, human resource development and the provision of the necessary facilities in order
- ☒ to facilitate
the creation of knowledge, innovation and development in all fields of science and technology, including indigenous knowledge,
- ☒ and thereby to contribute to the improvement of the quality of life of all the people of the Republic.

THREE MAIN BUSINESS DIVISIONS IN THE NRF (see figure below):

- I. Science Advancement;
- II. Research and Innovation Support and Advancement (RISA); and
- III. The National Research Facilities.



Source: NRF Annual Report 2012

NRF DIVISION I:

SCIENCE ADVANCEMENT

2.1.1.1.22. Agency for Science and Technology Advancement (SAASTA)

<http://saasta.ac.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

SAASTA is a business unit of the National Research Foundation (NRF).

The purpose of the NRF science advancement function and SAASTA is to promote and communicate the value and impact of science, technology, engineering, mathematics and innovation (STEMI). Science advancement activities support government priorities such as the Human Resource Development Strategy (2002), the National Strategy for Mathematics, Science and Technology Education (2004), the Youth into Science Strategy (2006), and the DST Ten Year Innovation Plan (2008). Activities are designed to increase the number of skilled professionals and to create a bigger and more competent pool of human resources that may opt for science-based careers and/or pursue research at a postgraduate level.

The target audiences for science engagement include educators and learners, the tertiary education sector, the science community, the science awareness sector, industry and the general public.

The NRF interacts closely with a network of science centres, higher education institutions, science councils, professional science associations and a host of other science-based entities at national and international levels.

SAASTA and the National Research Facilities have adopted a matrix approach, ensuring that a cross-cutting science advancement strategy is implemented, without encroaching on the operational activities of the facilities.

Funding

SAASTA derives its core funding via the NRF from the Department of Science and Technology (DST). The NRF itself is a science council and as such is a non-profit entity.

NRF DIVISION II:

RESEARCH AND INNOVATION SUPPORT AND ADVANCEMENT (RISA)

2.1.1.1.23. Research and Innovation, Support and Advancement (RISA)

Mandate and Objectives

RISA promotes and supports research and research capacity in all fields of research, innovation and technology. This is achieved by investing on a competitive basis in research, people and infrastructure.

RISA is the funding arm of the NRF that translates the Science and Technology strategies and policies of government into programmes and initiatives that support research institutions and researchers. The key function of RISA is to ensure that the country has appropriately qualified people and the necessary high-level infrastructure to produce knowledge that can transform the economy of South Africa into one that can compete globally.

RISA promotes and supports research and research capacity development in all fields of knowledge and technology through:

- 🔍 Investing on a competitive basis in knowledge, people and infrastructure;
- 🔍 Developing research capacity and advancing equity and equality
- 🔍 among researchers;
- 🔍 Promoting the development of institutional capacity at HEIs; and
- 🔍 Facilitating strategic national and international research partnerships and networks.

RISA Programmes



Source: NRF Annual Report 2012

2.1.1.1.24. Knowledge Field Development (KFD)

<http://www.nrf.ac.za/risa.php?fdid=6>



Mandate and Objectives

KFD primarily focuses on the activities at the beginning-end (i.e. basic research) of the research-innovation- commercialisation value chain.

It complements and works in parallel with other value-chain directorates of Human and Institutional Capacity Development (HICD) and Applied Research and Innovation (ARI), and in close liaison with Grant Management and Systems Administration (GMSA).

The KFD directorate works and depends on cross-cutting units like New Business Development (NBD); International Relations [and Cooperation]; the South African Agency for Science and Technology Advancement (SAASTA); and Knowledge Management and Evaluation (KME) to identify new business partners and initiatives; link with international partners and initiatives; transfer knowledge; interact with communities and assess its work.

The goals of the directorate are to:

- ☒ facilitate the advancement and pushing the frontiers of existing knowledge;
- ☒ facilitate the creation of new knowledge;
- ☒ promote active interaction between researchers within and across disciplines and knowledge fields;
- ☒ strengthen the scientific and professional organisations in the South African research community;
- ☒ investigate, map and analyse research interests and trends within and across disciplines and knowledge fields;
- ☒ refine or redefine research calls in light of the above development and interventions.

2.1.1.1.25. Applied Research, Innovation and Collaboration (ARIC)

<http://www.nrf.ac.za/risa.php?fdid=5>



Mandate and Objectives

Applied research, innovation and collaboration (ARIC) is a new directorate that promotes and develops applied research within the NSI. Applied research produces innovation for commercialisation and can inform policy, legislation and implementation of societal well-being in areas such as sustainability, poverty alleviation, food security, community security, housing, governance and health. The ARIC programmes complement innovation support interventions and programmes such as the Technology Innovation Agency (TIA) and the Support Programme for Industrial Innovation (SPII).

The ARIC directorate consists of the following major programmes:

- ☒ Technology and Human Resources for Industry Programme (THRIP);
- ☒ South African Nuclear Human Asset and Research Programme (SANHARP);

- ☒ Bioinformatics and Functional Genomics (BFG);
- ☒ The 2ENRICH initiative; and
- ☒ Research and Technology Fund (RTF).

2.1.1.1.26. Human and Institutional Capacity Development (HICD)

<http://hicd.nrf.ac.za/>



Mandate and Objectives

The goal of the Human and Institutional Capacity Development (HICD) directorate is to develop institutional research capabilities and infrastructure in parallel with developing the appropriate human capital to drive the research and development strategies within the NSI.

The directorate comprises the five programmes (see Figure) that are implemented in collaboration and partnership with government departments, HEIs, research institutions, industry and other national and international players.

These programmes are:

HICD Programmes



Source: NRF Annual Report 2012

The South African PhD (SA PhD) Project

<http://hicd.nrf.ac.za/?q=saphd-overview>

The South African PhD (SA PhD) Project aims to increase the number of research doctorates to strengthen the academic and Research and Development (R&D) workforce in South Africa. This is done by amongst other things, fostering public-private partnerships for human capital development.

The Human Capacity Programme (HCP)

<http://hicd.nrf.ac.za/?q=hcp-overview>

The Human Capacity Programme (HCP) offers:

- ☒ A range of bursaries and scholarships for student and postdoctoral training;
- ☒ Value-adding initiatives that aim to retain researchers within the NSI;
- ☒ The DST-NRF Internship Programme for unemployed SET graduates; and
- ☒ Strategic projects to increase human resources in scarce skills areas.

The South African Research Chairs Initiative (SARChI)

<http://hicd.nrf.ac.za/?q=sarchi-overview>

The South African Research Chairs Initiative (SARChI) is a knowledge and human capacity-building intervention led by the DST and the NRF. SARChI has five main objectives, i.e. to:

- ☒ Expand the scientific research and innovation capacity of South Africa;
- ☒ Improve South Africa's international research and innovation competitiveness while responding to the social and economic challenges of the country;
- ☒ Attract and retain excellent researchers and scientists;
- ☒ Increase the production of Master's and doctoral graduates; and
- ☒ Create research career pathways for young and mid-career researchers with a strong research, innovation and human capital development output trajectory.

The Institutional Capacity Programme (ICP)

<http://hicd.nrf.ac.za/?q=icp-overview>

The Institutional Capacity Programme (ICP) is geared towards developing researchers from previously disadvantaged groups such as black, female and disabled researchers. The programme supports and implements funding initiatives to develop and enhance human capital development and to strengthen sustained institutional research capacity at public higher education and research institutions.

The Strategic Platforms Programme

<http://hicd.nrf.ac.za/?q=spp-overview>

The Strategic Platforms Programme focuses on:

- ☒ Establishing enabling infrastructure, including state-of-the-art research equipment and national facilities;
- ☒ Providing access to research equipment and facilities through mobility and research grants;
- ☒ Promoting collaboration among researchers working at universities and those at National Research Facilities through collaborative research grants;
- ☒ Supporting flagship research projects in strategic areas, such as nanotechnology; and
- ☒ Developing specialised technical expertise within existing and developing strategic platforms.

2.1.1.1.27. International Relations and Cooperation (IR&C)

<http://www.nrf.ac.za/risa.php?fdid=13>



Mandate and Objectives

Within government, the Department of Science of Technology is the custodian of international science cooperation, agreements and memberships. The DST appointed the NRF as implementing agency for these agreements and memberships. The role of the NRF is to:

- ☒ Develop the science and technology cooperation agreements;

- ☒ Draft the programme of cooperation, which generally details modalities, criteria, priorities and conditions; and
- ☒ Negotiate funding levels.

Science and Technology agreements formalise scientific relationships among research communities of intergovernmental signatories and they establish long-term, sustainable scientific cooperation and networks. The main purpose of cooperative research is to support projects of scientific excellence by promoting the exchange of researchers and stimulating interaction among scientific communities. There is great emphasis on training. The agreements also encourage the inclusion of PhD students and the exchange of postdoctoral fellows within approved projects. The NRF may enter into cooperation agreements with counterpart organisations, independently of the overarching intergovernmental agreements. Membership of international science bodies gives South African scientists access to knowledge, data and networking opportunities.

2.1.1.1.28. Knowledge Management and Evaluation (KM&E)



Mandate and Objectives

The Knowledge Management and Evaluation (KM&E) directorate is responsible for:

- ☒ Implementing and acting as custodian of knowledge management processes and principles primarily within the NRF, and generally in the wider NSI context;
- ☒ Providing information, knowledge, records and document management services and advice;
- ☒ Appraising, monitoring, evaluating and reviewing internal and external research programmes; and
- ☒ Evaluating and rating the research outputs of individual researchers.

NRF DIVISION III

NATIONAL RESEARCH FACILITIES

2.1.1.1.29. National Research Facilities

Mandate and Objectives

The National Research Facilities provide unique research infrastructure platforms through a multi-location network of institutions. These platforms support research areas of strategic importance and provide researchers and research institutions with access to “big science” equipment. It is through the National Research Facilities that South Africa can compete and cooperate with international counterparts.

The National Research Facilities provide the infrastructure required to generate and support internationally competitive research.

The facilities have the mandate to:

- ☒ Ensure access to state-of-the-art infrastructure;
- ☒ Produce internationally competitive research;
- ☒ Coordinate and manage large international projects;
- ☒ Provide human resources training in a high-tech environment by providing lectures, student supervision and experiential training in collaboration with higher education institutions (HEIs);
- ☒ Use multidisciplinary and multi-institutional programmes as platforms for the training and education of students;
- ☒ Develop strong technical competencies to produce high-quality instrumentation and equipment in niche areas;
- ☒ Grow scientific and technical collaborations with HEIs locally; and
- ☒ Build sustainable international collaborations (particularly in Africa) and enhance the science and technology profile of South Africa internationally.

National Research Facilities²⁹



2.1.1.1.30. iThemba Labs (Laboratory for Accelerator Based Sciences)

<http://www.tlabs.ac.za/>



Mandate and objectives

Activities at iThemba LABS are based around a number of sub-atomic particle accelerators. The largest of these, a k-200 separated sector cyclotron, accelerates protons to energies of 200MeV, and heavier particles to much higher energies. Smaller accelerators at the Western Cape site are two injector cyclotrons, one providing intense beams of light ions, and the other, beams of polarized light ions or heavy ions, and a 6MV Van de Graaff electrostatic accelerator. Accelerators at the Gauteng site include a 6MV tandem Van de Graaff electrostatic accelerator and two low energy electrostatic accelerators for ion implantation and other surface science studies.

iThemba LABS brings together scientists working in the physical, medical and biological sciences. The facilities provide opportunities for modern research, advanced education,

²⁹ Source: NRF Annual Report 2012

the treatment of cancers, and the production of unique radioisotopes.

The focus is on providing scientifically and medically useful radiation through the acceleration of charged particles using the Separated Sector Cyclotron, the Van der Graaff Accelerator and other appropriate technologies. iThemba LABS is to be the primary centre of expertise in radiation medicine and nuclear science and technologies to advance the knowledge and health of the people of Africa.

As a national research facility working within the National System of Innovation it is the intention of iThemba LABS to achieve the following strategic objectives:

- ☒ Grow the research facilities to increase training, human resource development, international collaborations (especially with Africa) and the Science and Technology profile of South Africa
- ☒ Realize the National Particle Therapy Centre (NPTC)
- ☒ Grow radionuclide production into a substantial business
- ☒ Substantially improve training and research outputs
- ☒ Strengthen beneficial collaborations with the higher education sector
- ☒ Forge closer ties with South African and African S&T institutions

2.1.1.1.31. South African Institute for Aquatic Biodiversity (SAIAB)

<http://www.saiab.ac.za/about-us.htm>



Mandate and objectives

Situated in Grahamstown in the Eastern Cape, the South African Institute for Aquatic Biodiversity (SAIAB) is an internationally recognised centre for the study of aquatic biodiversity. (Find us here.)

As a National Facility of the NRF, SAIAB serves as a major scientific resource for knowledge and understanding the biodiversity and functioning of globally significant aquatic ecosystems. By virtue of its unique position with regard to both marine and freshwater

biogeographical boundaries, southern Africa is ideally placed to monitor and document climate change.

From a marine perspective South Africa forms the southern apex of a major continental mass, flanked by very different marine ecosystems on the east and west coasts, and projecting towards the cold southern Ocean large marine ecosystem.

The biodiversity of inland waters is equally relevant to the national interest and SAIAB's scientific leadership and expertise in freshwater aquatic biodiversity is vital when dealing with issues arising from exponentially increasing pressures of human population growth and development.

2.1.1.1.32. National Zoological Gardens of South Africa (NZG)

<http://www.nzg.ac.za/aboutus/index.php>



Mandate and objectives

The National Zoological Gardens of South Africa is a proud facility of the National Research Foundation (NRF).

The 85-hectare Zoo in Pretoria houses 3117 specimens of 209 mammal species, 1358 specimens of 202 bird species, 3871 specimens of 190 fish species, 388 specimens of 4 invertebrate species, 309 specimens of 93 reptile species, and 44 specimens of 7 amphibian species.

The National Zoological Gardens of South Africa is the largest zoo in the country and the only one with national status.

2.1.1.1.33. South African Environmental Observation Network (SAEON)

<http://www.saeon.ac.za/>



Mandate and objectives

The Southern African environment is characterised by high levels of variability and biodiversity. Rainfall is a primary driver of the ecosystems, but its high variability limits its usefulness as an indicator of environmental change. Rainfall outcomes are complicated by the timing, frequency and intensity of rainfall events, as well as conditions of surface temperature, humidity, soil, slope and vegetation. These complexities, coupled with differential responses by thousands of species, cause uncertainty about the direction and extent of rainfall-induced change.

Southern Africa's indigenous biodiversity, landscapes and oceans are continuously changed by diverse and adjoining land uses such as mining, farming, conservation, forestry, urban sprawl, communal resource management, fishing and golf estates. Time-series data covering the spectrum of spatial scales is essential for reliable data on significant environmental changes, some of which are slow, while others may be sudden. Data obtained over short periods and at single locations offers limited value.

The advance of climate change is already being observed but how and where it will impact on Southern African society remains uncertain. Rural communities, commonly desperate for resources and information, are particularly vulnerable to climatic variability, which is often aggravated by unsustainable agricultural and fishing practices, not only by those communities themselves, but also by commercial and illicit enterprises.

Earth observation science is thus urgently required to bring more certainty about environmental change, and to enable formulation of adaptive and mitigating management policies and practices, for themes ranging from food production to population health.

The South African Environmental Observation Network (SAEON) was established in 2002 after a process of deliberation within the research community.

Following extensive consultation with its sister departments, the Department of Science and Technology (DST) took the lead by mandating and funding the National Research Foundation to develop SAEON as an institutionalised network of departments, universities, science institutions and industrial partners.

According to the SAEON mandate, its responsibilities rest on three mandates: observation, information and education.

2.1.1.1.34. Hartebeesthoek Radio Astronomical Observatory (SAAO)

<http://www.sao.ac.za/>



Mandate and objectives

Located in the leafy Southern suburbs of Cape Town, The South African Astronomical Observatory (SAAO) is the national centre for optical and infrared astronomy in South Africa.

Its prime function is to conduct fundamental research in astronomy and astrophysics. It does so by providing a world-class facility to scientists.

The SAAO promotes astronomy and astrophysics in Southern Africa, by sharing research findings and discoveries. So, to learn more about the wonders of space, start exploring our website now. The South African Astronomical Observatory (SAAO) is a facility of the National Research Foundation, which operates under the Department of Science and Technology.

SAAO's headquarters are in the aptly named suburb of Observatory in Cape Town. The main telescopes used for research are located at the SAAO observation station 15Kms from the small Karoo town of Sutherland in the Northern Cape, a 4-hour drive from Cape Town.

2.1.1.1.35. Square Kilometre Array

<http://www.ska.ac.za/qa/index.php>



Mandate and objectives

The development of astronomy in South Africa is part of a considered strategy that has its origins in the White Paper on Science and Technology drafted in 1996 by the first democratic government of South Africa. The White Paper contains this statement of intent with respect to fundamental scientific research, with specific reference to astronomy:

The Square Kilometre Array Radio Telescope (SKA) will be the largest telescope in the world, and will revolutionise our understanding of the universe and the laws of fundamental physics. Amongst other things, it will help us understand dark energy and dark matter, how and when the first stars and galaxies formed and evolved over the age of the universe, test Einstein's theory of general relativity and search for signs of life on other planets. It may even detect evidence of extraterrestrial intelligent life. Like previous very large telescopes, it will discover entirely new and unexpected phenomena that were unimagined at the time of its design and construction.

NRF/DST CENTRES OF EXCELLENCE

2.1.1.1.36. NRF Centres of Excellence

2.1.1.1.37. Birds as Keys to Biodiversity Conservation

<http://www.fitzpatrick.uct.ac.za/>



Mandate and objectives

The Percy FitzPatrick Institute of African Ornithology (affectionately known as the Fitztitude) is located at the University of Cape Town, South Africa, where it is housed within the Department of Biological Sciences. Situated at the tip of Africa, the Fitztitude is uniquely positioned to take advantage of the vast untapped biological resources of the continent. Members of the department are committed to developing a greater understanding of these, through the training of scientists and the pursuit of primary research, from evolutionary ecology to conservation biology. The Institute is also home to the Niven Library, which holds what is probably Africa's most comprehensive Ornithology collection and reprints of the Institute's vast publication record.

The Institute was identified as a Centre of Excellence (CoE) by the Department of Science

and Technology and the National Research Foundation in 2004.

2.1.1.1.38. CATALYSIS

<http://www.chemeng.uct.ac.za/research/catalysis/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The University of Cape Town, more precisely its Centre for Catalysis Research, is the host institution of c*change, the DST-NRF Centre of Excellence in Catalysis in South Africa. The focus of the Centre of Excellence in Catalysis is on opportunities principally of relevance to South Africa and the African Continent whilst seeking to support the Nation's international competitiveness. Ten Higher Education Institutions are participating in its scientific programme. The Centre for Catalysis Research is playing the central role in support of the Centre of Excellence in Catalysis.

2.1.1.1.39. Epidemiological Modelling and Analysis

<http://www.sacema.com/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The South African Centre for Epidemiological Modelling and Analysis (SACEMA) is a national research centre established under the Centre of Excellence programme of the Department of Science and Technology and the National Research Foundation.

The Centre focuses on research in quantitative modelling of the spatial and temporal patterns of disease. The immediate aim of the research is to understand and predict the development of various diseases, and thereby to provide advice on how best to combat them. Our research focuses on issues pertaining to HIV, TB and malaria, although not to the exclusion of other epidemiological problems.

The Centre is hosted by the University of Stellenbosch, and has its premises in an old wine cellar on the grounds of the Mostertsdrift Estate. The Centre follows a 'hub and spoke'

model that places the critical mass of staff at the Stellenbosch head office and various other researchers at sites elsewhere in South Africa.

2.1.1.1.40. Invasion Biology

<http://academic.sun.ac.za/cib/>



Mandate and objectives

The C-I-B is an inter-institutional Centre of Excellence established in 2004 within the DST-NRF Centres of Excellence Programme. Its members undertake research on the biodiversity consequences of biological invasions, largely through post-graduate student training. The principal aims of the Centre's work are to reduce the rates and impacts of biological invasions by furthering scientific understanding and predictive capability, and by developing research capacity.

The C-I-B has its physical home at the University of Stellenbosch, but comprises a network of senior researchers and their associated postdoctoral associates and graduate students throughout South Africa.

2.1.1.1.41. Strong Materials

http://www.wits.ac.za/academic/ebe/chemmet/areasofresearch/14797/coe_sm.html



Mandate and objectives

The DST / NRF Centre of Excellence in Strong Materials (CoE-SM) is a major South African Research Network hosted by the University of the Witwatersrand, in partnership with the Nelson Mandela Metropolitan University, the Universities of Johannesburg, KwaZulu-Natal and Limpopo, the Council for Minerals Technology (MINTEK) and the Nuclear Energy Corporation of South Africa (NECSA). There are more than 30 researchers and over 100 postgraduate students active in the Centre from a number of disciplines including physics, chemistry, metallurgy, chemical and mechanical engineering.

Strong materials are those that retain their distinctive scientific and applied properties

under extreme conditions and have established or potential commercial applications. Extreme conditions include some or all of the following: High stress; High wear conditions; Extreme temperatures (high and/or low); harsh chemical or corrosive environments; strong fluxes of damaging radiation. Distinctive properties retained would typically include one or more of the following: Hardness and toughness; high mechanical strength and stiffness; wear, corrosion or radiation resistance. Research programmes of the Centre involve the prediction, design, synthesis, evaluation, development and exploitation of strong materials.

The Centre is organized into 6 Focus Areas, three of which are based in the School of Chemical and Metallurgical engineering, namely Ceramics, Carbides and Cermets and Strong Metallic Alloys.

2.1.1.1.42. Tree Health Biotechnology

<http://www.fabinet.up.ac.za/research/cthb>



Mandate and objectives

The primary goal of the CTHB is to promote the health of trees native to South Africa through the use of biotechnology. To accomplish this, CTHB projects typically consider the pathogens and pests that are associated with native trees and woody hosts. The CTHB also explores the possible effects that factors such as climate change, society, natural forest health and plant genetics may have on the health of native woody resources and ecosystems.

The CTHB is hosted by the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria. Within FABI it is intimately linked to the Tree Protection Cooperative Programme (TPCP), a research programme that has a track record of more than two decades in dealing with the pests and diseases of commercially important forestry species. The CTHB is structured as a virtual Centre of Excellence that conducts scientific research via a collaborative network, with the node of the network represented by researchers at UP. In addition to the UP group, this network involves researchers and their postgraduate students from other Higher Education Institutions in South Africa. These

institutions include the Agricultural Research Council, University of Stellenbosch, University of Cape Town, University of the Witwatersrand, University of the Free State and Rhodes University.

2.1.1.1.43. Biomedical TB Research

<http://www.tuberculosis.org.za/>



Mandate and objectives

The CBTBR, Centre of Excellence for Biomedical Tuberculosis (TB) Research, was established in July 2004 and signifies the government's commitment in finding solutions to one of the continent's most threatening diseases. Internationally acclaimed TB research has been done at both the University of Stellenbosch (Division of Molecular Biology and Human Genetics) and the University of the Witwatersrand (Molecular Mycobacteriology Research Unit) and by creating the CBTBR the two research laboratories combined their efforts to understand Mycobacterium tuberculosis, the bacterium causing tuberculosis in humans. In January 2011 the CBTBR was expanded to include a third node at the University of Cape Town.

2.1.1.1.44. HySA (Hydrogen South Africa)

<http://www.hysainfrastructure.org/>



Mandate and objectives

The National Strategy was branded Hydrogen South Africa (HySA). The overall goal of HySA is to develop and guide innovation along the value chain of hydrogen and fuel cell technologies in South Africa. The overall vision of the HFCT RDI strategy is to bring about wealth, jobs and IPR creation through the initiation of new high-technology industries based on minerals found on South African soil, especially Platinum Group Metals (PGMs). Allied to this is the goal of the developing cost competitive solution for the generating

hydrogen locally focusing on using renewable energy, and the supporting enabling goal of developing a range of high-level skills, generally in accordance with the required human capital development strategy.

2.1.1.1.45. National Institute for Theoretical Physics (NITheP)

<http://nithep.ac.za/about.html>



Mandate and objectives

The National Institute for Theoretical Physics (NITheP) is a national facility that leads research programmes and educational opportunities in the field of theoretical physics in South Africa and Africa. It provides South Africa with the opportunity to become an international player in a truly fundamental field of science.

NITheP is a geographically distributed institute that includes all theoretical physicists in South Africa. Its headquarters is the Stellenbosch Institute for Advanced Study (STIAS) at Stellenbosch University, with regional nodes at the University of the Witwatersrand and the University of KwaZulu-Natal. The three nodes develop and support theoretical physics in their local regions, as well as nationally.

2.1.1.1.46. Department Of Trade And Industry (dti)

Mandate and Objectives

The dti's strategic objectives are to:

- ⊗ Facilitate transformation of the economy to promote industrial development, investment, competitiveness and employment creation;
- ⊗ Build mutually beneficial regional and global relations to advance South Africa's trade, industrial policy and economic development objectives;
- ⊗ Facilitate broad-based economic participation through targeted interventions to achieve more inclusive growth;

- ☒ Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner; and
- ☒ Promote a professional, ethical, dynamic, competitive and customer-focused working environment that ensures effective and efficient service delivery.

These five strategic objectives will be achieved through the collective efforts of the dti's internal divisions and its Council of Trade and Industry Institutions (COTII), which are linked through a value chain to generate public value for the country's economic citizens and deliver high-quality products and services to the dti's varied clients and stakeholders. These products and services include policies, legislation and regulations, financial support and investment incentives, information and advisory support, as well as value-added partnerships.

The dti also aims to achieve its objectives through the pursuit of a more targeted investment strategy; improved competitiveness of the economy; broadened economic participation of previously disadvantaged individuals (PDIs) into the mainstream economy; and policy coherence.

Financial Assistance (Incentives)

The dti provides financial support to qualifying companies in various sectors of the economy. Financial support is offered for various economic activities, including manufacturing, business competitiveness, export development and market access, as well as foreign direct investment.

- ☒ [A Guide to the dti Incentive Schemes 2012/13;](#)
- ☒ [Aquaculture Development and Enhancement Programme \(ADEP\);](#)
- ☒ [Automotive Investment Scheme \(AIS\);](#)
- ☒ [Black Business Supplier Development Programme \(BBDP\);](#)
- ☒ [Business Process Services \(BPS\);](#)
- ☒ [Capital Projects Feasibility Programme \(CPFP\);](#)
- ☒ [Critical Infrastructure Programme \(CIP\);](#)
- ☒ [Co-operative Incentive Scheme \(CIS\);](#)

- ☒ [Clothing and Textile Competitiveness Improvement Programme \(CTCIP\)](#) ;
- ☒ [Employment Creation Fund \(ECF\)](#) ;
- ☒ [Export Marketing and Investment Assistance \(EMIA\)](#) ;
- ☒ [Film and Television Production Incentives](#)
- ☒ [Incubation Support Programme \(ISP\)](#) ;
- ☒ [Isivande Women's Fund](#) ;
- ☒ [The Manufacturing Competitiveness Enhancement Programme \(MCEP\)](#) ;
- ☒ [Manufacturing Investment Programme \(MIP\)](#) ;
- ☒ [People-carrier Automotive Investment Scheme \(P-AIS\)](#) ;
- ☒ [Production Incentive \(PI\)](#) ;
- ☒ [Sector-Specific Assistance Scheme \(SSAS\)](#) ;
- ☒ [Small Medium Enterprise Development Programme \(SMEDP\)](#) ;
- ☒ [Tourism Support Programme \(TSP\)](#) ;

Financial Assistance - Paragraphs in this Report

Programme	Paragraph
☒ Section 12I Tax Allowance Incentive (12I TAI) ;	2.1.1.1.19
☒ Technology and Human Resources for Industry Programme (THRIP) ;	2.1.1.1.47
☒ Support Programme for Industrial Innovation (SPII) ;	Fehler! Verweisquelle konnte nicht gefunden werden.
☒ Seda Technology Programme (STP)	2.1.1.1.51

2.1.1.1.47. Technology and Human Resources for Industry Programme (THRIP)

<http://thrip.nrf.ac.za/SitePages/Home.aspx>

IP Creation	Funding	Policy	Support
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Mandate and Objectives

The Technology and Human Resources for Industry Programme (THRIP) is a partnership programme funded by the Department of Trade and Industry (the dti) and managed by the National Research Foundation (NRF). On a cost-sharing basis with industry, THRIP supports science, engineering and technology research collaborations focused on addressing the technology needs of participating firms and encouraging the development and mobility of research personnel and students among participating organisations.

THRIP MISSION

To improve the competitiveness of South African industry, by supporting research and technology development activities, and enhancing the quality and quantity of appropriately skilled people.

THRIP Objectives:

- ☒ To contribute to the increase in the number and quality of South Africans with appropriate skills in the development and management of technology for industry;
- ☒ To promote increased interaction among researchers and technology managers in industry, higher education, and Science, Engineering and Technology Institutions (SETIs), to develop skills for the commercial exploitation of science and technology, and promote the mobility of trained people among these sectors;
- ☒ To stimulate industry and government to increase their investment in research, technology development, technology diffusion, and the promotion of innovation;
- ☒ To promote increased collaboration between large and small enterprises, higher education institutions and SETIs by conducting research and development activities leading to technology transfer and product or process development; and
- ☒ To promote large (thematic) collaborative research and development projects in the DTI priority areas.

THRIP Priority Areas (see THRIP mission):

- ☒ To support an increase in the number of black and female students who intend to pursue technological and engineering careers;
- ☒ To promote technological know-how within the Small, Medium and Micro Enterprise

(SMME) sector; through the deployment of skills vested in Higher Education Institutions (HEIs) and SETIs;

- ☒ To facilitate and support multi-firm projects in which firms (including at least one Black Economic Empowerment- (BEE)-compliant) collaborate and share in the project outcomes; and
- ☒ To facilitate and support the competitive potential of black-owned enterprises through technology and human resources development.

THRIP Funding Ratio:

Industry partner (s)	*THRIP contribution (R)	*Large industry contribution (R)	Small & Medium Enterprise Contribution	**Very small enterprise contribution (See definition below)
Large company/ies only	1	3	N/A	N/A
Large company/ies, plus a minimum of 25% by a group of SMMEs (e.g. consortia with 1, 2 or 3 large companies must have at least SMME partner)	1	2	5% of highest contribution	No financial contribution
All SMME's	1	N/A	1	No financial contribution
All SMME's and all BEE enterprises	2	N/A	1	No financial contribution

Projects are funded per the following ratios: R1:R3, R1:R2, R1:R1 or R2:R1, depending on the company's size as defined by the National Small Business Act, 1996 (Act No. 102 of 1996).

**A 'very small enterprise' is defined by the National Small Business Act as a separate and distinct business entity with the following criteria:

- ☒ Total full-time equivalent of paid employees: less than 20;
- ☒ Total annual turnover: less than R4 million; and
- ☒ Total gross asset value (fixed property excluded): less than R1.5m.

THRIP requires that projects meet three main criteria to be eligible for consideration, linked to its mission statement. These include:

1. Projects must promote and facilitate scientific research, technology development, and technology diffusion, or any combinations of these;
2. All projects funded by THRIP must include a human resource development component; and
3. The choice of technological focus for the activities is to be left to the industry participants and their partners, although preference is given to the following industrial and growth sectors of the dti:
 - ☒ Agro-processing;
 - ☒ Automotive;
 - ☒ Biotechnology;
 - ☒ Business Process Outsourcing (BPO);
 - ☒ Capital equipment and capital goods;
 - ☒ Chemicals;
 - ☒ Clothing and textiles;
 - ☒ Creative industries;
 - ☒ Cultural industries;
 - ☒ Forestry and timber;
 - ☒ Information and Communications Technology;
 - ☒ Metals;
 - ☒ Pharmaceuticals; and
 - ☒ Tourism.

THRIP eligibility criteria:

- ☒ Be a high-quality innovative science, engineering and/or technology research whose outputs could make a significant contribution towards improving the industrial partner's competitive edge.
- ☒ At least one registered South African student (at 4th Year level or higher) must be involved and trained through the research per R200 000 THRIP investment. In addition, non-South African students can qualify for R85 000.
- ☒ Projects must have clearly defined scientific and/or technology outputs, plus human resources outputs expected for each year of support.
- ☒ Research must lead to the development of a prototype (product, process, technique or methodology) that will benefit the industry partner(s).
- ☒ In the case of first-time applicants, project leaders who are based in either a University of Technology or a (Historically Black University (HBU)), the absence of clearly defined technology outputs in the first year of support may be overlooked on condition that an improved application that is better aligned with THRIP objectives is submitted the following year.
- ☒ Project leaders should have full-time employment status at the HEI or SETI.
- ☒ Where the project leader is based at a SETI, the project proposal must clearly demonstrate the participation and training of students enrolled at HEIs.
- ☒ At least one HEI and one industrial partner must be involved.
- ☒ The industrial partner must give a clear indication that the project will directly support a specific company.
- ☒ Commitment from the industry partner must be clearly demonstrated in terms of investment in the project.
- ☒ Arrangement for ownership and exploitation of Intellectual Property arising from the project must be agreed upon between the HEI/SETI and the industry partner before commencement of the project.
- ☒ In the case of a foreign industrial partner, there must be an indication of how South Africa stands to benefit from the technology outcomes resulting from the collaboration.

Technology and skills transfer in 'TIPTOP' shape

To facilitate technology and skills transfer, THRIP employs a mechanism called Technology Innovation Promotion through the Transfer of People (TIPTOP). TIPTOP promotes the mobility of people participating in THRIP projects among organisations involved in the

projects (HEIs; SETIs; and industrial laboratories). TIPTOP should form part of the project and cannot be supported as a stand-alone project.

2.1.1.1.48. Support Programme for Innovation in Industry (SPII)

www.spii.co.za



Mandate and Objectives

The Support Programme for Industrial Innovation (SPII) is designed to promote technology development in South Africa's industry, through the provision of financial assistance for the development of innovative products and/or processes. SPII is focussed specifically on the development phase, which begins at the conclusion of basic research and ends at the point when a pre-production prototype has been produced.

Criteria for SPII Support:

- ☒ Development should represent significant advance in technology;
- ☒ Development and subsequent production must take place within South Africa;
- ☒ Intellectual Property to reside in South African registered company;
- ☒ Participating businesses should (must) be South African registered enterprises;
- ☒ Government funded institutions (e.g. CSIR) do not directly qualify for support but may participate as subcontractor(s) and;
- ☒ No simultaneous applications from the same company.

Non Qualifying Projects:

- ☒ Development for single client;
- ☒ Basic and applied research;
- ☒ Projects receiving other government funding;
- ☒ Military projects; and
- ☒ Where SPII contribution is not significant (at least 20% of total project costs).

The SPII offers three schemes namely, the:

- I. SPII Product Process Development (PPD) Scheme;
- II. SPII Matching Scheme; and
- III. SPII Partnership Scheme.

2.1.1.1.49. Industrial Development Corporation (IDC)

www.idc.co.za



Mandate and Objectives

Since 1940, the Industrial Development Corporation, South Africa's largest development finance institution, has helped to build the industrial capacity that fuels the country's economic growth, by funding viable businesses. South Africa's prosperity is inextricably linked to the economic development of the rest of Africa, which offers enormous market potential and as yet untapped resources. As the government's key partner in revitalising the economy, the IDC focuses on priority economic sectors that offer the greatest potential to unlock job opportunities.

The Development Funds Department provides funding support to projects that have a high development impact. It achieves this by managing higher risk-taking funds, and disbursing these funds into deserving projects. The Development Funds Department manages both IDC ring-fenced and third party funds, which are allocated to development needs not typically addressed through the standard IDC funding mechanism. The funding schemes support the aims of the New Growth Path (NGP) set out by the Economic Development Department (EDD), which emphasises technological innovation, growth, employment creation and equity. The funds currently managed under the Development Funds Department are:

The funds the IDC currently manage are:

 [Gro-E Scheme](#)

- ☒ [Risk Capital Facility Programme](#)
- ☒ [Support Programme for Industrial Innovation](#)
- ☒ [Transformation and Entrepreneurship Scheme](#)
- ☒ [Green Energy Efficiency Fund](#)
- ☒ [Women Entrepreneurial Fund](#)
- ☒ [Distressed Fund](#)
- ☒ [Manufacturing Competitiveness Enhancement Programme](#)

2.1.1.1.50. Companies and Intellectual Property Commission (CIPC)

www.cipc.co.za

IP Creation	Funding	Policy	Support
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Mandate and Objectives

The Commission is a juristic person, and as mandated by the Companies Act, 2008 (Act 71 of 2008), has jurisdiction throughout the Republic, is independent, and subject only to the Constitution and the law and any policy statement, directive or request issued to it by the Minister of Trade and Industry in terms of this Act. The Commission must be impartial and perform its functions without fear, favour or prejudice and must exercise the functions in the most cost-efficient and effective manner and in accordance with the values and principles mentioned in section 195 of the Constitution.

The process of forming a Commission was started in 2004 with the dti policy document titled: "South African Company Law for the 21st Century: Guidelines for Corporate Law Reform" (May 2004) with the aim of promoting "growth, employment, innovation, stability, good governance, confidence and international competitiveness."

Main functions of the Commission:

- ☒ Registration of Companies, Co-operatives and Intellectual Property Rights (trademarks, patents, designs and copyright) and maintenance thereof
- ☒ Disclosure of Information on its business registers
- ☒ Promotion of education and awareness of Company and Intellectual Property Law
- ☒ Promotion of compliance with relevant legislation

- ☒ Efficient and effective enforcement of relevant legislation
- ☒ Monitoring compliance with and contraventions of financial reporting standards, and making recommendations thereto to Financial Reporting Standards Council (FRSC)
- ☒ Licensing of Business rescue practitioners
- ☒ Report, research and advise Minister on matters of national policy relating to company and intellectual property law

2.1.1.1.51. Small Enterprise Development Agency (SEDA)

www.seda.co.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Small Enterprise Development Agency (Seda) is an agency of the South African Department of Trade and Industry (the dti). Seda was established in December 2004, through the National Small Business Amendment Act, Act 29 of 2004.

It is mandated to implement government's small business strategy; design and implement a standard and common national delivery network for small enterprise development; and integrate government-funded small enterprise support agencies across all tiers of government.

SEDA'S mission is to develop, support and promote small enterprises throughout the country, ensuring their growth and sustainability in co-ordination and partnership with various role players, including global partners, who make international best practices available to local entrepreneurs.

SEDA Technology Programme

A. STP Incubation

STP'S incubation division, which has more than 24 incubation centres spread across the country in specific sectors. The incubation division uses three different organizational

models of Technology Business Centres to incubate both start-ups and enterprises requiring rehabilitation:

Technology Demonstration Centres (TDCs), which focus on demonstrating, exhibiting and providing training in the use of available technologies – especially with regards to value-addition processes

Technology Incubators (TIS), which provide a sheltered and protected environment within which to support and nurture technology-based start-ups and enterprises requiring 'rehabilitation / resuscitation'

Hybrid Centres combine elements of the previous models whilst at the same time incorporating elements or features of the local environment within which these centres are located, to address specific needs of the small enterprises within that environment.

B. Technology Transfer

STP provides a range of services that enables industry, and in particular small enterprises in the 2nd Economy, to access and transfer technology. STP has defined the "2nd Economy", as broadly referring to the mainly informal, marginalized, unskilled to semi-skilled, and those unemployable in the formal sector, who cannot afford appropriate technology to propel them into the mainstream economy. The Technology Transfer Division (TTD) of STP manages a Technology Transfer Fund (TTF) that provides funding for small enterprises to acquire the necessary technology and technical support for effective technology transfer transactions.

C. STP Quality

STP Quality promote the importance of Quality and Standards as key drivers of South Africa's competitiveness; enhance the quality & standard of products and services produced by South African entrepreneurs for export markets through providing advice and technical support; develop technical skills needed to create a broader understanding of national and international compliance standards; provide Systems Support to South African firms to upgrade their industrial capabilities through standards and Quality assurance with a key focus on Small Medium & Micro Enterprises; provide Conformity Assessment support to Small Businesses in South Africa and helping them to overcome technical barriers to trade.

Paragraph 0 contains of a list of SEDA centres.

2.1.1.1.52. South African Bureau of Standards (SABS)

www.sabs.co.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

SABS is a statutory body that was established in terms of the latest edition of the Standards Act, 2008 (Act No. 8 of 2008) as the national standardisation institution in South Africa, mandated to:

- ☒ Develop, promote and maintain South African National Standards (SANS)
- ☒ Promote quality in connection with commodities, products and services
- ☒ Render conformity assessment services and assist in matters connected therewith

2.1.1.1.53. National Metrology Institute of South Africa (NMISA)

<http://www.nmisa.org>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The National Metrology Institute of South Africa (NMISA) is responsible for maintaining the SI units and to maintain and develop primary scientific standards of physical quantities for SA and compare those standards with other national standards to ensure global measurement equivalence.

It must also provide reference analysis in the case of a measurement dispute and maintain and develop primary methods for chemical analysis to certify reference materials for SA and the region.

2.1.1.1.54. South African National Accreditation System (SANAS)

www.sanas.co.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The South African National Accreditation System (SANAS) is recognised by the South African Government as the single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers and Good Laboratory Practice (GLP) test facilities are competent to carry out specific tasks in terms of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act (Act 19 of 2006).

SANAS's purpose is to instil confidence and peace of mind to companies and individuals through accreditation which is required for economic and social well-being for all.

2.1.1.1.55. South African Vanguard of Technology (SAVANT)

http://www.thedti.gov.za/industrial_development/savant.jsp

IP Creation	Funding	Policy	Support
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Mandate and objectives

SAVANT is a vanguard of technology aimed at strengthening the local ICT and Electronics industry, both in South Africa and internationally. This is achieved by positioning the sector in a unique way to add dimension to its global competitiveness.

The broad objective of the SAVANT programme is to grow the sector to facilitate job creation and sustainable economic development by:

- ☒ Becoming the local and global voice of the sector in South Africa;
- ☒ Strengthening the sector to become globally competitive by showcasing the successes in the South African economy;
- ☒ Co-ordinating an information portal between both the private and public sectors;
- ☒ Facilitating B2B matchmaking between companies; and

- ☒ Providing an easily accessible business directory.

2.1.1.1.56. National Empowerment Fund (NEF)

<http://www.nefcorp.co.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

Established by the National Empowerment Fund Act No 105 of 1998 (NEF Act), the National Empowerment Fund (the NEF) is a driver and thought-leader in promoting and facilitating black economic participation by providing financial and non-financial support to black empowered businesses, and by promoting a culture of savings and investment among black people. The operations of the NEF are governed by the Public Finance Management Act No 1 of 1991 (PFMA), including the National Treasury Regulations, the King III Report on Governance for South Africa and the Protocol on Corporate Governance in the Public Sector, 2002.

2.1.1.1.57. Small Enterprise Finance Agency (SEFA) Ltd

<http://www.sefa.org.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

SEFA provides access to finance to Micro, Small and Medium businesses throughout South Africa by:

- ☒ Delivering wholesale and direct lending;
- ☒ Providing credit guarantees to Small, Medium and Micro businesses;
- ☒ Supporting the institutional strengthening of Financial Intermediaries so that they can be effective in assisting SMMEs;
- ☒ Creating strategic partnerships with a range of institutions for sustainable SMMEs development and support;

- ☒ Monitoring the effectiveness and impact of our financing, credit guarantee and capacity development activities;
- ☒ Developing (through partnerships) innovative finance products, tools and channels to catalyse increased market participation in the provision of affordable finance

2.1.1.1.58. Department Of Higher Education and Training

2.1.1.1.59. The Council on Higher Education (CHE)

<http://www.che.ac.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Council on Higher Education (CHE) is an independent statutory body established in May 1998 in terms of the Higher Education Act (Act No 101 of 1997), as amended and it functions as the Quality Council for Higher Education in terms of the National Qualifications Framework Act (Act No 67 Of 2008).

The functions of the CHE include the following:

- ☒ To provide advice to the Minister of Higher Education and Training on request or on its own initiative, on all aspects of higher education policy.
- ☒ To develop and implement a system of quality assurance for higher education, including programme accreditation, institutional audits, quality promotion and capacity development, standards development and the implementation of the Higher Education Qualifications Sub-Framework (HEQSF).
- ☒ To monitor and report on the state of the higher education system, including assessing whether, how, to what extent and with what consequences the vision, policy goals and objectives for higher education are being realised.
- ☒ To contribute to the development of higher education through intellectual engagement with key national and systemic issues, including international trends, producing publications, holding conferences and conducting research to inform and contribute to addressing the short and long-term challenges facing higher

education.

The CHE has executive responsibility for quality assurance and promotion and discharges this responsibility through the establishment of a permanent committee (as required by the Higher Education Act), the Higher Education Quality Committee (HEQC).

2.1.1.1.60. PUBLIC HIGHER EDUCATION INSTITUTIONS (HEIs)

☒ Cape Peninsula University of Technology	☒ University of Kwa Zulu Natal
☒ Central University of Technology	☒ University of Limpopo
☒ Durban University of Technology	☒ University of Pretoria
☒ Mangosuthu University of Technology	☒ University of South Africa
☒ Nelson Mandela Metropolitan University	☒ University of Venda
☒ North-West University	☒ University of Zululand
☒ Rhodes University	☒ University of the Free State
☒ Stellenbosch University	☒ University of the Western Cape
☒ Tshwane University of Technology	☒ University of the Witwatersrand
☒ University of Cape Town	☒ Vaal University of Technology
☒ University of Fort Hare	☒ Walter Sisulu University
☒ University of Johannesburg	

2.1.1.1.61. Department of Minerals and Resources

2.1.1.1.62. Council for Mineral Technology (MINTEK)

www.mintek.co.za



Mandate and objectives

Mintek is South Africa's national mineral research organisation and it is one of the world's leading

technology organisations specialising in mineral processing, extractive metallurgy and related areas. Working closely with industry and other R&D institutions, Mintek provides service test work, process development and optimisation, consulting and innovative products to clients worldwide.

2.1.1.1.63. Council for Geosciences

<http://www.geoscience.org.za/>



Mandate and objectives

The CGS has acquired a sound knowledge of African geology, based on more than a 100- year history of mapping in Africa, mostly in South Africa and Namibia, and a proud record of publications of maps on various scales, as well as numerous publications (Handbooks, Memoirs, Bulletins, Map Explanations, etc). The CGS possesses specialised knowledge of the geotectonic and metallogenic framework of Africa through the participation in a number of international projects in Africa, such as:

- ☒ The Geodynamic Map of Gondwana Subcontinent Assembly, published jointly by the CGS and the BRGM in 1996;
- ☒ The International Metallogenic Map of Africa (a CD-ROM covering the area south of the equator of this project was released in June 1999); and
- ☒ The International Tectonic Map of Africa, both under the auspices of the Commission for the Geological Map of the World (CGMW), Paris.
- ☒ The CGS actively participates in a variety of SADC projects aimed at promoting the economic development of the African sub-continent. Reports on diamonds, dimension stone, bauxite and heavy minerals have been completed and are in press, whereas projects on gold, copper/ cobalt, and gemstones are in progress.

The CGS has pioneered the application of lithostratigraphic principles in the systematic mapping of Precambrian terrains in Africa, according to International Union of Geological Sciences (IUGS) guidelines. This has led to major and rapid progress in understanding the Precambrian and its mineral potential in southern Africa, and is now being applied for the first time further afield in Africa, viz. Morocco.

2.1.1.1.64. Department of Energy

The Minister of Energy has oversight responsibilities over the following five (5) State Owned Entities (SOE) and their subsidiaries which are either classified as schedule 2 or 3 in the PFMA. The enabling legislation requires the Minister to appoint members of the boards of all state owned entities reporting to the Minister of Energy. All board members, with the exclusion of CEOs, are non-executive. The Department is represented on all of these boards, with the exception of NERSA (the independent energy regulator). Boards are ultimately accountable and responsible for the performance of the entities. They give strategic directions to the entity in line with the mandate and this is in turn implemented by management.

South African Nuclear Energy Corporation (NECSA)

South African National Energy Development Institute (SANEDI)

National Nuclear Regulator (NNR)

<http://www.nnr.co.za/>

The National Nuclear Regulator (NNR) is a public entity which is established and governed in terms of Section 3 of the National Nuclear Regulator Act, (Act No 47 of 1999) to provide for the protection of persons, property and the environment against nuclear damage through the establishment of safety standards and regulatory practices.

National Energy Regulator (NERSA)

<http://www.nersa.org.za/>

The National Energy Regulator (NERSA) is a regulatory authority established as a juristic person in terms of Section 3 of the National Energy Regulator Act, 2004 (Act No. 40 of 2004). NERSA's mandate is to regulate the Electricity, Piped-Gas and Petroleum Pipeline industries in terms of the Electricity Regulation Act, 2006 (Act No. 4 of 2006), Gas Act, 2001 (Act No. 48 of 2001) and Petroleum Pipelines Act, 2003 (Act No. 60 of 2003).

Central Energy Fund Ltd

<http://www.cef.org.za/>

CEF (SOC) Ltd. is involved in the search for appropriate energy solutions to meet the future energy needs of South Africa, the Southern African Development Community and the sub-Saharan African region, including oil, gas, electrical power, solar energy, low-smoke fuels, biomass, wind and renewable energy sources. CEF also manages the operation and development of the oil and gas assets and operations of the South African government.

Petroleum Oil and Gas Corporation of South Africa (SOC) Limited (PetroSA)

<http://www.petrosa.co.za/>

The Petroleum Oil and Gas Corporation of South Africa (SOC) Limited (PetroSA) is the national oil company of South Africa and is registered as a commercial entity under South African law. PetroSA is a subsidiary of the Central Energy Fund (CEF), which is wholly owned by the State and reports to the Department of Energy. The company holds a portfolio of assets that spans the petroleum value chain, with all operations run according to world-class safety and environmental standards. PetroSA was formed in 2002 upon the merger of Soekor E and P (Pty) Limited, Mossgas (Pty) Limited and parts of the Strategic Fuel Fund, another subsidiary of CEF.

2.1.1.1.65. South African Nuclear Energy Corporation (NECSA)

www.necsa.co.za



Mandate and objectives

In terms of Section 13 of the Nuclear Energy Act, No. 46 of 1999, the South African Nuclear Energy Corporation SOC Limited (Necsa) is mandated to:

- ☒ Undertake and promote research and development (R&D) in the field of nuclear energy and radiation sciences and technology and, subject to the Safeguards Agreement, to make these generally available;

- ☒ Process source material, special nuclear material and restricted material and to reprocess and enrich source material and nuclear material; and
- ☒ Co-operate with any person or institution in matters falling within these functions, subject to the approval of the Minister.

Necsa is a state-owned company responsible for undertaking and promoting R&D in the field of nuclear energy and radiation sciences. It is also responsible for processing source material, including uranium enrichment, and co-operating with other institutions, locally and abroad, on nuclear and related matters.

Apart from its main activities at Pelindaba, which include operation and utilisation of the SAFARI-1 research reactor, Necsa also manages and operates the Vaalputs National Radioactive Waste Disposal Facility in the Northern Cape on behalf of the National Radioactive Waste Disposal Institute (NRWDI).

Necsa engages in commercial business mainly through its wholly-owned commercial subsidiaries NTP Radioisotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine and fluorine-based products. Both subsidiaries, together with their subsidiaries, supply local and foreign markets, earning valuable foreign exchange for South Africa.

In addition to the above, the Company promotes the public understanding of nuclear science and technology and facilitates regular communication with the public and its stakeholders.

2.1.1.1.66. South African National Energy Development Institute (SANEDI)

<http://www.sanedi.org.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The South African National Energy Development Institute (SANEDI) is a Schedule 3A state owned entity that was established as a successor to the previously created South African National Energy Research Institute (SANERI) and the National Energy Efficiency Agency (NEEA). The main function of SANEDI is to direct, monitor and conduct applied energy research and development, demonstration and deployment as well to undertake specific

measures to promote the uptake of Green Energy and Energy Efficiency in South Africa.

Its current portfolios include:

Programme 1: Advanced Fossil Fuels

- ☒ South African Centre for Carbon Capture and Storage (SACCCS)

Programme 2: Clean Energy Solutions

- ☒ Renewable Energy and Energy Efficiency Partnerships (REEEP)
- ☒ Renewable Energy Centre for Research and Development (RECORD)
- ☒ Wind Atlas of South Africa (WASA)

Programme 3: Energy Efficiency

- ☒ Big EE
- ☒ SAGEN

Programme 4: Green Transport Programme

Programme 5: Smart Grids Energy Data and Knowledge Management

- ☒ SASGI (An Association of industry partners (Eskom, NERSA, AMEU, Metros, DST, CSIR, etc.)

Programme 6: Working for Energy Programme

2.1.1.1.67. Department Of Agriculture, Forestry and Fisheries

<http://www.daff.gov.za/>

The Department of Agriculture, Forestry and Fisheries strives towards a united and prosperous agricultural sector, with the aim of supporting sustainable agricultural development.

2.1.1.1.68. Agricultural Research Council (ARC)

<http://www.arc.agric.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The ARC was established by the Agricultural Research Act 86 of 1990 (as amended by Act 27 of 2001) and is the principal agricultural research institution in South Africa. It is a schedule 3A public entity in terms of the Public Finance Management Act 1 of 1999, (as amended by Act 29 of 1999).

Its core mandate as defined in the Act is to act as the principal agricultural research institution in South Africa so as to conduct research, drive research and development, drive technology development and the transfer (dissemination) of information in order to:

- ☒ Promote agriculture & industry
- ☒ Contribute to better quality of life
- ☒ Facilitate/ensure natural resource conservation
- ☒ Alleviate poverty

This function is carried out through 11 research institutes whose activities are grouped under five divisions: Field Crops (Grain and Industrial Crops), Horticulture, Animal Production and Health, Natural Resources and Engineering as well as Technology Transfer. The ARC is also responsible for maintaining national assets and undertaking programmes or rendering services that are required from time to time by the department and other stakeholders.

2.1.1.1.69. Biosafety

<http://www.biosafety.org.za/>

IP Creation	Funding	Policy	Support
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Background

The South African regulatory framework for use of genetically modified organisms includes

the GMO Act, 1997 and GMO Amendment Act, 2006. This act is administered by the Directorate: Biosafety at the National Department of Agriculture and the Registrar handles all administration and permit applications.

The objectives of the GMO Act are to:

- ☒ Establish regulation to enhance the responsible development, production, use and application of GMOs in such a way that any possible harmful consequences to the environment are limited.
- ☒ Make provisions for the determination of requirements and criteria for risks analysis that will ensure that the GMOs are appropriate and do not pose a hazard to the environment, human or animal health.

In accordance with the regulations of the GMO Act, permits must be issued by the Registrar before the following activities can take place:

- ☒ Registration of facilities for GMO use
- ☒ Contained use of GMOs
- ☒ Trial releases of GMOs into the environment
- ☒ Commercial releases (commercial/ general releases)
- ☒ Commodity clearance
- ☒ Commodity imports and exports
- ☒ Imports and exports of Living Modified Organisms (LMOs) for contained use, trial release or general releases
- ☒ Use of imported GMOs as food, feed or for processing in South Africa

2.1.1.1.70. Onderstepoort Biological Products

<http://www.obpvaccines.co.za/about-us/history>



Mandate and objectives

Onderstepoort Biological Products has a simple and overriding corporate mission:

- ☒ to harness science to help build a healthier and more commercially successful agricultural livestock population. Within the framework of that strategy it has two chief roles: To produce quality vaccines for the prevention and treatment of livestock diseases.
- ☒ To exploit and develop ongoing research into the production of new and advanced vaccines for the benefit of agriculture here and abroad.

2.1.1.1.71. Department of Environmental Affairs

<https://www.environment.gov.za/>

IP Creation	Funding	Policy	Support
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Mandate and Objectives

The Department of Environmental Affairs is mandated to ensure the protection of the environment and conservation of natural resources, balanced with sustainable development and the equitable distribution of the benefits derived from natural resources. In its quest for better use and management of the natural environment, the Department of Environmental Affairs is guided by its constitutional mandate, as contained in section 24 of the Constitution.

The Department of Environmental Affairs fulfils its mandate through formulating, coordinating and monitoring the implementation of national environmental policies, programmes and legislation.

Statutory bodies

The work of the department is also supported by the following statutory bodies:

- i. the South African Weather Service (SAWS)
- ii. iSimangaliso Wetland Park
- iii. the South African National Parks (SANParks)
- iv. South African National Biodiversity Institute (SANBI)

South African Weather Service (SAWS)

The South African Weather Service (SAWS) was established in accordance with the South

African Weather Service Act (Act No 8 of 2001). Its mandate is gazetted in the act. In terms of its vision statement, the SAWS is striving "to be the foremost provider of relevant services in respect of weather, climate and related products, which contribute to sustainable development in South Africa and the African continent".

South African National Parks (SANParks)

South African National Parks (SANParks) was established in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003). In terms of this act, the primary mandate of SANParks is to oversee the conservation of South Africa's biodiversity, landscapes and associated heritage assets through a system of national parks.

iSimangaliso Wetland Park

In December 1999 the iSimangaliso Wetland Park was inscribed as South Africa's first world heritage site as an area of exceptional and outstanding universal heritage significance. The natural values in terms of which the iSimangaliso Wetland Park was inscribed on the World Heritage List include outstanding examples of ecological processes, superlative natural phenomena and scenic beauty, and exceptional biodiversity and threatened species. The iSimangaliso Wetland Park has thus received recognition under three of four natural criteria recognised by the World Heritage Convention.

2.1.1.1.72. South Africa Biodiversity Institute (SANBI)

<http://www.sanbi.org/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The South African National Biodiversity Institute was established on 1 September 2004 through the signing into force of the National Environmental Management: Biodiversity Act 10 of 2004.

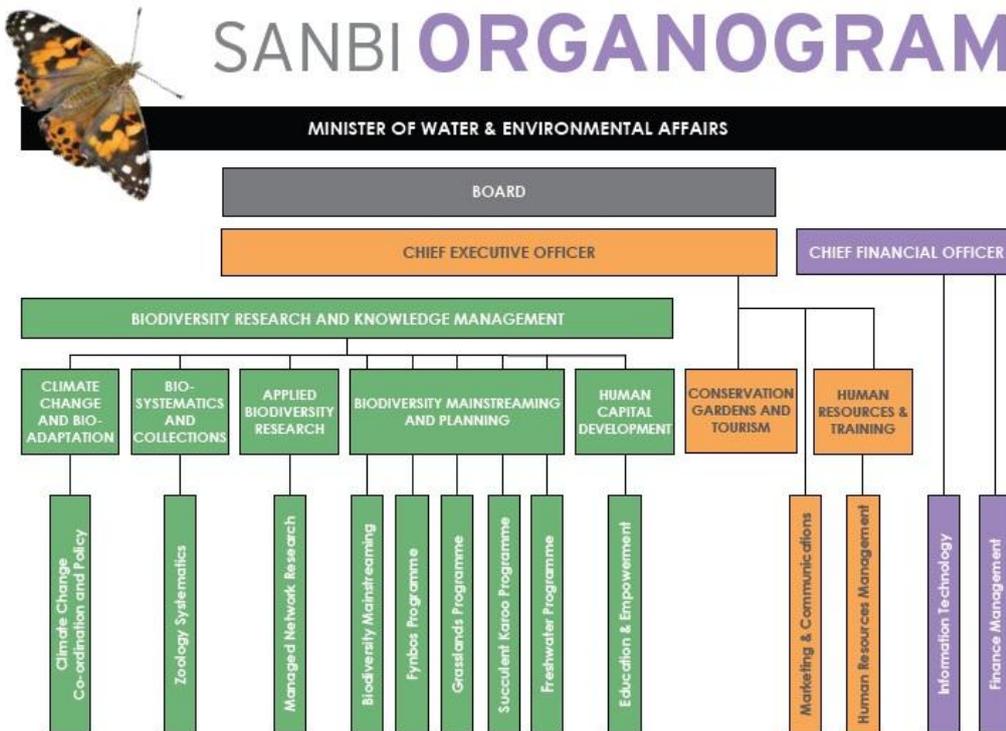
The Act expanded the mandate of SANBI's forerunner, the National Botanical Institute to include responsibilities relating to the full diversity of South Africa's fauna and flora, and built on the internationally respected programmes in conservation, research, education

and visitor services developed over the past century by the National Botanical Institute.

Botanical Gardens

The 9 national botanical gardens - Free State, Hantam, Harold Porter, Karoo Desert, Kirstenbosch, Lowveld, KwaZulu-Natal, Pretoria and Walter Sisulu - are located in 6 of South Africa's 9 provinces. Together they conserve over 7,500 ha of natural vegetation and associated biodiversity within their boundaries.

SANBI Organogram³⁰



³⁰ Source: SANBI Annual Report 2012

2.1.1.1.73. Bioprospecting

www.environment.gov.za

IP Creation	Funding	Policy	Support
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Background

The National Environmental Management: Biodiversity Act No. 10 of 2004 was passed in September 2004.

Chapter 6 of the Act provides for bioprospecting, access and benefit sharing the establishment of a Bioprospecting Trust Fund into which all moneys arising from material transfer and benefit-sharing agreements must be paid.

What is “bioprospecting”?

Bioprospecting is defined as any research on, or development or application of indigenous biological resources for commercial or industrial exploitation and includes:

- ☒ the systematic search, collection or gathering of indigenous biological resources or making extractions from indigenous biological resources;
- ☒ the utilization of any information regarding any traditional uses of indigenous biological resources by indigenous communities; and
- ☒ research on, or the application, development or modification of such traditional uses for commercial exploitation.

Permits

Persons wishing to engage in bioprospecting or export indigenous biological resources for the purpose of bioprospecting are required to obtain a permit in terms of Chapter 7 of the Biodiversity Act. The applicant must:

- ☒ disclose all information relating to the proposed bioprospecting to the Department of Environmental Affairs and Tourism; and
- ☒ enter into certain agreements and arrangements with “stakeholders” that have an interest in the project. A “stakeholder” may be a person, including an organ of state or a community that provides access to biological resources, or whose

traditional uses or knowledge of indigenous biological resources contribute to or form part of a bioprospecting project. The applicant must have:

- ☒ disclosed all material information relating to the bioprospecting to the stakeholder and obtained prior consent from the stakeholder to use information derived from them;
- ☒ entered into a benefit-sharing agreement which provides for sharing by the stakeholder in any future benefits that may be derived from the bioprospecting and where necessary a material transfer agreement with the stakeholder that regulates the access to the biological resources.

The Act distinguishes between procedures to obtain indigenous biological resources; and those to obtain traditional knowledge about the indigenous biological resources.

For indigenous biological resources, a material transfer agreement and benefit sharing agreement are required between the applicant and a person, or organ of state or community providing access prior to permit issuance.

For traditional uses/ knowledge, a benefit-sharing agreement is required between the applicant and the indigenous community which is the holder of the traditional knowledge prior to permit issuance.

Bioprospecting is divided into two phases:

- ☒ The Discovery Phase: early stage research involving biodiversity
- ☒ A Bioprospecting Discovery Phase Notification Form needs to be submitted to the Department of Environmental Affairs.

- ☒ The Commercialisation Phase: which includes filing of IP rights, clinical trials, market research, etc.

A Bioprospecting Permit Application needs to be submitted to the Department of Environmental Affairs, identifying all stakeholders involved in giving access to the Indigenous Biodiversity, as well as any Traditional Knowledge holders.

2.1.1.1.74. Department Of Health

2.1.1.1.75. Medical Research Council (MRC)

<http://www.mrc.ac.za/>



Mandate and objectives

The mandate of the Medical Research Council is legislated in terms of Act 58 of 1991:

'The objects of the MRC are, through research, development and technology transfer, to promote the improvement of the health and the quality of life of the population of the Republic, and to perform such other functions as may be assigned to the MRC by or under this Act.'

The nine MRC strategic objectives are grouped into three categories:

A. Promotion and conduction of research

Promoting and conducting research is the core business and primary strategic objective of the MRC as a knowledge-producing organisation. Without research, the vision of the MRC of 'building a healthy nation through research' cannot be achieved.

- ☒ Research strategy and business plan

B. Professional support for research

Research cannot take place, and staff cannot develop, unless supported by corporate professional services.

- ☒ Financial model strategy and plan
- ☒ Opportunity and risk management
- ☒ Capacity development
- ☒ Transformation and development

C. Research translation

Research makes no difference to health and quality of life unless it is translated into interventions such as policy, practice and products, which can have an impact on the health and quality of life of the nation.

- ☒ Innovation management and technology transfer
- ☒ Informatics and knowledge management
- ☒ Research translation
- ☒ Stakeholder management

2.1.1.1.76. Strategic Health Innovation Partnerships (Ship)

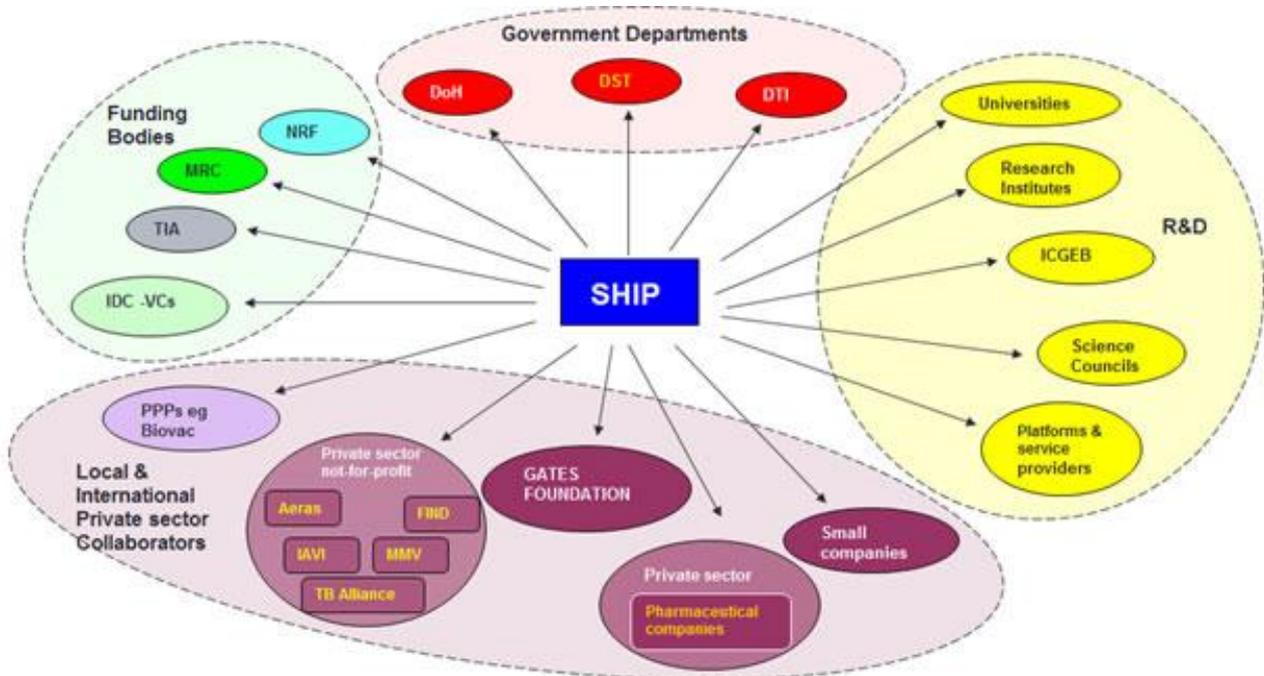
<http://innovation.mrc.ac.za>

SHIP is a new MRC unit that will:

- ☒ Seek, manage and fund multi-disciplinary, multi-institutional product research, development and innovation projects from discovery to proof-of-concept
- ☒ Enhance the capacity of South African science in the research and development of novel or improved drugs, vaccines and other biologicals, diagnostics and medical devices in the identified priority diseases
- ☒ Facilitate, through partnerships with local universities, science councils and the private sector, the transfer of research outputs into improved health outcomes and/or social benefit
- ☒ Along with its Technology Transfer unit, develop pathways to facilitate the seamless movement of new products and services from the laboratory to the marketplace.

How Ship Fits Into the Innovation Landscape³¹

³¹ Source: MRC 2013, <http://innovation.mrc.ac.za/innovation.htm>



2.1.1.1.77. National Health Laboratory Services (NHLS)

www.nhls.ac.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The National Health Laboratory Service (NHLS) is the largest diagnostic pathology service in South Africa with the responsibility of supporting the national and provincial health departments in the delivery of healthcare. The NHLS provides laboratory and related public health services to over 80% of the population through a national network of laboratories. Its specialised divisions include:

- i. The National Institute for Communicable Diseases
- ii. National Institute for Occupational Health
- iii. National Cancer Registry
- iv. Antivenom Unit.

The National Health Laboratory Service is a public health laboratory service, with laboratories in all nine provinces, employing 6,700 people. Its activities comprise

diagnostic laboratory services, research, teaching and training, and production of sera for anti-snake venom, reagents and media.

2.1.1.1.78. National Institute for Communicable Diseases

<http://www.nicd.ac.za>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The National Institute for Communicable Diseases (NICD), a division of the NHLS, is the national public health institute for South Africa. It provides reference microbiology, virology, epidemiology, surveillance and public health research to support the government's response to communicable disease threats.

2.1.1.1.79. Department of Water Affairs

<http://www.dwaf.gov.za/>

The Department of Water Affairs is the custodian of South Africa's water resources. It is primarily responsible for the formulation and implementation of policy governing this sector. It also has an overriding responsibility for water services provided by local government.

While striving to ensure that all South Africans gain access to clean water and safe sanitation, the water sector also promotes effective and efficient water resources management to ensure sustainable economic and social development.

2.1.1.1.80. Water Research Commission (WRC)

www.wrc.org.za

IP Creation	Funding	Policy	Support
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Mandate and objectives

The WRC was established in terms of the Water Research Act (Act No 34 of 1971),

following a period of serious water shortage. It was deemed to be of national importance to generate new knowledge and to promote the country's water research purposefully, owing to the view held that water would be one of South Africa's most limiting factors in the 21st century. In 1971 when the WRC was founded, water research and development (R&D) in South Africa was limited to a few institutions and the funding level inadequate. There was no research co-ordination and an apparent neglect of some key research fields. In addition, there was little strategic direction or leadership that would provide for the identification of priority areas or appropriate technology transfer. It was to address these issues, that the WRC was established.

- ☒ The mandate which has been entrusted to the WRC includes:
- ☒ Promoting co-ordination, co-operation and communication in the area of water research and development
- ☒ Establishing water research needs and priorities
- ☒ Stimulating and funding water research according to priority
- ☒ Promoting effective transfer of information and technology
- ☒ Enhancing knowledge and capacity-building within the water sector.

Funding

<http://www.wrc.org.za/Pages/Research.aspx>

2.1.1.1.81. Treasury

2.1.1.1.82. Sec. 11d - Tax Incentive Scheme for R&D Conducted By Firms

<http://www.dst.gov.za/index.php/services/the-rad-tax-incentives-programme>

Also refer to Paragraphs 2.1.1.25 & 9.3

IP Creation	Funding	Policy	Support
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Mandate and Objective

The Research and Development Tax Incentives Programme encourages private sector investment in research and development activities. Therefore, the R&D Tax Incentives are

an indirect approach to increasing national R&D expenditure and complement government's expenditure on R&D activities.

Process for claiming R&D Incentives

To claim the R&D Tax Incentive, the taxpayer is required to complete and submit two forms, one to the DST and the other to South African Revenue Service (SARS):

1. Complete and submit the R&D Tax Incentives Form to the DST.
2. Complete the relevant entries in the Income Tax Return Forms as prescribed by SARS. This is submitted during the normal income tax return process.

The R&D tax incentive is administered by DST, in conjunction with SARS and the National Treasury, as follows:

- ❏ DST is responsible for promoting the R&D Tax Incentives programme and provides general advice to both government and private companies on strategic and operational issues of the programme. It is required to assess and validate the claims against scientific and technological R&D and advise SARS on the eligibility of activities included in the claim. In this regard DST may visit taxpayers to assess the validity of their claims.
- ❏ DST also has a responsibility to report annually to Parliament regarding the performance and impact of the R&D tax incentive programme.
- ❏ SARS is the government agency that administers the Income Tax Act. SARS administers the R&D Tax Incentives through the taxation system. Taxpayers claiming the R&D Tax Incentives do so by completing the relevant entries on their income tax return.
- ❏ A further responsibility on the functioning of the R&D Tax Incentives involves the National Treasury, with respect to the tax policy.
- ❏ There are strict confidentiality requirements applicable to handling all matters in connection with information provided by taxpayers for purposes of R&D Tax Incentives. All officials involved in the administration of the programme are required to take an oath of secrecy.

2.1.1.1.83. Department of Economic Development

2.1.1.1.84. National Youth Development Agency (NYDA)

<http://www.nyda.gov.za>

IP Creation	Funding	Policy	Support
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Mandate and Objectives

The NYDA is a South African-based agency, established primarily to tackle challenges that the nation's youth are faced with. The NYDA was established by the NYDA Act, 2008 (Act 54 of 2008). The existence of the NYDA should be viewed within the broad context of South Africa's development dynamics. Similar to many developing countries, South Africa has a large population of youth, between the ages 14 - 35, representing 41.2% of the total population. Given the youthful nature of the South African Population, much of the socio-economic challenges faced by the nation, i.e. poverty, inequality, joblessness and poor health are borne by the youth.

The gravity of challenges South Africa faces require multipronged efforts, which simultaneously promote the development of sustainable livelihoods, reduce poverty and inequality, and prioritise the development of policies which create an enabling environment for youth development. The NYDA plays a leading role in ensuring that all major stakeholders, i.e. Government, the private sector and civil society, prioritise youth development and contribute towards identifying and implementing lasting solutions that address youth development challenges.

Furthermore, the NYDA designs and implements programmes aimed at improving the lives of the youth and the opportunities available to them.

At an individual level (microlevel), the NYDA provides direct services to youth in the form of information, career guidance services, mentorship, skills development and training, entrepreneurial development and support, loan funding, health awareness programmes and involvement in sport.

At a community level (mesolevel), the NYDA encourages young people to be catalysts for change in their communities through involvement in community development activities, social cohesion activities, NYS programmes and dialogue.



At a provincial and national level (macrolevel), the NYDA facilitates the participation of youth in the development of key policy inputs into shaping the socio-economic landscape of South Africa, by means of its policy development, partnerships and research programmes.

Non-Government Organisations (NGO'S)

2.1.1.1.85. Education and Research

2.1.1.1.86. Higher Education South Africa (HESA)

www.hesa.org.za

IP Creation	Funding	Policy	Support
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Mandate and Objective

Higher Education South Africa (HESA) is the voice of South Africa's university leadership. We represent 23 Vice Chancellors of public universities.

HESA's mandate is to facilitate the development of informed public policy on higher education and to encourage cooperation among universities and government, industry and other sectors of society in South Africa.

In particular, HESA aims

- ☒ to be the single, credible, authoritative and respected voice of public Higher Education;
- ☒ to be the single, unified national body equitably representing all sectors of the public Higher Education system;
- ☒ to be the primary point of contact for government, the media, national and international organisations, prospective students and anyone who seeks information or interaction with public Higher Education in the Republic;
- ☒ to provide enabling conditions and services that allow institutional leadership, staff and students to integrate effectively with the knowledge of the economy in order to:
 - ☒ advance and promote the benefits of South African Universities to the nation;
 - ☒ support South African Universities in the performance of their roles;
 - ☒ develop policy positions on higher education matters through discussing higher education issues, including teaching, research and community engagement;

- ☒ advance the internationalisation of South African Universities;
- ☒ provide information for and about South African Universities;
- ☒ •provide sector support services and programmes to all member Universities on issues of funding, research, transformation and access into higher education; and
- ☒ assist in the further development of South African Universities.

2.1.1.1.87. Committee of Heads of Organisations of Research and Technology (COHORT)

The COHORT comprises a number of science councils and statutory bodies responsible for research, development and innovation and serves as a forum to discuss issues of research that informs policy development in the country, initiating and developing innovations, and technologies aimed at improving the standard of living for South Africans.

2.1.1.1.88. The Southern African Research and Innovation Management Association (SARIMA)

www.sarima.co.za

IP Creation	Funding	Policy	Support
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Mandate and Objectives

- ☒ Professional development and capacity building of those involved in managing research and/or innovation.
- ☒ Promotion of best practice in the management, administration and support of research and innovation to create value for education, public benefit and economic development.
- ☒ Creation of awareness in academic and public forums of the value of a stronger research and innovation system and the contribution it can make to economic and social development.
- ☒ Advocacy of appropriate national and institutional policy in support of research and innovation and participation in the development and testing of policy.

- 🔗 Taking the lead in research and innovation management improvement within Southern Africa, incorporating guidelines for the various components of the research and innovation cycle.
- 🔗 Advancement of science, technology and innovation, including addressing the asymmetries in access to, and diffusion of, knowledge between 'North and 'South'.

SARIMA operates at an institutional, national and international level, as well as across the research and innovation value chain, from research management to intellectual property management and the commercialization of research output. SARIMA interacts, liaises and forms strategic alliances and partnerships with other organizations as required.

2.1.1.1.89. South African Nanotechnology Initiative (SANi)

http://www.sani.org.za/about_us.php

IP Creation	Funding	Policy	Support
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Mandate and Objectives

A number of universities, science councils and industrial companies have been active in nanotechnology for some time. Focus areas have typically been membranes, synthesis of nanoparticles for medicine, solar cells and cosmetics, catalysts and surface hardening. At some universities, there are already strong links to industrial companies. With a recent call for expressions of interest by the European Commission, these parties have gathered to form the South African Nanotechnology initiative (SANi).

Institutions involved in the above activities:

- 🔗 Universities: Wits, UWC, UCT, Unizulu, UNIN, Potch, UN, TWR, RAU, SUN, Uniqwa
- 🔗 Research organizations: CSIR, Mintek, NECSA, iThemba, Water Research Commission
- 🔗 Private sector: SASOL, ESKOM, DENEL, De Beers, Anglo Gold, Harmony Gold Mine, Goldfields, Prime Products Manufacturing, Plascon, Dulux and SAPI.

SANi objectives:

To establish critical mass in nanotechnology R&D in South Africa for the benefit of all its citizens and hopes to achieve the following outcomes:

- ☒ Increased Industry involvement and identified opportunities;
- ☒ Improved industry – R&D organisation - university links;
- ☒ Larger local and international networks;
- ☒ Increased R&D spending in nanotechnology; and
- ☒ Projects that generate benefits for South Africa.

2.1.1.1.90. Science Parks

2.1.1.1.91. The Innovation Hub

<http://www.theinnovationhub.com>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Innovation Hub Open Innovation Solution Exchange is a pilot project of The Innovation Hub Management Company (TIHMC) a subsidiary company of the Gauteng Growth and Development Agency (GGDA), who reports to the Gauteng Department of Economic Development (GDED). The Solution Exchange is a web-based platform that will connect innovators, inventors and solution providers with solution seekers in government and the private sector, whilst ensuring the protection of intellectual property on both sides. The platform builds on the expertise and experience of a proven Open Innovation mediation model to deliver value to innovators and customers.

The Innovation Hub Open Innovation Solution Exchange seeks to position The Innovation Hub and Gauteng City Region as an innovation thought leader within the global knowledge economy and provide a tangible expression to The Innovation Hub's vision:

PRIVATE SECTOR

2.1.1.1.92. Industry Associations

The organizations listed in this section are membership driven bodies that offer expertise and in some cases advice, training and support in selected fields. Through membership of such professional bodies, innovators can usually acquire knowledge of the latest developments in the relevant subject areas.

2.1.1.1.93. South African Institute of Intellectual Property Law (SAIPL)

<http://www.saiipl.org.za/>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The South African Institute of Intellectual Property Law was established in 1952 and represents some 164 patent attorneys, patent agents and trade mark practitioners in South Africa who specialise in the field of Intellectual Property Law.

Intellectual Property Law embraces the law relating to patents, trademarks, registered designs, copyright and unlawful competition (passing-off of trade secrets). It also includes litigation, licensing and franchising

The members of the SAIPL represent the majority of national and international businesses who have built their businesses on brands, innovation and technology, and who protect their interests through South Africa's intellectual property laws. Members of the SAIPL also represent the interests of their individual firms and clients at a number of local and international organisations such as the World Intellectual Property Organization (WIPO), etc.

2.1.1.1.94. Licensing Executives Society International (LESI)

<http://www.lesi.org/index>

IP Creation	Funding	Policy	Support
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Mandate and objectives

The Licensing Executives Society International (LESI) is the foremost organization in the field of technology licensing. The LESI is unique among all professional associations in that it does not focus solely on the legal aspects of intellectual property, but rather on providing worldwide training and educational programmes directed towards powering the intellectual capital engine of the global knowledge economy.

The aims of LESI are:

- ☒ To encourage high professional standards among individuals engaged in the transfer and licensing of technology.
- ☒ To assist the members in improving their skills and techniques in licensing through self-education; attending educational activities; and through their exchange of information, both personally and by way of publications.
- ☒ To inform the public, the business community and governmental and international bodies about the economic significance of technology licensing and the importance of high standards required in the field.
- ☒ To make available to its members the latest, most accurate information on the subject of technology licensing.

The South African Society (LES SA) is one of many national and regional societies which make up the international association or family of LES Societies constituting LESI. The individual societies are associations of members having common interest in transferring technology in the broadest sense of the term. These, like the South African Society, are thus composed of persons who are in business; managers; scientists; engineers; academics; government officials and lawyers, in particular, intellectual property lawyers and patent attorneys and agents. LES SA creates opportunities for exchanging information and debating intellectual property related matters, and conducts regular courses in

intellectual property management and licensing at introductory and advanced level.

2.1.1.1.95. South African Venture Capital Association (SAVCA)

www.savca.co.za

IP Creation	Funding	Policy	Support
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Mandate and offerings

The main objectives of the Association are to:

- ☒ Promote the venture capital and private equity profession in Southern Africa
- ☒ Represent the profession at the national and international level
- ☒ Develop and stimulate professional and transactional venture capital and private equity investments throughout Southern Africa
- ☒ Stimulate the expansion of venture capital and private equity throughout Southern Africa
- ☒ Collect information from markets and from members
- ☒ Circulate information to members and the outside world
- ☒ Stimulate and maintain contacts within the membership
- ☒ Contribute to the management development of investors and investees
- ☒ Provide the relevant authorities with proposals for improvement in the corporate, fiscal and legal environment for venture capital and private equity in Southern Africa
- ☒ Maintain ethical and professional standards

SAVCA intends playing a meaningful role in the Venture Capital and Private Equity Industry by:

- ☒ Promoting self-regulation
- ☒ Lobbying on behalf of industry
- ☒ Disseminating information and publicity
- ☒ Arranging training for the staff of its members
- ☒ Researching the industry in South Africa

2.1.1.1.96. The Southern African Innovation Network (SAINe)

www.saine.co.za

IP Creation	Funding	Policy	Support
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Mandate and offerings

The main aim of the activities associated with the South African Innovation Network is to remedy the current lack of reliable data on innovation related topics as well as contribute to information on progress made in South Africa on innovation. It will also serve as a national resource, providing information on upcoming and ongoing innovation activities as well as assisting with local and international benchmarking.

Saine was established as part of a vision born out of the realisation and belief that South African innovation is unique. It is context driven to fit the South African landscape and geared to enable us to compete with the best in the world as far as innovation and creativity is concerned. Saine will provide a platform for learning, sharing and talking innovation. It aims to activate the triple helix principle in South Africa where government, academia and industry come together and collaborate to find new solutions and create real value in the country. This network could become the ultimate innovation standard-setting platform in South Africa.

2.1.1.1.97. Sponsored Research Grants

The private organizations listed in this section provide funding to research institutes, universities and in some cases companies for early stage exploratory research, with some organizations considering product or process development as well.

2.1.1.1.98. Citrus Research International (CRI)

<http://www.citrusres.com/>

IP Creation	Funding	Policy	Support
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Mandate and Objective

Citrus Research International (CRI) (Pty) Ltd has the vision to maximise the long-term global competitiveness of the Southern African citrus growers through the development, support, co-ordination and provision of Research and Technical services by combining strengths of all CRI Group partners. CRI and partners in the CRI Group all use funds from the Citrus Growers Association levy to conduct research for the citrus industry in Southern Africa. The research is divided into four programmes. Three of these fall within the Research Division while the Cultivar Evaluation programme falls within the Cultivar Development Division. Within each focused programme are several projects on particular problem areas identified by the citrus industry.

2.1.1.1.99. FRUITGRO

http://www.dfptresearch.co.za/about_us/our_purpose



Mandate and Objective

Fruitgro direct and guide research to address short and long term needs of the industry by means of:

- ☒ Institute effective and efficient management systems.
- ☒ Access and develop new funding sources.
- ☒ Facilitate the development of people to create the required capacity to meet the needs of the industry now and in the future. Institute an effective system of transferring information and results of research back to the growers and other funders of research.
- ☒ Transform current process from a research push to an industry pull / lead process.
- ☒ Research to underpin the industry's move from production led to market led.
- ☒ Transform current process from a project based to a programme based approach.
- ☒ Increase flexibility and integration across institutes nationally and internationally.
- ☒ Stimulate innovation / creativity.

- Facilitate and activate actions to speed up the transfer of technology to new entrants and activate processes to transform the profile of researchers and technical participants in the industry.

2.1.1.1.100. Maize Trust

<http://www.maizetrust.co.za/>

IP Creation	Funding	Policy	Support
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Mandate and Objective

The primary aim of the Maize Trust is the promotion of the South African maize industry by facilitating the continuous improvement thereof, thus ensuring that it is internationally competitive and the regional leader.

The Trust exercises its mandate principally by providing financial support for organisations conducting research focused on maize production and marketing. The Maize Trust objectives further include the acquisition, assimilation and dissemination of market information for the local maize industry, and the facilitation of market access for South African maize. This includes support for training, technical assistance and the creation of marketing infrastructure.

2.1.1.1.101. Protein Research Foundation (PRF)

<http://www.proteinresearch.net/>

IP Creation	Funding	Policy	Support
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Mandate and Objective

The Protein Research Foundation's (PRF) main objectives are to replace imported protein for animal use with locally produced protein, but also to promote better utilisation of protein. These objectives are promoted through funding research and technology transfers.

Research is funded in terms of appropriate related crops, oil seeds, fish meal and other

protein sources, as well as, the application and utilisation thereof by the most important fish, animal and poultry species that are specific to the South African market.

The PRF strives to make a significant contribution to the promotion of local production of protein on a competitive basis, in order to satisfy the growing need for protein for animal production purposes and the optimal utilization thereof, thereby leading to an increase in the standard of living of all people in South Africa. The PRF contributes to the realization of its vision of the provision and utilization of protein by means of the pro-active stimulation and funding of applicable purposeful research in order to fulfil the increasing protein needs for animal nutrition in the country.

2.1.1.1.102. South African Sugarcane Research Institute (SASRI)

<http://www.sasa.org.za/sasri.aspx>

IP Creation	Funding	Policy	Support
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Mandate and Objective

The South African Sugarcane Research Institute (SASRI) is a world renowned agricultural research institute at the forefront of a thriving sugar industry. Research at SASRI is clustered within four multidisciplinary programmes, namely Variety Improvement, Crop Protection, Crop Performance & Management Systems Design & Optimisation. An Extension Service provides the essential link between researchers and sugarcane farmers. SASRI also offers a range of services including fertiliser advice, disease diagnoses and education courses.

2.1.1.1.103. Sugar Milling Research Institute (SMRI)

www.smri.org

IP Creation	Funding	Policy	Support
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Mandate and Objective

The Sugar Milling Research Institute (SMRI) is the central scientific organization involved in

research work and technical services for the Southern African sugar manufacturing/milling industries. It was founded in 1949 and is located on the Howard College Campus of the University of KwaZulu-Natal, South Africa.

All raw sugar factories in South Africa are full members, and in addition the SMRI provides technical services and training to mills in 7 SADC countries. The SMRI is committed to providing International leadership in sugar cane science research Innovative, cost-effective solutions to cane and sugar processing and refining problems.

2.1.1.1.104. WINETECH

<http://www.winetech.co.za/index.php>

IP Creation	Funding	Policy	Support
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Mandate and Objective

The Wine Industry Network for Expertise and Technology (Winetech) coordinates research, training and technology transfer in the wine industry. It encourages the production of quality wines and other grape-based products through the application of environmentally friendly and best technologies. It supports training and education at all levels, including the development of resource poor and new entry producers.

The mission of Winetech is to provide the South African Wine Industry with a sustainable basis of forefront technology and human resources in order to strengthen both local and international competitiveness and profitability.

3. South African Policy and Legislative Environment

Legislation

South Africa has been a WTO member since 1995 and is a signatory to the TRIPS Agreement that resulted in expanded commitments to internationally binding guarantees of corporate 'intellectual property rights' over science and technology, production processes and products, such as pharmaceutical drugs³². South Africa, like many developing countries significantly responded to the TRIPS Agreement by tightening IPR protection regimes³³. The empirical evidence (notably changes to the TradeMark Act) suggests that the TRIPS Agreement has been successful in coercing South Africa and WTO member countries to strengthen domestic protection of IPR.

Furthermore, there are more than 30 pieces of legislation in South Africa that directly impact on the NSI, the Report only elaborate on the most recent legislation in South Africa in respect of the innovation landscape, i.e.

- 🔗 Biodiversity Act (§ 2.1.1.1.105)
- 🔗 Intellectual Property Rights from Publicly Financed R&D Act (§ 2.1.1.1.107)
- 🔗 R&D Tax Incentives (§ 0)

Intellectual Property Rights from Publicly Financed R&D Act (§ 3.1.3)

³² Dot Keet, South Africa's official position and role in promoting the WTO

³³ Ryan Cardwell, The Effects of the TRIPS Agreement on International Protection of Intellectual Property Rights, ITJ

The specific object of this legislation is that intellectual property emanating from publicly financed research and development should be commercialised for the benefit of all South Africans, and protected from appropriation. The IPR Act further provides for an enabling environment for intellectual property -

- 🔗 creation,
- 🔗 protection,
- 🔗 management and
- 🔗 commercialisation and utilisation.

Because this IPR Act impacts on all future EU collaboration agreements a recommendation is made to develop guidelines for the interpretation of the Act by EU partners.

Biodiversity Act

The National Environmental Management: Biodiversity Act builds on the White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, which was published in 1997. The Biodiversity Act is of particular importance to the EU because many collaboration partnerships are based on the transfer of sensitive biological material from South Africa to EU partners by means of Material Transfer Agreements (MTA).

Among other the Act provides for bioprospecting, access and benefit sharing, the establishment of a Bioprospecting Trust Fund into which all moneys arising from material transfer and benefit-sharing agreements must be paid.

A recommendation to harmonise Material Transfer Agreements is made.

Pharmaceuticals and the Patent Act

There is currently a fierce, on-going debate in South Africa on the alleged impact that the Patent Act has on access to free medicine for the poor. This Report does not contain any reference to any formal or informal position of Government, stakeholders or lobby groups on the subject matter, mainly because the debate is at a very early stage. It is, however, one of the recommendations that the envisaged workshop will provide for a session on "Access to medicine, the Patent Act and Innovation in south Africa". This topic will be of interest to many EU partners who sponsor clinical trials at South African Institutions.

R&D Tax Incentives

The tax incentive (up to 150% of R&D expenditure) is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and /or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

A recommendation is made to investigate how this incentive can directly or indirectly benefit EU-collaborators on SA research projects.

The table below represents the most important legislation in South Africa that impacts on the innovation landscape. The paragraphs listed in the right column link to the relevant paragraph in this document.

- 🔗 Biodiversity Act
- 🔗 IPR from Publicly Financed R&D Act
- 🔗 Taxation Laws Amendment Act 2011 (Section 11D)

LEGISLATION	RELEVANT AGENCY	PARAGRAPH
Accreditation Act	SANAS	2.1.1.1.54
Agricultural Research	ARC	2.1.1.1.68
Africa Institute of South Africa Act	AISA	2.1.1.1.4
ASSAf Act	ASSAf	2.1.1.1.6
Astronomy Geographic Advantage Act		2.1.1.1.34
Biodiversity Act	DEAT	2.1.1.1.73
Biodiversity	SANBI	2.1.1.1.72
Companies Act	CIPC	2.1.1.1.50

Copyright Act	CIPC	2.1.1.1.50
Designs Act	CIPC	2.1.1.1.50
GMO Act	BIOSAFETY	2.1.1.1.69
Higher Education Act	CHE	2.1.1.1.59
Human Sciences Research Council Act	HSRC	2.1.1.1.5
IPR from Publicly Financed R&D Act	NIPMO	0
Medical Research Council	MRC	2.1.1.1.75
National Advisory Council on Innovation Act	NACI	2.1.1.1.20
National Empowerment Fund Act	NEF	□
National Health Laboratory Service Act	NHLS	2.1.1.1.77
National Research Foundation Act	NRF	2.1.1.1.21 Fehler! Verweisquelle konnte nicht gefunden werden.
Natural Scientific Professions Act	DST	2.1.1.1.1
National Small Business Act	SEDA	2.1.1.1.51
National Youth Development Act	NYDA	2.1.1.1.84
Nuclear Energy Act	NECSA	2.1.1.1.65
Patents Act	CIPC	2.1.1.1.50
Plant Breeders' Right Act	DAFF	2.1.1.1.67
Scientific Research Council Act	CSIR	2.1.1.1.9

Standards Act	SABS	2.1.1.1.52
South African National Space Agency Act	SANSA	2.1.1.1.7
Taxation Laws Amendment Act 2011	DST	2.1.1.1.19
Technology Innovation Agency Act	TIA	2.1.1.1.3
Trade Marks Act	CIPC	2.1.1.1.50
Water Research Act	WRC	2.1.1.1.80

2.1.1.1.105. Biodiversity Act

The National Environmental Management: Biodiversity Act No. 10 of 2004 was passed in September 2004. This legislation builds on the White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, which was published in 1997. In the “way forward” of this Policy, it was envisaged that a priority action of this policy will be to draft an action plan through which detailed implementation strategies can be developed. This forms an essential component of the National Environmental Strategic Action Plan (National Biodiversity Strategy and Action Plan). The development and implementation of the National Biodiversity Strategy and Action Plan (NBSAP) is an ongoing and iterative process. The NBSAP and the National Biodiversity Framework (NBF) must be seen as a continual cycle of implementation, monitoring, review and revision.

Bioprospecting (§2.1.1.1.73)

Chapter 6 of the Act provides for bioprospecting, access and benefit sharing the establishment of a Bioprospecting Trust Fund.

Refer to **§2.1.1.1.73** More details.

2.1.1.1.106. Taxation Laws - Section 11d (§2.1.1.1.19)

The Taxation Laws Amendment Act 2011 introduced specific enhancements to the existing scientific and or technological research and development (R&D) tax incentive provided under Section 11D of the Income Tax Act. These changes are effective from 1 October 2012.

A company undertaking R&D in the Republic of South Africa qualifies for a 150% tax deduction of its operational R&D expenditure. This incentive is available to businesses of all sizes in all sectors of the economy that are registered in South Africa.

All the eligible R&D expenditure will qualify for an automatic 100% tax deduction. An additional 50% uplift applies to expenditures on R&D activities that have been approved by the Minister of Science and Technology, based on the provisions of Section 11D of the Income Tax Act.

The incentive is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and /or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

Refer to §2.1.1.1.19 for more detail.

2.1.1.1.107. The Intellectual Property From Publicly Financed Research and Development Act 51 of 2008 (IPR Act)

OVERVIEW

1. Objective of the IPR Act

The specific object of the legislation is that intellectual property emanating from publicly financed research and development should be commercialised for the benefit of all South Africans, and protected from appropriation. The IPR Act further provides for an enabling environment for intellectual property -

- ❏ creation,
- ❏ protection,
- ❏ management and
- ❏ commercialisation and utilisation.

2. What kind of Intellectual Property (IP) is involved?

Section 1 of the Act defines IP as

"any creation of the mind that is capable of being protected by law from use by any other person, whether in terms of South African law or foreign intellectual property law, and includes any rights in such creation, but excludes copyrighted works such as a thesis, dissertation, article, handbook or publication which, in the ordinary course of business, is associated with conventional academic work."

Patentable inventions, plant breeders' rights, design rights and some copyrighted works such as software fall within the definition of IP above. The IPR Act is silent on Trademarks.

Consultation services (where knowledge is applied and not created by the research Institution) conducted on a paid for services rendered basis usually fall outside the scope of the IPR Act. An example of consultation services that may fall outside the scope of the IPR Act is clinical trials because the IP (active compounds in most cases) have been protected by the client before the clinical study commence and the research Institution only apply knowledge. Furthermore, the publications that may be produced during the study is excluded in terms of Section 1 above.

3. Ownership of IP

3.1. Ownership by Institution

Section 4(1) of the Act provides that

“subject to Section 15(2), intellectual property emanating from publically financed research and development shall be owned by the recipient.”

This section 4 **confirms** the main objective of the IPR Act, which is according to Section 2(1)

“protect, utilise and commercialise for the benefit of the people of the Republic...”

3.2. Joint IP Ownership

Section 4(1) is subject to Section 15(2), which deals with joint ownership of intellectual property in all such cases where the IPR Act applies (i.e. where research projects are NOT being undertaken on a FULL COST basis). In all such cases the Private Entity may at most become a joint owner of the intellectual property that emanate from research efforts.

Section 15(2) provides that:

“A private entity or organisation may become a co-owner of the intellectual property emanating from publicly financed research and development undertaken at an institution if –

- a) there has been a contribution of resources, which may include relevant background intellectual property by the private entity or organisation;
- b) there is joint intellectual property creatorship;
- c) appropriate arrangements are made for benefit-sharing for intellectual property creators at the institution; and
- d) the institution and the private entity or organisation conclude an agreement for the commercialisation of the intellectual property.

Section 4(1), read together with Section 15(2), is not prescriptive as regards to joint ownership or sole ownership and both options are available for Private Entities. It is,

however, important to understand that “joint IP creatorship as contemplated in section 15(2)(d) implies that an employee of a Private Entity must participate in the research effort and be recognized as a joint inventor in accordance with the international rule of inventorship, failing which the research sponsor cannot claim joint ownership of IP.

3.3. IP Ownership by Private Entity

According to section 15(4) of the Act, a Private Entity can wholly own the IP generated if they pay for the research and development conducted by an institution according to a full cost basis, as defined in section 15(4)(b).

Sections 15(4) (a and b) of the IPR Act provide that

(a) Any research and development undertaken at an institution and funded by a private entity or organisation on a full cost basis shall not be deemed to be publicly financed research and development and the provisions of this Act shall not apply thereto.

(b) For the purposes of paragraph (a) "FULL COST" means the full cost of undertaking research and development as determined in accordance with international financial reporting standards, and includes all applicable direct and indirect cost as may be prescribed.

4. Commercialisation Rights

4.1. Private Entity with Exclusive Rights to Commercialise

A Private Entity that negotiated to wholly own the IP created in terms of a research and development project conducted by an institution on a Full Cost basis (see §3.3 above) will also have the exclusive right to commercialise the IP.

Additional IP margins

The Private Entity's exclusive right to commercialise the IP may be subject to a royalty or similar arrangement, depending on the outcome of the negotiations between the Private Entity and the research institution. The IPR Act does not entrench or give research institutions any legal rights to any additional forms of payment such as additional IP margins in the case of Full Cost projects and Private Entities are therefore not obliged to accept such terms and conditions as part of any research contract negotiation process. A Full Cost project simply means that the Private Entity and the research institution may negotiate freely and that the IPR Act does not apply to that specific project.

4.2. Private Entity as Exclusive Licensee

Section 15(1) of the IPR Act provides that

“A private entity or organisation may become an exclusive licensee of intellectual property emanating from publicly financed research and development undertaken at an institution if such private entity or organisation has the capacity to manage and commercialise the intellectual property in a manner that benefits the Republic.”

According to Section 15(1) the only requirement for a private entity or organisation to obtain such exclusive license from a research institution is that the Private Entity must have

- a)** the capacity and
- b)** the commercialisation effort must benefit the Republic of South Africa.

Section 11 of the IPR Act; however, prescribe that such exclusive IP transaction must also include certain commercial benefits. For example:

Section 11(1) (d) of the IPR Act provides that

(d) exclusive licence holders must undertake, where feasible, to manufacture, process and otherwise commercialise within the Republic;

4.3. Private Entity as Non-Exclusive Licensee

Section 11 gives a right to research institutions to "*determine the nature and conditions of IP transactions related to IP held by such institution*". Therefore, in the case where Private Entities are sponsoring research projects that are not compliant with the Full Cost requirements of the IPR Act, the research institution may determine conditions such as exclusivity and royalties.

Section 11 also provides some guidelines on preferred IP transactions, notably that research institutions "*must take into account*" preference to non-exclusivity and BBBEE transactions.

5. Public Entities & EU partners: Ownership and Commercialisation Rights

Section 15(5) of the IPR Act provides that

15 Co-operation between private entities or organisations and institutions

15(5) For the purposes of this section, private entity or organisation includes a private sector company, a public entity, an international research organisation, an educational institution or an international funding or donor organisation.

EU partners

In terms of Section 15(5) EU partners will be classified as either a private sector company or an international research organisation. The IP Ownership and Commercialisation Rights of any IP emanating from EU-sponsored research projects can therefore be owned by that EU party, provided that the project is conducted on a Full Cost basis.

Public Entities

Treasury provides a list of public entities and a regular basis. The latest list was published on 15 March 2013

(<http://www.treasury.gov.za/legislation/pfma/public%20entities/default.aspx>).

In terms of Section 15(5) the IP Ownership and Commercialisation Rights of any IP emanating from Public Entity-sponsored research projects can be owned by that Public Entity, provided that the project is conducted on a Full Cost basis and Public Entity is indeed listed above.

Provincial and local Government

Are Provincial and local Governments "Funding Agencies" in terms of the IPR Act? Yes, with reference to Section 239 of the RSA Constitution. Therefore research projects sponsored by Provincial and local Governments fall under the IPR Act.

"Section 239 of the RSA Constitution defines an Organ of State as follows:

"Unless the context indicates otherwise -

'Organ of state' means:

(a) Any department of state or administration in the national, provincial or local sphere of government; or..."

Many Provincial and local Government initiatives, however, can be defined as Public entities in terms of Section 15(5) of the IPR Act (see above). It seems as if Treasury has discretionary powers to add and/or remove Public entities from their list, which may lead to IP ownership disputes (e.g. a Public entity may enter into a contract with a HEI and that HEI may argue that the Public Entity is an Organ of State and that the HEI should therefore be entitled to own the IP). This ownership issue must be clarified by NIPMO.

6. General

6.1. The State retains 'walk-in rights' for health, security and emergency needs of the Republic, for IP that is subject to the IPR.

6.2. NIPMO must be informed of offshore IP transactions - they will issue guidelines for the offshore IP transactions. EU partners will have to comply with these guidelines.

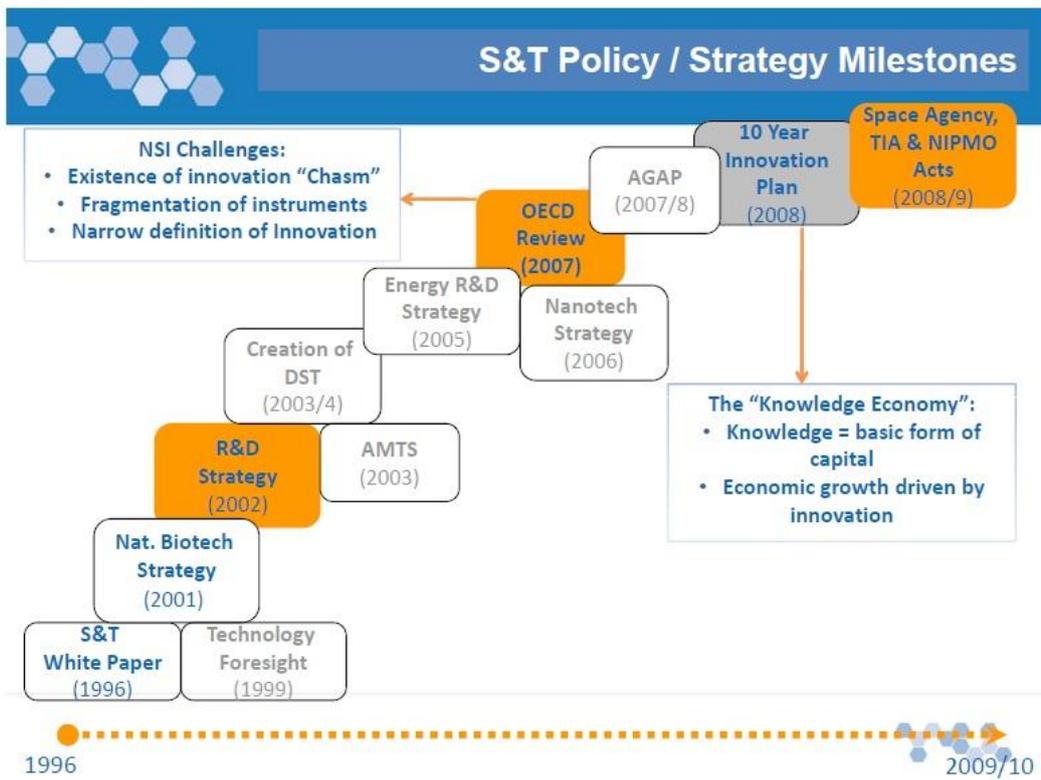
Innovation Related Policies

The Department of Science and Technology's policy landscape is as follows:

1996	White Paper on Science and Technology
2009- 2014	Government Medium Term Strategic Framework
2001	National Biotechnology Strategy
2002	National Research and Development Strategy
2003	Advanced manufacturing Technology Strategy
2004	New Strategic Management Model for South Africa's science and technology system
2005	National Nanotechnology Strategy
2010	National Space Strategy
2007	The South African Earth Observation Strategy
2007	OECD review of Innovation Policies in SA
2008- 2018	Ten-Year Innovation Plan
2009	National Energy Efficiency Strategy
2010	Nanoscience and nanotechnology 10-year research plan
2011	A Beneficiation Strategy for the Minerals Industry of South Africa
2011- 2016	DST Strategic plan
2012- 2017	National Department of Health Strategic Plan
2014-	Industrial Policy Action Plan

2015

2030 National Development Plan, Vision for 2030



4. The State of Innovation in South Africa and National Innovation Performance

Human Capital for Innovation

According to tables 27 and 28 of the South African Science and Technology Indicators Report³⁴, dated 2010, researchers employed per 1,000 people employed in South Africa stagnates at 1.5%. Female and black graduates are increasing.

Table 27: Researchers per 1000 employed (FTE, 2001 - 2008)

	2001	2002	2003	2004	2005	2006	2007	2008
OECD Total	6.9	7.0	7.3	7.3	7.5	7.6		
Brazil	1.5	1.5	1.7	1.7	2.0	2.1	2.2	
China	1.0	1.1	1.2	1.2	1.5	1.6	1.8	
Russian Federation	7.9	7.5	7.4	7.1	6.8	6.7	6.7	6.4
Slovenia	4.9	5.1	4.2	4.3	5.5	6.1	6.3	7.1
South Africa	1.3	..	1.2	1.5	1.5	1.5	1.5	1.4

Source: OECD Factbook 2008: Economic, Environmental and Social Statistics - ISBN 92-64-04054-4 - © OECD 2009

Table 28: Availability of graduates in all fields per population group and gender (1994, 1999 and 2004)

Population Group	1994	1999	2004
African	72,475	222,647	392,982
Coloured	19,792	38,396	56,440
Indian	29,678	54,275	77,650
White	390,216	519,081	611,411
Unknown	30,235	37,556	38,014
Total	542,396	871,955	1,176,497

Gender	1994	1999	2004
Female	222,563	395,094	569,544
Male	319,832	476,859	606,951
Total	542,395	871,953	1,176,495

Source: Trends in Public Higher Education in South Africa: 1995 to 2004. SAQA, 2007

INNOVATION PERFORMANCE Global Innovation Index 2013³⁵

³⁴ South African Science and Technology Indicators Report, 2010, NACI

³⁵ Global Innovation Index 2013, WIPO

South Africa

Key indicators

Population (millions)	51.1
GDP (US\$ billions)	390.9
GDP per capita, PPP\$	11,302.2
Income group	Upper-middle income
Region	Sub-Saharan Africa

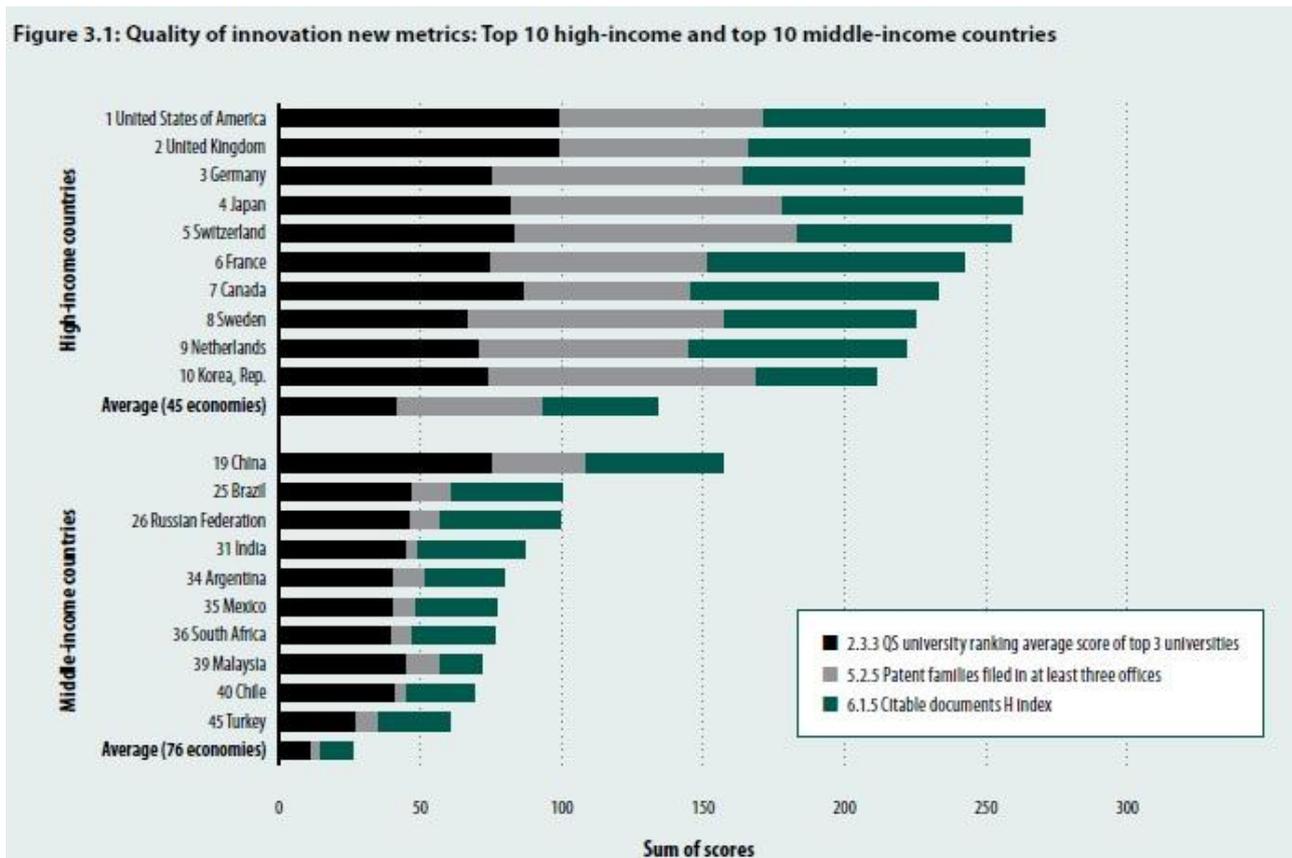
	Score (0–100) or value (hard data)	Rank
Global Innovation Index (out of 142)	37.6	58
Innovation Output Sub-Index	31.3	71
Innovation Input Sub-Index	43.9	51
Innovation Efficiency Ratio	0.7	99
Global Innovation Index 2012 (based on GII 2012 framework)	37.4	54

1 Institutions	70.1	44
1.1 Political environment	63.5	51
1.1.1 Political stability*	66.6	68
1.1.2 Government effectiveness*	48.5	52
1.1.3 Press freedom*	75.4	43
1.2 Regulatory environment	76.4	42
1.2.1 Regulatory quality*	61.0	53
1.2.2 Rule of law*	49.9	55
1.2.3 Cost of redundancy dismissal, salary weeks	9.3	33 ●
1.3 Business environment	70.4	45
1.3.1 Ease of starting a business*	89.0	35
1.3.2 Ease of resolving insolvency*	38.2	75
1.3.3 Ease of paying taxes*	83.9	25 ●
2 Human capital & research	23.7	102
2.1 Education	48.6	82
2.1.1 Current expenditure on education, % GNI	5.5	30
2.1.2 Public expenditure/pupil, % GDP/cap	n/a	n/a
2.1.3 School life expectancy, years	n/a	n/a
2.1.4 PISA scales in reading, maths, & science	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	25.0	107 ○
2.2 Tertiary education	0.6	141 ○
2.2.1 Tertiary enrolment, % gross	n/a	n/a
2.2.2 Graduates in science & engineering, %	n/a	n/a
2.2.3 Tertiary inbound mobility, %	n/a	n/a
2.2.4 Gross tertiary outbound enrolment, %	0.1	135 ○
2.3 Research & development (R&D)	21.8	38
2.3.1 Researchers, headcounts/mn pop.	820.0	57
2.3.2 Gross expenditure on R&D, % GDP	0.9	36
2.3.3 QS university ranking, average score top 3*	39.5	33 ●
3 Infrastructure	28.5	83
3.1 Information & communication technologies (ICTs)	28.5	87
3.1.1 ICT access*	37.9	86
3.1.2 ICT use*	14.6	86
3.1.3 Government's online service*	45.8	81
3.1.4 E-participation*	15.8	79
3.2 General infrastructure	36.6	39
3.2.1 Electricity output, kWh/cap	5,134.0	41
3.2.2 Electricity consumption, kWh/cap	4,802.6	40
3.2.3 Logistics performance*	66.8	22 ●
3.2.4 Gross capital formation, % GDP	21.0	84
3.3 Ecological sustainability	20.3	114 ○
3.3.1 GDP/unit of energy use, 2000 PPP\$/kg oil eq	3.5	105 ○
3.3.2 Environmental performance*	34.5	120 ○
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	1.5	48
4 Market sophistication	66.0	16 ●
4.1 Credit	56.9	31 ●
4.1.1 Ease of getting credit*	100.0	1 ●
4.1.2 Domestic credit to private sector, % GDP	135.0	16 ●
4.1.3 Microfinance gross loans, % GDP	0.6	47

4.2 Investment	63.9	10 ●
4.2.1 Ease of protecting investors*	83.0	10 ●
4.2.2 Market capitalization, % GDP	209.6	1 ●
4.2.3 Total value of stocks traded, % GDP	91.2	10 ●
4.2.4 Venture capital deals/tr PPP\$ GDP	0.0	71
4.3 Trade & competition	77.1	65
4.3.1 Applied tariff rate, weighted mean, %	4.4	75
4.3.2 Non-agricultural mkt access weighted tariff, %	1.3	82
4.3.3 Intensity of local competition†	67.8	51
5 Business sophistication	31.5	71
5.1 Knowledge workers	37.9	90
5.1.1 Knowledge-intensive employment, %	15.2	82 ○
5.1.2 Firms offering formal training, % firms	36.8	47
5.1.3 R&D performed by business, % GDP	0.5	34
5.1.4 R&D financed by business, %	42.5	38
5.1.5 GMAT mean score	472.7	94
5.1.6 GMAT test takers/mn pop. 20–34	60.6	75
5.2 Innovation linkages	28.3	59
5.2.1 University/industry research collaboration†	58.5	29 ●
5.2.2 State of cluster development†	50.1	47
5.2.3 R&D financed by abroad, %	12.1	29
5.2.4 JV-strategic alliance deals/tr PPP\$ GDP	0.0	51
5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP	0.0	53
5.3 Knowledge absorption	28.2	61
5.3.1 Royalty & license fees payments, % service imports	10.8	6 ●
5.3.2 High-tech imports less re-imports, %	11.0	40
5.3.3 Comm., computer & info. services imports, %	2.6	95
5.3.4 FDI net inflows, % GDP	1.4	114 ○
6 Knowledge & technology outputs	24.7	79
6.1 Knowledge creation	17.4	52
6.1.1 Domestic resident patent ap/bn PPP\$ GDP	1.2	64
6.1.2 PCT resident patent ap/bn PPP\$ GDP	0.5	38
6.1.3 Domestic res utility model ap/bn PPP\$ GDP	n/a	n/a
6.1.4 Scientific & technical articles/bn PPP\$ GDP	15.0	55
6.1.5 Citable documents H index	216.0	33 ●
6.2 Knowledge impact	34.1	68
6.2.1 Growth rate of PPP\$ GDP/worker, %	3.5	31
6.2.2 New businesses/th pop. 15–64	0.8	75
6.2.3 Computer software spending, % GDP	0.4	26
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	6.1	60
6.2.5 High- & medium-high-tech manufactures, %	26.2	38
6.3 Knowledge diffusion	19.1	103
6.3.1 Royalty & license fees receipts, % service exports	0.4	56
6.3.2 High-tech exports less re-exports, %	2.5	56
6.3.3 Comm., computer & info. services exports, %	3.6	100
6.3.4 FDI net outflows, % GDP	-0.1	117 ○
7 Creative outputs	37.8	68
7.1 Intangible assets	45.9	54
7.1.1 Domestic res trademark reg/bn PPP\$ GDP	31.9	50
7.1.2 Madrid trademark registrations/bn PPP\$ GDP	n/a	n/a
7.1.3 ICT & business model creation†	63.3	43
7.1.4 ICT & organizational model creation†	56.4	52
7.2 Creative goods & services	33.2	75
7.2.1 Audio-visual & related services exports, %	n/a	n/a
7.2.2 National feature films/mn pop. 15–69	0.6	86 ○
7.2.3 Paid-for dailies, circulation, % pop. 15–69	4.5	87
7.2.4 Printing & publishing manufactures, %	2.3	33
7.2.5 Creative goods exports, %	0.7	62
7.3 Online creativity	26.2	75
7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	4.5	64
7.3.2 Country-code TLDs/th pop. 15–69	44.7	42
7.3.3 Wikipedia monthly edits/mn pop. 15–69	313.9	101 ○
7.3.4 Video uploads on YouTube/pop. 15–69	53.7	107 ○

NOTE: ● indicates a strength; ○ a weakness; * an index; † a survey question.

In addition to the key indicators of the Global Innovation Index above, Figure 3.1 rates South Africa at 36 of 76 developing countries for a combined index reflecting university ranking, patents and publications.



2.1.1.1.108. Priority sectors

Appropriate data and reports are to be identified to assess specific sectors such as the mining and minerals beneficiation, health, energy, space science, nanotechnology, biotechnology, dti sector clusters.

Equipment and Facilities

NRF DIVISION III (§ 2.1.1.1.29)

The National Research Facilities, (NRF DIVISION III) provide unique research infrastructure platforms through a multi-location network of institutions. These platforms support research areas of strategic importance and provide researchers and research institutions with access to “big science” equipment. It is through the National Research Facilities that South Africa can compete and cooperate with international counterparts.

The National Research Facilities provide the infrastructure required to generate and support internationally competitive research.

The facilities have the mandate to:

- ☒ Ensure access to state-of-the-art infrastructure;
- ☒ Produce internationally competitive research;
- ☒ Coordinate and manage large international projects;
- ☒ Provide human resources training in a high-tech environment by providing lectures, student supervision and experiential training in collaboration with higher education institutions (HEIs);
- ☒ Use multidisciplinary and multi-institutional programmes as platforms for the training and education of students;
- ☒ Develop strong technical competencies to produce high-quality instrumentation and equipment in niche areas;
- ☒ Grow scientific and technical collaborations with HEIs locally; and
- ☒ Build sustainable international collaborations (particularly in Africa) and enhance the science and technology profile of South Africa internationally.

SANReN (§2.1.1.1.10)

The South African National Research Network (SANReN) is part of a comprehensive South African government approach to cyberinfrastructure.

SciELO (§ 2.1.1.1.7)

The Scientific Electronic Library Online (SciELO) SA is South Africa's premier open-access (free to access and free to publish) searchable full-text journal database in service of the South African research community. SciELO SA is managed by the Academy of Science of South Africa (ASSAf).

IP Performance

2.1.1.1.109. IPR: structure, models, governance, standards

A. Objectives

This section follows a market-oriented approach by illustrating the relevance of intellectual property (IP) protection throughout the whole cycle of innovation of a company as a potential and practical issue for a European company willing to approach with the South African market and vice versa.

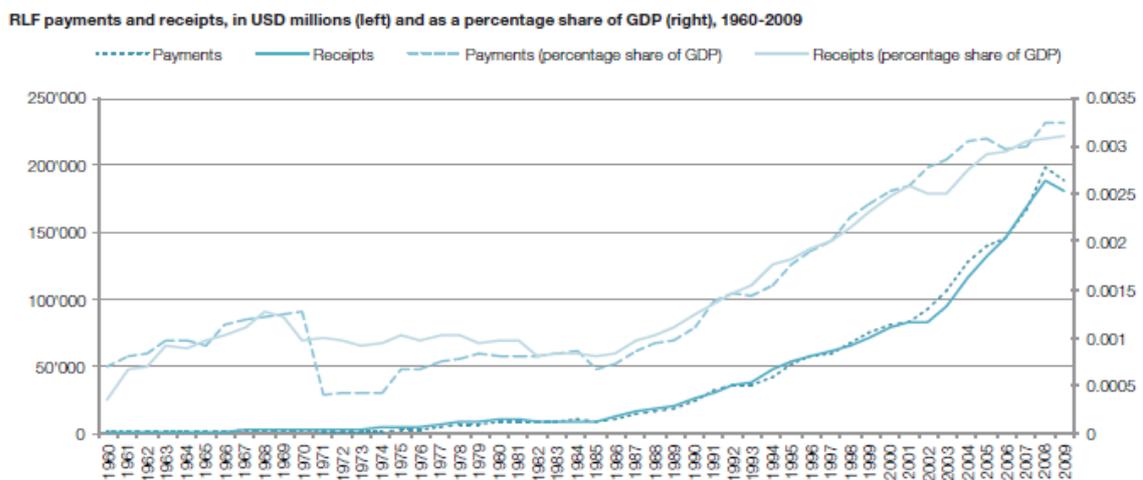
Within a strategy of internationalization and business cooperation, the defence of IP during the process of innovation is crucial, because it may:

- generate an income through the licensing, sale, or commercialisation of the IP protected products or services;
- contribute to making a company's products and services more attractive to consumers;
- enhance the value or worth in the eyes of investors and financing institutions;
- significantly raise the value of a company in the event of sale, merger, or acquisition;
- help in the creation and maintenance of competitive jobs.

B. IPR trade and international legislation: the case of European patents

Ideas and knowledge are an increasingly important part of trade. Most of the value of new high technology products lies in the amount of invention, innovation, research, design and testing involved. On the other hand, evidence suggests that the tradability of IP has increased over the last few decades, leading to a considerable growth in IP rights licensing and the emergence of new technology market intermediaries (such as technology transfer offices or IP clearinghouses, exchanges, auctions and brokerages). Particularly, some statistics recently elaborated by the World Intellectual Property Organization (WIPO) shows how receipts coming from international royalty and licensing fees increased from USD 2.8 billion in 1970 to USD 180 billion in 2009³⁶.

International royalty and licensing payments and receipts (1960-2009)³⁷



In recent times, South African organizations have been quite engaged with Europe on IPR matters. As an example, 23 patents have been granted by the European Patent Office (EPO) to South African institutions in the last decade. Council for Scientific and Industrial Research (CSIR) is the leading organization with 11 granted EPO patents:

³⁶ http://www.wipo.int/export/sites/www/freepublications/en/intproperty/944/wipo_pub_944_2011.pdf , p. 10.

³⁷ Source: WIPO – World Intellectual Property Report 2011, p. 9.

EPO Patents granted to South African institutions (2001-2007)³⁸

Assignee	Document Count
CSIR	11
Mintek	4
North West University	4
University of Pretoria	2
University of Stellenbosch	1
University of Johannesburg	1
University of Free State	1
South African Medical Research Council (MRC)	1
Total EPO patents	23 ¹⁴

IPR are granted through several legal instruments, such as copyrights, patents, trademarks, and industrial design rights amongst others. Governments and parliaments have established various forms of IPR protection as an incentive for creators to produce ideas that will benefit society as a whole. On the other hand, States have frequently established legislation in order to ensure that IP emanating from publicly financed research is commercialised for the benefit of their citizens.

The extent of protection and enforcement of IPR varied widely around the world; and as intellectual property became more important in trade, these differences became a source of tension in international economic relations. New internationally-agreed trade rules for intellectual property rights were seen as a way to introduce more order and predictability, and for disputes to be settled more systematically.

An example about this trend could be found in the **European Patents** granted by the **European Patent Office (EPO)** for (technical) inventions that are new, involve an inventive step and are industrially applicable.

The great advantage of European patents lies in the fact that it allows inventors to file **a single application** for obtaining patent protection in all the **40 European**

³⁸ Source: WIPO, The Economics of Intellectual Property in South Africa, p. 124.

contracting states³⁹ to the **European Patent Convention (EPC)**. European patents are released by EPO with a centralized and thus cost-effective and time-saving procedure, providing the same legal effects as national patents in all the countries for which they are granted. Plus, European patents offer strong protection, inasmuch they undergo significant examination and can be obtained for states which otherwise have “registration-only” systems⁴⁰.

Besides that, European patents can be requested also by natural or legal persons having neither their residence nor their principal place of business in one of the 40 contracting States to the EPC. In this case, applicants will be requested by EPO to appoint a professional representative who will be in charge of conducting patent proceedings⁴¹.

On the other hand, 25 EU Member States and the European Parliament agreed in 2012 on a legislative initiative which laid ground for the creation of **unitary patent protection** in the EU. After having adopted two Regulations in December 2012, the contracting States have started the process which will lead to the ratification of the Agreement on a **Unified Patent Court**. Once the Regulations and the Agreement enter into force, inventors will be able to obtain a **European patent with unitary effect** – a legal title ensuring uniform protection for an invention across 25 Member States, providing huge cost advantages and reducing administrative burdens⁴².

C. IPR in EU-South Africa trade relations and the role of international standards

About EU-South Africa situation, in some cases the national IPR legislation can serve as a basis for claiming so-called “convention priority” in most other countries, provided a corresponding application is filed in that other countries within the time

³⁹ <http://www.epo.org/about-us/organisation/member-states.html>

⁴⁰ Some countries have only a patent registration system where there are only requirements of form to be fulfilled and no substantive examination of the patent takes place.

⁴¹ www.epo.org/representatives

⁴² http://ec.europa.eu/internal_market/indprop/patent/index_en.htm.

period conceded by the convention of reference (e.g.: South African patent applications at CIPRO – Companies and Intellectual Property Registration Office)⁴³.

Agreements between EU and South Africa should be supported in order to boost business cooperation along the principles commonly followed and the national specific needs⁴⁴. In this context, standardisation plays a key role as a bridge between research, innovation and markets. Standardisation implies several benefits, and it could play an important role in boosting commercial relations between countries inasmuch:

- it helps in ensuring compatibility and interoperability of products and services → so it facilitates the **creation of new markets**;
- it supports exports by removing technical barriers to trade → so it provides entrepreneurs with **easier access to existing foreign markets**;
- it is the best tool to ensure the commercialization of innovative products and technologies at the earliest stage possible → so it contributes to **shortening time-to-market at global level**.

In Europe and South Africa the recognised Standards Organisations are:

- **CEN**⁴⁵ (the European Committee for Standardization);
- **CENELEC**⁴⁶ (the European Committee for Electro-technical Standardization);
- **ETSI**⁴⁷ (the European Telecommunications Standards Institute);
- **SABS**⁴⁸ (the South Africa Bureau of Standards)

⁴³ https://www.sabs.co.za/content/uploads/files/ip_guide_fa_web.pdf

⁴⁴ <http://www.wipo.int/wipolex/en/>

⁴⁵ <http://www.cen.eu>

⁴⁶ <http://www.cenelec.eu/>

⁴⁷ <http://www.etsi.org/>

⁴⁸ <https://www.sabs.co.za>

International agreements have equally been established in order to coordinate the standardisation work at global level and to optimize the use of available resources and expertise. CEN and CENELEC, for example, closely cooperate with their international counterparts, respectively the [International Organization for Standardization \(ISO\)](#) and the [International Electrotechnical Commission \(IEC\)](#). This close collaboration has been materialized by the signature of the [Vienna Agreement](#) (ISO-CEN) and the [Dresden Agreement](#) (IEC-CENELEC). On the South African side, it is equally worth highlighting the full membership acquired by SABS both in ISO and IEC.

Furthermore, CEN and CENELEC are always open for cooperation with third country National Standardization Bodies (NSBs) or with regional standardization bodies. CEN and CENELEC also recognize that this kind of cooperation may take several shapes, depending on their counterparts' links with Europe, wish to participate in technical activities and interest in the results of the European Standardization process. Therefore, they propose four big models of cooperation: **Affiliation, Standardization Partnership (PSB), Cooperation Agreement** and **Memorandum of Understanding**⁴⁹.

Finally, any company or organization with an interest in the creation of telecommunications and related standards can become an ETSI affiliate. Currently, there are 3 South African organizations among the 750 ETSI members (namely SABS, OIC and TELKOM SA)⁵⁰.

D. Role of IPR in enhancing business competitiveness abroad

Before embarking on an export operation, enterprises go through a series of crucial

⁴⁹<http://www.cen.eu/cen/AboutUs/CENnetwork/EurIntOrg/Pages/default.aspx>;
<http://www.cenelec.eu/aboutcenelec/howeare/globalpartners/index.html>.

⁵⁰ <http://www.etsi.org/membership/current-members>

steps which range from identifying an appropriate export market and estimating demand, to finding channels of distribution, estimating costs and obtaining funds. IP rights, however, are territorial, implying that they are usually only protected in the home country or region where protection has been applied for and obtained. Protecting IP in export markets is therefore crucial so as to enjoy the same benefits of protection abroad as are enjoyed in the domestic market. It should be carefully considered applying for IP protection well in time in all countries to which an organization is going to export or license its products or services.

It is fundamental to gather as much information as possible in order to being informed of the features of the export market, the technologies already available in it, the potential partners and their particular business positions and objectives.

A company willing to explore foreign market needs to:

- ☒ analyse its products or services so as to discover what kind of IP it is using;
- ☒ Identify its business goals and the IP strategy to be implemented, as well as the pressure it has to meet them (e.g. the need to license in);
- ☒ ascertain what are its accounting options (e.g. whether it prefers to amortise the IP-related costs over the expected life of the asset, or pay them immediately as costs of sales);
- ☒ segment its patent portfolio, to grasp the core area of business and determine its technology needs.

In this perspective, the valuation of IP detained by your organization assumes particular relevance. Indeed, knowing the economic value of your IP will help you in taking **strategic decisions** on your intangible assets, but will also facilitate the **commercialization** and **transactions** concerning IPR⁵¹.

To assist in particular **SMEs** performing **basic valuation in-house**, several national IP offices in the EU and other public organizations have created free tools, such as the

⁵¹ <http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact Sheet IP Valuation 0.pdf>, p. 2.

following:

- ⊗ **IPscore** (tool provided by European Patent Office for evaluating patents and development projects):
<http://www.epo.org/searching/free/ipscore.html>
- ⊗ **IP Tradeportal** (tool provided by the Danish Patent and Trademark Office for assigning a score to patents, trademarks and design):
<http://www.ip-tradeportal.com/valuation/ip-evaluation.aspx>
- ⊗ **IP Panorama** (set of e-learning modules dedicated to IP issues, jointly developed by the Korean Intellectual Property Office, the Korea Invention Promotion Association and the World Intellectual Property Organization):
<http://www.wipo.int/sme/en/multimedia/>
- ⊗ **IP Healthcheck - Agreeing a price for intellectual property rights** (booklet published by the UK Intellectual Property Office to help companies on the valuation of their IP assets in the context of business transactions):
<http://www.ipo.gov.uk/iprpricebooklet.pdf>.

Further information about IP matters could be acquired by contacting European and African IP offices such as:

- ⊗ European Patent Office (for European patents):
<http://www.epo.org/>
- ⊗ Office for Harmonization in the Internal Market (for European Community trademarks and, in the future, industrial designs):
<http://oami.europa.eu/ows/rw/pages/index.en.do>
- ⊗ African Regional Intellectual Property Organization (ARIPO, the regional IP office for English-speaking Africa for patents, trademarks and industrial designs): <http://www.aripo.org/South African Online Patent Search facility> (delivering information on publicly accessible patents):
<http://patentsearch.cipc.co.za/home/default.aspx>

5. SA-EU Innovation Cooperation

Existing EU States cooperation and partnerships with South Africa

2.1.1.1.110. Science and Technology Cooperation Agreement between EU and SA

The Trade, development and cooperation agreement (TDCA) constitutes the legal basis for the overall relations between South Africa and the EU. The TDCA covers political dialogue, the establishment of a free trade area over an asymmetrical twelve-year period, development co-operation, economic cooperation, and cooperation in a whole series of other areas. The agreement was signed in October 1999 and it entered into force in 2000. The Science and Technology Cooperation Agreement was concluded in 1996 and entered into force in November 1997. Scientific collaboration between South Africa and the EU is monitored and facilitated by the Joint Science and Technology Cooperation Committee (JSTCC), established under the Agreement.

The EU and South Africa have also established a Strategic Partnership, and adopted an Action Plan for its implementation in May 2007. The Action Plan has two strands: enhanced political dialogue and cooperation on regional, African and world issues, and stronger cooperation in a number of economic, social and other areas.

See Agreement on scientific and technological cooperation between the European Community and the Republic of South Africa (§ 0)

2.1.1.1.111. Other EU - SA partnerships

Flagships of S&T Cooperation between South Africa and the EU are:

- 🌐 The **European and Developing Countries Clinical Trials Partnerships** (EDCTP) was

founded in 2003 to focus work of the European Commission and several EU Member States, in collaboration with African countries, into developing and testing of new medicines against HIV/AIDS, malaria and tuberculosis. The European Commission and South Africa have been very active in making EDCTP a success story. EDCTP currently supports 196 research projects; these include 57 clinical trials involving more than 100.000 patients. It has also helped train more than 300 African

- ❏ The **Group on Earth Observations** (GEO) is coordinating efforts to build a Global Earth Observation System of Systems, or GEOSS. GEOSS will provide decision-support tools to a wide variety of users. International collaboration is essential for exploiting the growing potential of Earth observations to support decision making. South Africa is co-chairing GEO and also co-chairs together with the USA and the EC a working group on GEO post-2015.

- ❏ **Square Kilometre Array** (SKA) is an iconic radio telescope array that will transform the way we see the universe, as well as being a driver of science, technology and innovation on an industrial scale. It is one of a few truly global facilities that will be built by a consortium of countries around the world. The EU and several Member States, in cooperation with South Africa, Australia and other non-European countries, have invested significant resources in the development of the Square Kilometre Array during the Sixth and Seventh Framework Programmes. South Africa will host the mid frequency part of the Array.

2.1.1.1.112. **Bilateral agreements between EU States and South Africa**

South Africa has a number of bilateral cooperation agreements with a number of EU countries. Below you may find a list showing all the active bilateral agreements in place.

No	Country	Date	Comments (if any)
1	Bulgaria	Letter of Intent signed on 5 June 1995	
2	Flanders	General Agreement signed on 28 October 1996.	Cooperation on areas such as Biotechnology, Plant pathology, Environmental Research and Ecology, Statistical Modelling, Biochemistry, Agriculture and Food Production.
3	France	General Agreement signed on 4 November 1994. Agreement renewed on 28 February 2008.	Cooperation in areas such as engineering science and advancement of technologies; use of natural resources, Medical Research and Public health, social and Political sciences. SA-France-Senegal trilateral cooperation on laser technology from 2005.
4	Germany	S&T Agreement signed on 12 June 1996.	Cooperation on areas such as New Materials and Manufacturing, Renewable Energy, Environmental Issues, Integrated Community Development and Health Programmes, Biotechnology.
5	Greece	S&T Agreement signed on 31 October 2006.	
6	Hungary	S&T Agreement signed on 24 November 1997.	Cooperation on areas such as Materials Science, Manufacturing Technology, Biotechnology, Information Technology and Systems, Sustainable Management of Environmental Issues and of Natural Resources, Exploitation of Natural

				Resources and Minerals.
7	Italy	S&T Agreement signed on 16 Jan 1998.		Cooperation on areas such as Material, Physical, Medical and Social Sciences, Industrial Research and Technological innovations, Agricultural Science, Environmental Protection and Ecology.
8	Netherlands	General Agreement signed on 30 September 1996.		
9	Poland	Agreement signed on 25 November 1999.		Agreement renewed in November 2004.
10	Portugal	Agreement signed on December 2007.		
11	Romania	S&T Agreement signed on 15 September 2004.		DST and Romania to enter into a POC. Romania is of importance to SA in the fields of biotechnology, information technology, new materials, micro and nano technology and mathematics. POC being negotiated that will be signed during the last quarter of 2007.
12	Slovakia	S&T Agreement signed on 15 May 2006.		
13	Slovenia	S&T Agreement signed on 29 June 2007		
14	Spain	S&T Agreement signed on 12 May 2003.		Cooperation on areas such as Human Resource Development, Advanced manufacturing, Innovation (projects and grants, mining and energy),

Biotechnology, and ICT.			
15	Sweden	S&T Agreement signed on 23 November 1999.	
16	Switzerland	Signing of S&T Cooperation Agreement in November 2007.	Cooperation on areas such as life sciences micro technologies and nanotechnologies, material research, manufacturing and production technologies and basic sciences such as physics and chemistry.
17	United Kingdom	S&T Agreement signed on 27 February 1995	Cooperation in areas such as biomedicine, agriculture, biotechnology, environmental protection and the utilization of natural resources. Agreement on networking of scientists and the Letter of Intent on foot and mouth diseases and other animal diseases signed on 5 December 2002.
18	Ukraine	S&T Agreement signed on 28 November 1998.	

Mechanisms supporting SA-EU cooperation in innovation

2.1.1.1.113. FP7 and HORIZON 2020 Programmes

FP7

The Framework Programmes for Research and Technological Development, also called Framework Programmes or abbreviated FP1 through FP7, are funding programmes created by the European Union in order to support and encourage research in the European Research Area (ERA). More than 100 countries from all over the world are involved in EU Research Programmes. These activities are within the "Cooperation" programme of FP7, which covers the international cooperation actions in the 10 thematic areas and across themes. They are implemented in coordination with the "Cooperation", "People" and "Capacities" programmes of FP7. International research and development will contribute to the production of global public goods and help to close the gap between different countries in the world. There is already a significant body of scientific knowledge in the world improving the lives of those who live in developing countries as well as those of European citizens.

HORIZON 2020

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Running from 2014 to 2020 with an €80 billion budget, the EU's new programme for research and innovation is part of the drive to create new growth and jobs in Europe. Horizon 2020 provides major simplification through a single set of rules. It will combine all research and innovation funding currently provided through the Framework Programmes for Research and Technological Development, the innovation related activities of the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT). The proposed support for research and innovation under Horizon 2020 will:

- ☒ Strengthen the EU's position in science with a dedicated budget of € 24 598 million¹. This will provide a boost to top-level research in Europe, including an

- increase in funding of 77% for the very successful European Research Council (ERC).
- ☒ Strengthen industrial leadership in innovation € 17 938 million¹. This includes major investment in key technologies, greater access to capital and support for SMEs.
 - ☒ Provide € 31 748 million¹ to help address major concerns shared by all Europeans such as climate change, developing sustainable transport and mobility, making renewable energy more affordable, ensuring food safety and security, or coping with the challenge of an ageing population.
 - ☒ Horizon 2020 will tackle societal challenges by helping to bridge the gap between research and the market by, for example, helping innovative enterprise to develop their technological breakthroughs into viable products with real commercial potential. This market-driven approach will include creating partnerships with the private sector and Member States to bring together the resources needed.

International cooperation will be an important cross-cutting priority of Horizon 2020. In addition to Horizon 2020 being fully open to international participation, targeted actions with key partner countries and regions will focus on the EU's strategic priorities. Through a new strategy, a strategic and coherent approach to international cooperation will be ensured across Horizon 2020. Horizon 2020 will be complemented by further measures to complete and further develop the European Research Area by 2014. These measures will aim at breaking down barriers to create a genuine single market for knowledge, research and innovation.

2.1.1.1.114. Other EU initiatives

- ☒ The **European Research Council** funds 1 researcher with South African nationality. The researcher is hosted at the University in Bergen in Norway and works on 'Tracing the evolution of symbolically mediated behaviours within variable environments in Europe and southern Africa'. There are some other ERC-funded projects that take place, at least in part, in South Africa. For example the SOLARIS project at the Nicolaus Copernicus Astronomical Center in Poland conducts measurements for detecting circumbinary planets around a sample of up to 350 eclipsing binary stars using eclipse timing and precision radial velocities. The measurements are done

with four 0.5-meter robotic telescopes located in South Africa (Sutherland), Australia, and Chile. Another example is the HYRAX project at the CNRS, which seeks to develop rock hyrax middens as novel paleo-environmental archives to investigate long-term climate change. These stratified accumulations of urine and faecal pellets contain reliable, high resolution records of long-term climate and vegetation change in southern Africa spanning the last 50,000 years.

- ☒ After the European Research Council (ERC) launched its awareness raising campaign, "ERC goes Global", in Canada in February 2012, the ERC Secretary General Prof. Donald Dingwell continued his world tour with a visit to South Africa from 12 to 17 March 2012. It included meetings with key representatives and researchers from various universities and research institutions in Johannesburg, Pretoria, Durban and Cape Town.
- ☒ **Marie Curie fellowships:** between 2007 and 2012, 40 South Africans participated in Marie Curie Actions, mostly in the International Research Staff Exchange Staff Scheme (IRSES)
- ☒ **COST:** The Department of Science and Technology of South Africa (DST) has designated ESASTAP Plus to be the implementing agent for the South Africa - COST Reciprocal Agreement. COST is Europe's oldest science and technology networking programme, and under the Reciprocal Agreement, COST will avail funding for European researchers to undertake short-term scientific missions to South Africa, whilst ESASTAP Plus will avail funding to South African researchers undertaking such missions to Europe. More information
- ☒ **Innovation for Poverty Alleviation programme** (2009-2013) funded by the European Development Cooperation Instrument (DCI). The overall objective of the programme is to contribute to the South African Department of Science and Technology's policy and strategy of using science and technology for reducing poverty through job creation, SME development, economic growth and the improvement of the quality of life.

- ❏ **AERO-Africa** aims to support European and South African research cooperation in aeronautics and air transport. Learn More at: <http://www.aeroafrica-eu.org/>

- ❏ **PAEPARD** – The Platform for African European Partnership on Agricultural Research for Development. Learn More at: <http://www.paepard.org>

- ❏ **AERAP** – African European Radio Astronomy Platform. Learn More at: <http://aerap.org/>

- ❏ **African Union Research Grants**. Learn More at: <http://hrst.au.int/en/rgp>

- ❏ **ACP S&T Programme** – The ACP Science and Technology Programme facilitates the creation or strengthening of frameworks for regional and sub-regional co-operation and of inter-institutional co-operation in the African, Caribbean and Pacific region in the field of science and technology. Learn More at: <http://www.acp-st.eu/>

- ❏ **ST-Africa Initiative**. Learn More at: www.ist-africa.org

- ❏ **EUROAFRICA-P8**. Learn More at: <http://euroafrica-ict.org>

Participation of SA in FP4, FP5, FP6, FP7 and ACP projects

South Africa ranks number one among African countries in terms of participation in FP7. It ranks number five in terms of third country participation in FP7 directly following Russia, the USA, China, Brazil and India. South Africa has established itself as the European Union's (EU's) fifth most important collaborator in the European Commission's (EC's) seventh research Framework Programme (FP7). Under the previous FP4, FP5 and FP6 EC R&D programmes South Africa racked up nearly 250 participations and benefited from R150-million in EU investment in South African research. The benefits, however, are much more than just the money. The meaningful involvement in international R&D projects builds South Africa's own R&D capacity and capabilities. It also creates long-term strategic relationships, and complements and benefits bilateral R&D programmes as well.

The Chart below shows that South African Partners have increased their participation in the prior EU research instrument (FP7) throughout the years.

SOUTH AFRICA PARTICIPATION FP4-FP7 / ACP

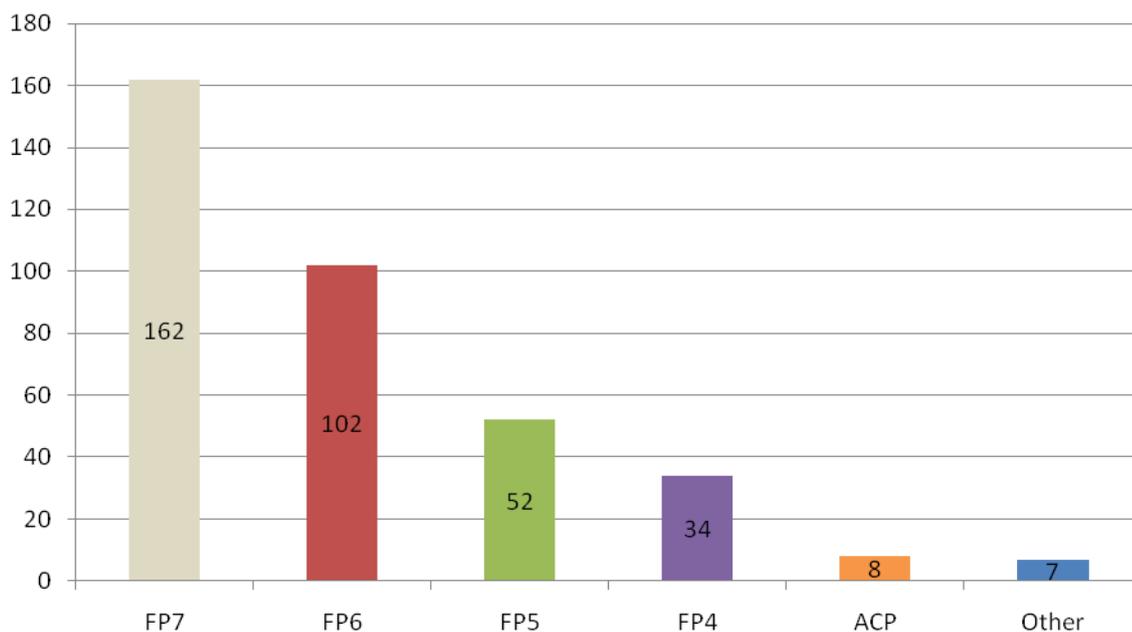


Figure 1 - SA Participation FP4-FP7 & ACP

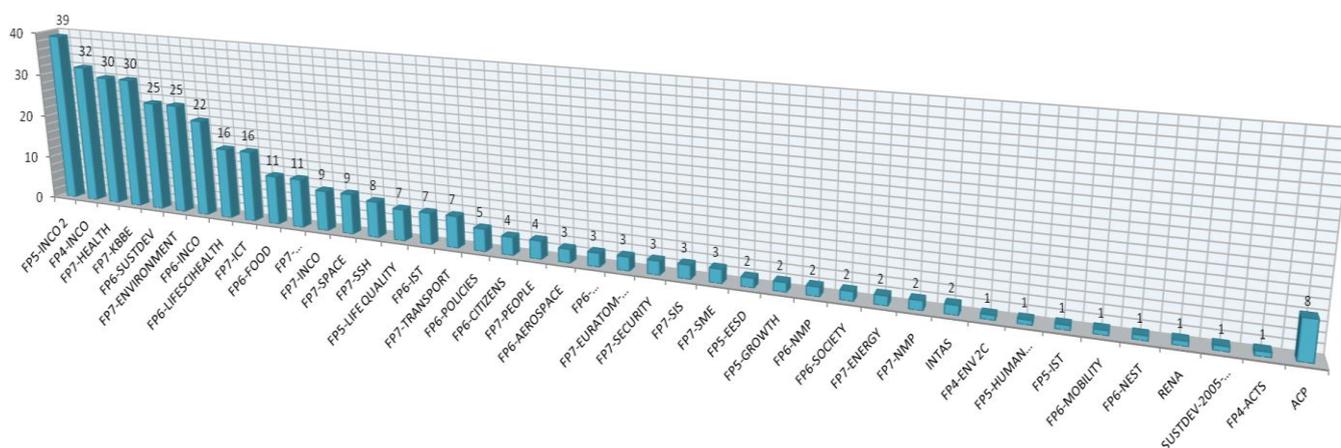
Moreover, evidence exists showing that South Africa has stronger research relationships with EU countries, UK and the Netherlands in particular with which other type of relations exist from the 1652.

COORDINATOR COUNTRIES IN PROJECTS WITH SOUTH AFRICAN PARTNERS (FP4-FP7 / ACP)	
UNITED KINGDOM	85
NEDERLAND	43
DEUTSCHLAND	42
FRANCE	40
BELGIQUE-BELGIË	27
ITALIA	27
NORGE	12
DANMARK	11
ESPAÑA	11
SVERIGE	11
SOUTH AFRICA	13
ÉIRE/IRELAND	9
HELLAS	9
PORTUGAL	7
SCHWEIZ/SUISSE/SVIZZERA	6
MAGYARORSZAG	2
ÖSTERREICH	2
SUOMI/FINLAND	2
ARGENTINA	1
BULGARIA	1
CESKA REPUBLIKA	1

LUXEMBOURG (GRAND-DUCHÉ)	1
ROMANIA	1
SENEGAL	1

Last but not least, what can be easily seen is that SA partners have more participation in Health and Biotechnology calls (except INCO), areas which they have shown great expertise in the past.

SOUTH AFRICA PARTICIPATION FP4-FP7/ACP



PARTICIPATION OF SA PARTNERS IN SPECIFIC WORK PROGRAMMES AND CALLS	
FP5-INCO 2	39
FP4-INCO	32
FP7-HEALTH	30
FP7-KBBE	30
FP6-SUSTDEV	25
FP7-ENVIRONMENT	25

FP6-INCO	22
FP6-LIFESCIHEALTH	16
FP7-ICT	16
FP6-FOOD	11
FP7-INFRASTRUCTURES	11
FP7-INCO	9
FP7-SPACE	9
FP7-SSH	8
FP5-LIFE QUALITY	7
FP6-IST	7
FP7-TRANSPORT	7
FP6-POLICIES	5
FP6-CITIZENS	4
FP7-PEOPLE	4
FP6-AEROSPACE	3
FP6-INFRASTRUCTURES	3
FP7-EURATOM-FISSION	3
FP7-SECURITY	3
FP7-SIS	3
FP7-SME	3
FP5-EESD	2
FP5-GROWTH	2
FP6-NMP	2
FP6-SOCIETY	2
FP7-ENERGY	2
FP7-NMP	2
INTAS	2
FP4-ENV 2C	1

FP5-HUMAN POTENTIAL	1
FP5-IST	1
FP6-MOBILITY	1
FP6-NEST	1
RENA	1
SUSTDEV-2005-3.1.2.2	1
FP4-ACTS	1
ACP	8

Agreement on scientific and technological cooperation between the European Community and the Republic of South Africa

<http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=377>

GENERAL DATA	
Official Title	Agreement on scientific and technological cooperation between the European Community and the Republic of South Africa
Type of Agreement	Bilateral
Place of Signature	Brussels
Date of Signature	05/12/1996
Date of Entry Into Force	11/11/1997
Duration	Definite
Objective of Agreement	To encourage and facilitate cooperation between the Community and South Africa in fields of common interest where they are supporting research and development including demonstration activities to advance science and/or technology.
Remarks	This Agreement, which was concluded before the Trade, Development and Cooperation Agreement (TDCA), constitutes a supplementary agreement to the latter. Science and technology are crucial for economic and social development and this agreement thus contributes to South Africa's development. Cooperation is taking place through various activities involving a number of actors, and includes: - reciprocal participation of research entities, i.e. research centres, companies, universities, for example (South African

bodies are participating directly in the activities of the EC Framework Programme);

- shared use of research facilities;
- visits and exchanges of researchers, engineers and technicians;
- exchange of information on practices, laws, etc.;
- scientific networks and the training of researchers.

The Joint Science and Technology Cooperation Committee is responsible for administering the Agreement. Its functions include, inter alia, making recommendations concerning cooperation activities, reviewing the effective functioning of the Agreement and providing an annual report on the state of progress and effectiveness of cooperation between the two parties.

More specifically, a Joint Technology Management Plan (JTNP) is drawn up for each cooperation activity. This plan identifies the objectives of the research activities and the contributions of each party. It must also contain principles in respect of the ownership and use of information resulting from research activities.

Funding is provided by each party according to availability of funds and each party's laws/plans. It is not necessary to transfer funds between parties, except in the case of participation in the programme relating to cooperation with third countries and international organisations. Thus, there is no common fund or fixed budget for cooperation and funding is granted according to project. Adequate protection of intellectual property is vital in this area. Each party is subject to the rights and obligations of the party responsible for the activity concerned and provisions relating to the utilisation and dissemination of results must be

	included in the JTNP. It is intended that the intellectual property rights of the results of activities undertaken under the Agreement should be shared equitably. The Agreement was initially planned to coincide with the duration of the Fourth Framework Programme, which ended in 1998. The Agreement was extended by mutual agreement between the parties and remains in force for the Fifth Programme.	
OJ Number	L313	
OJ Date	15/11/1997	
OJ Page	26	
Nature of Agreement	scientific and technological co-operation agreement	
Depositary	Council of the European Union	
Contracting Parties	European Community, South Africa	
Official Languages	Danish, Dutch, English, Finnish, French, German, Greek, Italian, Portuguese, Spanish, Swedish	
Subject Matters	ACP countries Research and Innovation	
Clause(s)	Duration (Conditions)	Article 11 Agreement
Management	Joint Science and Technology Cooperation Committee	

6. Conclusions and Recommendations

SA Innovation Landscape Workshop

This paragraph will be completed once a workshop on the SA INNOVATION LANDSCAPE WORKSHOP within the context of this Report has been held.

Comparative Perspectives in SA-EU

2.1.1.1.115. **Balanced scorecard of Innovation**

Innovation Framework conditions in a comparative perspective could adequately be analysed only if appropriate measures are assessed into a strategic perspective able to set in advance a vision and strategy based on reciprocity. The current instruments (Innovation Union Scoreboard⁵²) practically limit the exercise by simply showing current and past innovation trends without linking those to operational Innovation strategies.

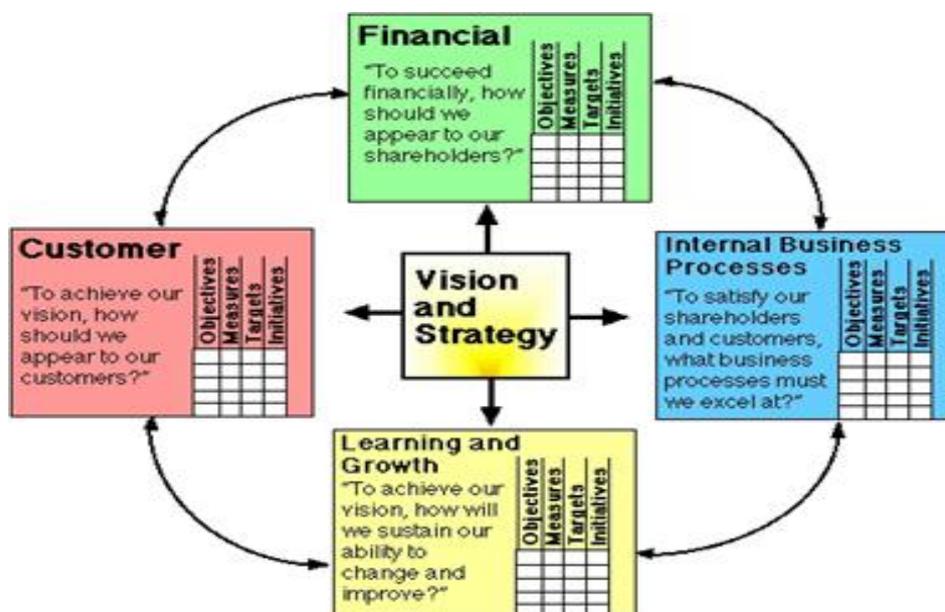
Our proposed exercise aims in practical terms at formulating standardised schemes to capture both public and private contribution across different performance dimensions. To this aim scoring innovation in certain fields of mutual interests in international cooperation could pave a better the way towards new dedicated instruments.

A. The concept of balanced score card

Balanced score card is a strategy performance and management tool developed

⁵² <http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/innovation-scoreboard/>

in the early 1990s at the Harvard Business School by Robert Kaplan and David Norton. The key problem that Kaplan and Norton identified in the business of the day was that many companies tended to manage their businesses based solely on financial measures. While that may have worked well in the past, the pace of business in today's world requires more comprehensive measures. It's like driving a car by looking in the review mirror. The balanced score therefore includes four main performance dimension: customer, financial, internal process, learning and growth.



A similar context is likely to arise when looking at multiple innovation dimensions that do not merely focus on standard parameters (e.g., enablers of innovation, output of innovation). At EU level, the current monitoring system "i.e., Innovation Union Scoreboard" represents a good tool to promote a structured framework to compare innovation performance across EU countries. Yet a framework for monitoring and benchmarking innovation performance in relation to non EU Countries is nothing but a hypothesis so far.

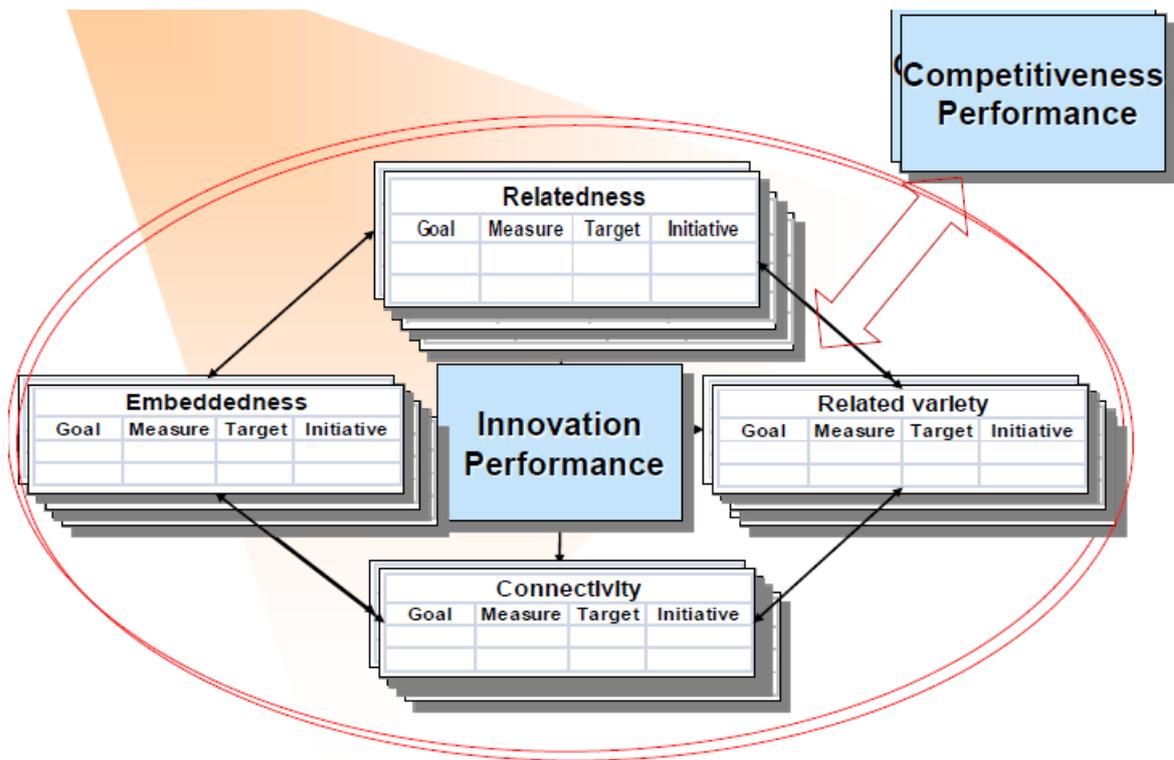
B. The aim

Transferring and readapting the *balanced score card* methodology into an R&I performance framework, might be an alternative approach to benchmarking

innovation in the EU and SA.

The approach would look beyond the usual traditional indicators. It is proposed instead to investigate systemic and horizontal performance dimensions which might for instance consist of categories such as: **relatedness, embeddedness, connectivity, related variety.**

As a follow up, these categories could be constructed upon competitiveness measures/indicators supporting the formulation of specific innovation cooperation programmes.



Analysis of Potential Barriers to SA-EU Innovation Cooperation

2.1.1.1.116. Trade of innovation: the role of DG Trade and related institutions in SA

A. Objectives

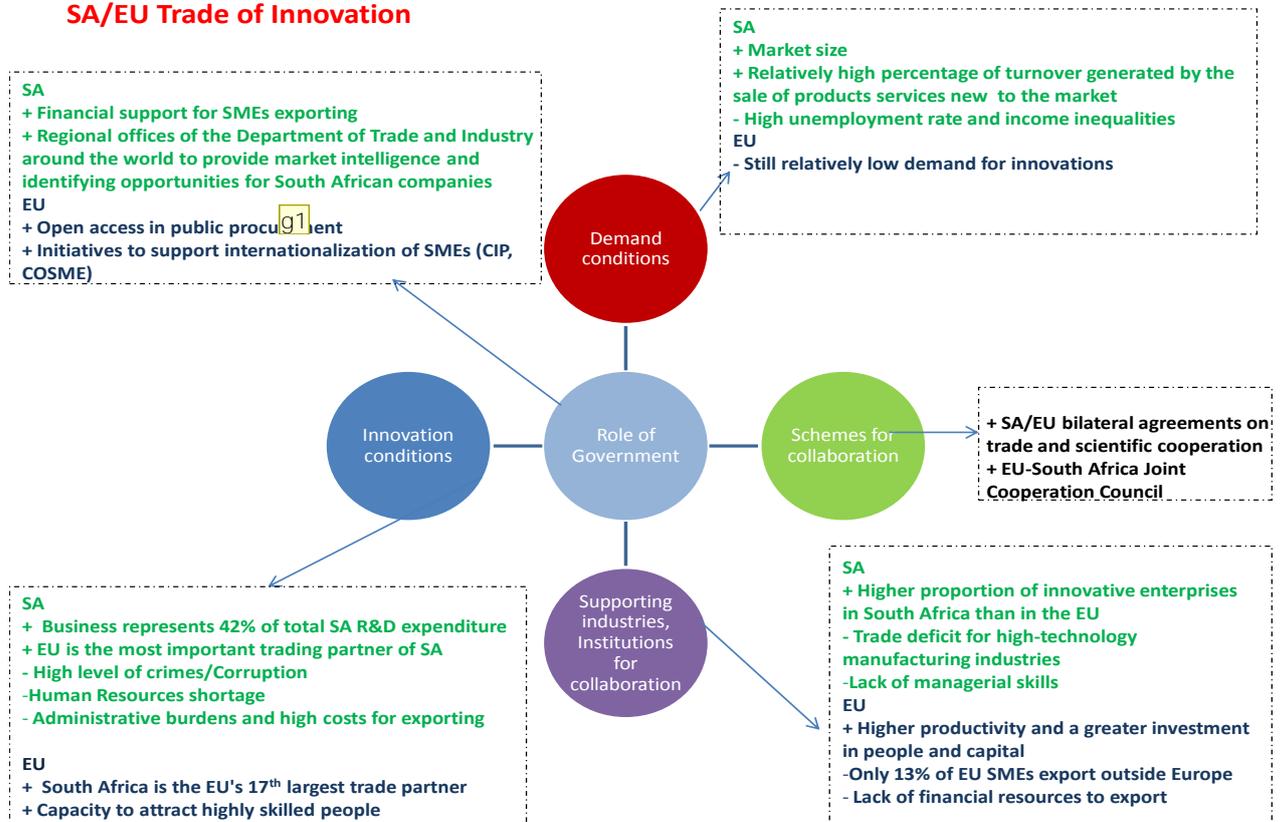
A study launched by the European Commission showed that 26% of internationally active SMEs introduced products or services that were new for their sector in their country against 8% for other SMEs⁵³. Moreover, according to a study published by Pro-Inno Europe, innovative businesses, because they are more productive and therefore more competitive at a global level, are more likely to export. Internationalization and innovation are therefore complementary strategies that result in higher export shares, turnover and employment growth at the firm level.⁵⁴

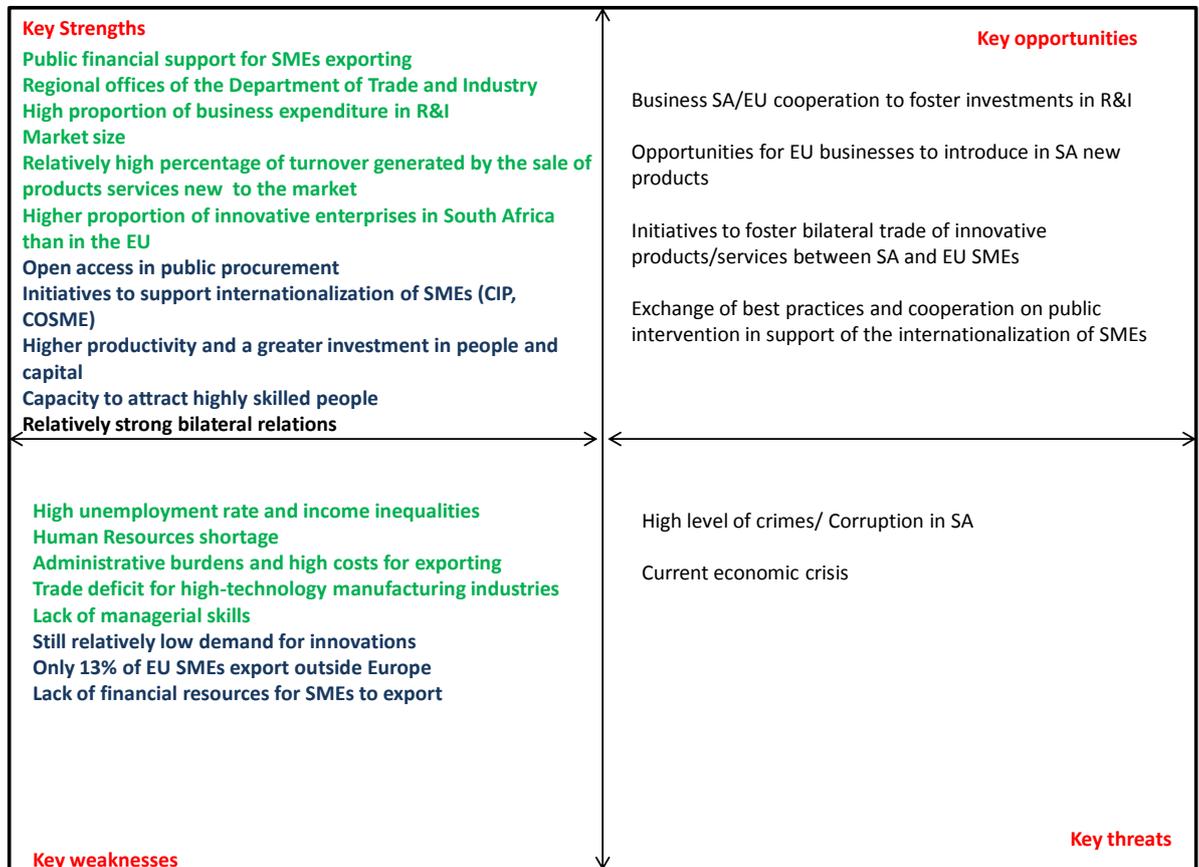
Against this background, this section set an overview of **potential barriers and enablers** that may affect trade of innovation between South Africa and the European Union. In particular, this section will aim at providing insight into opportunities for increased cross-border innovative business cooperation.

⁵³ European Commission (2010), Internationalisation of European SMEs – Final report, p.47

⁵⁴ Pro-Inno Europe (2010) , “Barriers to internationalisation and growth of EU's innovative”, Analysis of innovation drivers and barriers in support of better policies, Economic and Market Intelligence on Innovation, p.25

SA/EU Trade of Innovation





B. Potential barriers to trade and investment between SA and EU

- Internal and External barriers to internationalisation: SMEs specific issues

Because of the globalization process and dismantlement of international trade barriers, SMEs have been presented with new market opportunities. A study launched in 2009 by the European Commission on the internationalisation of European SMEs showed that 25% of EU SMEs are engaged in exporting activities. However, international activities are mostly geared towards other countries inside the internal market and **only about 13% of EU SMEs are active in markets outside**

the EU⁵⁵. The fact that the majority of European SMEs does not export shows that there are still various internal and external barriers to a greater internationalisation of their activities. A distinction is made between internal barriers related to the organization and resources of the firm and external barriers related to the business environment that a SME operates in.

In a report published in 2009, the OECD examined the main barriers to greater internationalisation as reported by SMEs in European and non-European countries, including South Africa⁵⁶.

According to this study, the most important **internal barriers** to internationalisation for SMEs include:

- High costs of internationalization and shortages of working capital to finance exports
- Limited access to information to locate/analyse markets
- The inability to contact potential overseas customers (e.g. difficulties in finding an appropriate foreign market partner or of gaining access to an adequate distribution channel in foreign markets)
- Lack of managerial time, skills and knowledge

In terms of **external barriers**⁵⁷, SMEs are affected by:

- Lack of adequate information on foreign markets
- Costs or difficult paper work for transport
- Other laws and regulations in foreign countries
- Tariffs or other trade barriers
- Cultural differences (incl. business culture)

⁵⁵ European Commission (2010), Internationalisation of European SMEs – Final report, p.6

⁵⁶ OECD (2009), "Top Barriers and Drivers to SME Internationalisation", Report by the OECD Working Party on SMEs and Entrepreneurship, p.9-10

⁵⁷ European Commission (2010), Internationalisation of European SMEs – Final report, p.59

Figure 2 shows that external barriers are perceived differently depending on the target markets/partner countries. In particular, regarding African partners, main perceived barriers are paperwork, time, costs and business practices

Figure 2: Summary on perceived external trade barriers



Source: Pro-Inno Europe, illustration by Fraunhofer ISI, 2010

C. Role of European Commission in fostering trade of innovation between SA and EU

- DG Trade and bilateral agreements

South Africa is the EU's 13th largest trade partner, while the EU accounts for a third of South Africa's trade balance⁵⁸. One of the main pillars of EU-South Africa trade cooperation is the "**Trade, development and cooperation agreement**", signed in October 1999 and which entered fully into force on 1st May 2004. Thanks to this agreement, 90% of bilateral trade between the EU and South Africa is now subject

⁵⁸ http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113447.pdf

to preferential rates. Trade in goods between the two partners has increased by more than 120% and Foreign Direct Investment has grown five-fold⁵⁹.

Moreover, **scientific and technological cooperation** is the subject of a separate agreement signed in 1997. The commitment of EU and South Africa to fostering stronger bilateral cooperation, including in the field of innovation, has been reaffirmed in 2007 in the sole **Strategic Partnership** concluded by the EU with an African country.

- Access to public procurements

Public procurement of innovative products and services as well as pre-commercial procurements are key assets to drive innovation and at the same time to encourage cross-border competition and achieve best-value for money for public authorities. Therefore, and to make the better use of the potential of public procurement in this field, the European Commission launched a process of modernization of EU public procurement policy launched by the European Commission in 2011⁶⁰.

As part of this process, the Commission adopted in March 2012 its proposal for a regulation establishing rules on the access of third-country goods and services to the European Union's internal market in public procurement⁶¹. This proposal aims at helping open worldwide public procurement markets and to ensure all businesses (both European and non-European) have fair access to them.

- Support to the internationalisation of SMEs

⁵⁹ <http://ec.europa.eu/trade/policy/countries-and-regions/countries/south-africa/>

⁶⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0015:FIN:EN:PDF>

⁶¹ COM(2012) 124 final
http://ec.europa.eu/internal_market/publicprocurement/docs/international_access/COM2012_124_en.pdf

At EU level, the **Market Access Partnership (MAP)** was launched in 2007 by the European Commission in coordination with Member States to achieve the goals of a better international market access of European firms. The central goal of the MAP is to consult with European businesses established in partner's countries. These local Market Access Teams, bringing together the partners based in the third country concerned, provide local expertise that makes trade barriers easier to identify and to address. One of this local Market Access Teams was established in South Africa.

The **Enterprise Europe Network (EEN)**, also supported by the European Commission, provides support for SME internationalisation. The **missions for growth**, organized in the framework of the EEN and coordinated by the DG Enterprise, provide SMEs with opportunities to visit fast growing and emerging markets and to meet and discuss business opportunities with major companies and entrepreneurs in these markets.⁶²

Eventually, the European Commission also intervenes on this topic with initiatives supported under **the Competitiveness and Innovation Programme (CIP)**, as the organization of **matchmaking events** to support cluster organisations and their SMEs members in their efforts to develop partnerships and business cooperation on global markets. The CIP successor for the period 2014-2020, the **Programme for the Competitiveness of enterprises and SMEs (COSME)** will enhance this support. The proposal of the Commission establishing COSME states that one of the programme main objectives and key activities will be to support the internationalisation of SMEs and improve their access to market.

The South African government although provides financial support for exporting SMEs through, for instance, the Export Credit Finance Guarantee Scheme. The Export Marketing and Investment Assistance (EMIA) scheme offers exporters financial assistance for costs involved in developing export markets, including market research, trade missions, and international exhibitions. Eventually, the Department of Trade and Industry operates

⁶² <http://een.ec.europa.eu/>

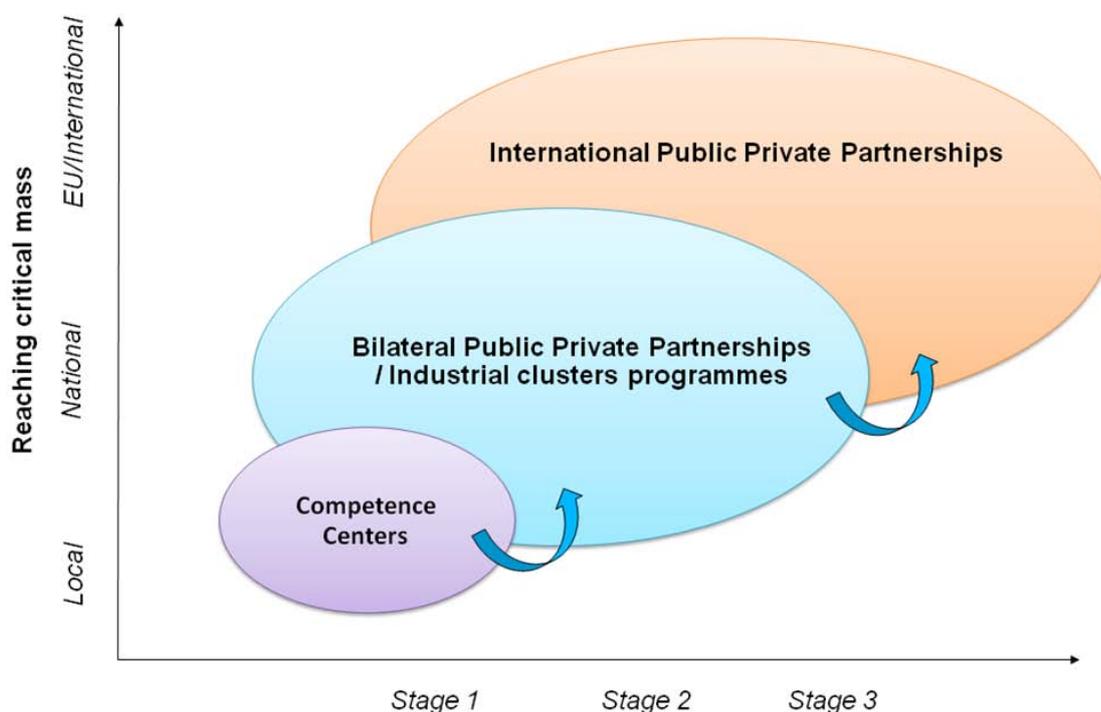
regional offices around the world, providing market intelligence and identifying opportunities for South African companies.

Discussing Operational Recommendations

This section aims at providing practical insight into existing public/private cooperation schemes at local, national and European level and that could be scaled up at international level. Specific attention will be dedicated to the role of private-public cooperation schemes.

The following chart provides a three-step model supporting the development of innovation based “Competence centres⁶³” and their scaling up through international cooperation schemes.

⁶³ Initiatives focused on scientific and technological excellence to drive industrial skills through direct business involvement.



Typically a Competence Centre has two main goals:

- Become a productive, academic Centre of Excellence by actively involving a number of companies and research groups in joint multidisciplinary research
- Promote the introduction and implementation of new technology and strengthen technical competence in industry, mainly through its industrial partners via:
 - 1) Strong and innovative academic research environments with researchers from different disciplines collaborating with a network of companies.
 - 2) Research focused on problems that offer new and exciting challenges for scientists, of strategic importance for the companies involved.
 - 3) Industrial involvement in the centres means that new ideas and knowledge are implemented and used by the companies.

ERANET vs ERA-REGIO-NET

The discussion surrounding the identification of useful mechanisms to promote cooperation and alignment between EU R&I programmes has recently come to a standstill. The EU has strongly endorsed the emerging **Smart Specialisation flagship**

priorities⁶⁴. Further activities are expected to be shaped in a renewed fashion and with a medium-long term perspective:

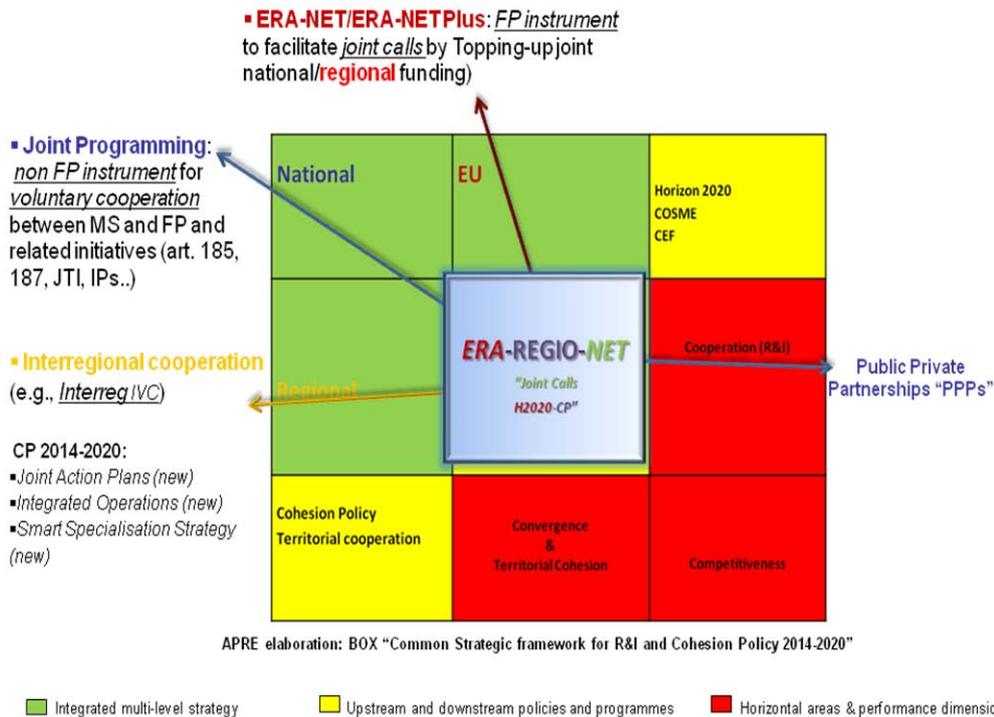
1. World class clusters
2. Joint Programming Initiatives - New ERANET
3. Smart Specialisation Strategy (*Clustering SSS3*)
4. Public Procurement

We briefly introduce and discuss a potential approach⁶⁵ to align funding programmes onto a comprehensive framework.

The following chart proposes a “decomposed” representation of the main initiatives that have been launched in the EU framework for coordination-cooperation-alignment support actions.

⁶⁴<http://s3platform.jrc.ec.europa.eu/home;jsessionid=RcNWRtBH0zn4r0zYnWJwjKGQnWkJ98wJYmjQYy2Zskyhh8On7p6Ll-608925903!1374486791411>

⁶⁵ Please note: the approach presented it is not a proposal of the Commission. It rather represents an attempt to promote further discussion on potential synergistic actions.

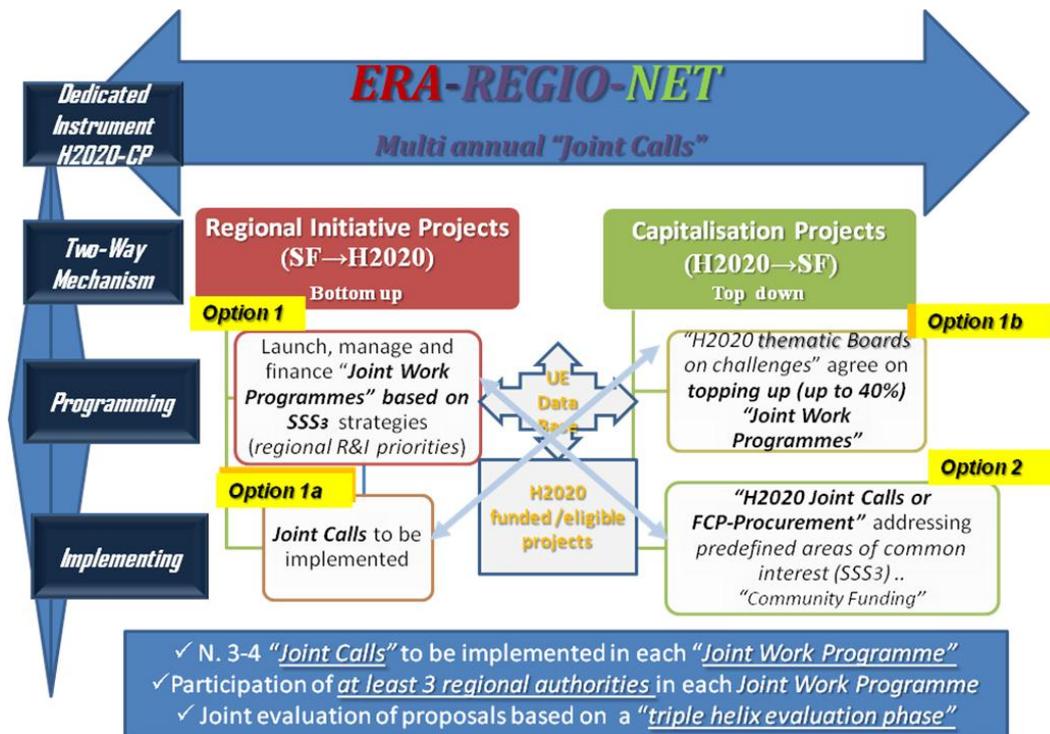


The green area highlights the different levels of governance (EU, National, Regional).

The yellow area comprises distinct types of programmes in terms of managing modalities, planning period, trans-nationality vs regionality, competitive calls vs redistributive criteria, etc.

The red areas consider the variety of performance dimension that such programmes strive to capture.

Based on this matrix, a variety of instruments/actions aimed at promoting coordination (ERANET- Plus, JPIs, Interreg) have been implemented during previous FP and Cohesion policy regulatory framework. This notwithstanding, regional level instruments merging the experience and best practices of such actions have not yet been taken into consideration. We therefore suggest the possibility to explore and evaluate opportunities to serve this purpose through a dedicated instrument for synergistic actions across programmes: (e.g., ERA-REGIO-NET).



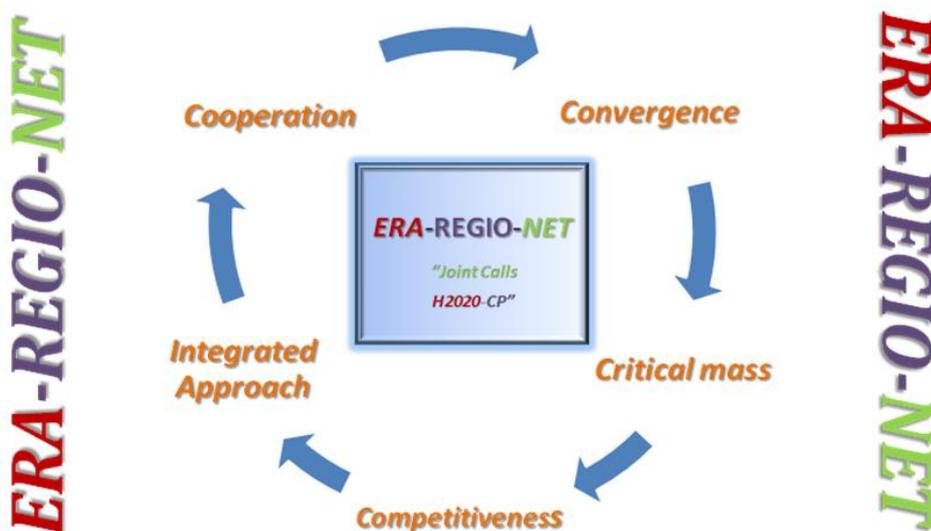
Potential instruments H2020-CP "ERA-REGIO-NET"

The instrument "ERA-REGIO-NET" is based on a two-way mechanism including a bottom up as well as a top down scheme.

Bottom up - Regional Initiative Project: the basic idea is to allow a number of regions (convergence, transition, competitiveness) to cluster their Smart Specialisation Strategies (SSS3) and priorities into a *Joint Work Programme* through which they could define strategic activities to manage and implement in a logic of cooperation. Such *Joint Work Programme* could then receive a *top up* through Horizon 2020 according to the decision and priorities of the related H2020 thematic Board that will be set up in Horizon 2020 for each thematic challenge.

Top down - Capitalization Project: further to clustering regional strategies (SSS3) into regional *Joint Work Programmes*, a consequent process would rely on procurement schemes (e.g., Forward Commitment Procurement). These have to be launched to address specific challenges/priorities identified in the *Joint Work Programme* of the regions involved.

Value Proposition through ERA-REGIO-NET scheme



Such simple two way mechanism could promote **cooperation** among regions while supporting **convergence** of those lagging behind regions via *peer to peer* engagement and adoption of best practices as a result of collaboration schemes (*Joint Work Programme*). The expected outcome lies in the realization of an **integrated approach** enabling the alignment of objectives and priorities of future calls. It would avoid **unnecessary duplication and fragmentation of resources at trans-regional level**. It will eventually contribute to the new ERA (*European Research AREA*) "*Reinforced Partnership Approach*" aimed to enhance the effectiveness and coordination of national/regional research and innovation systems.

Recommendations

The recommendations that are made in this Section 6.5 of the Report aim to improve and support innovation policy and programmes in relation to Innovation Framework Conditions in SA-EU.

Recommendation 1 on dissemination of Report by means of a Workshop

1.1 Esastap Plus to facilitate a Stakeholder Workshop during which the content of this report will be debated, recommendations considered and suggestions for the improvement of the report in general be made.

1.2 More particularly, the secondary recommendations made below should also be considered during the workshop. The content of the revised Report should then be converted into a useful tool which should at least include the dissemination of the content via a suitable website.

Recommendation 2 on Legislative Environment

South Africa, like many developing countries, significantly responded to the TRIPS Agreement by tightening IPR protection regimes. Recent legislation, for example the Intellectual Property Rights from Publicly Financed R&D Act and the Biodiversity Act attempt to align SA's policies with international standards. However, due to various reasons (among others, the lack of capacity to implement and to clarify the interpretation of some article of the Acts), these Acts have in some cases resulted in the delaying of signature of SA-EU collaboration agreements, notably the signature of Material Transfer Agreements within the context of indigenous knowledge and bioprospecting.

2.1 The envisaged Workshop to focus on IP ownership and regulatory constraints in respect of material transfer during SA-EU collaborations.

2.2 Esastap Plus to approach NIPMO with a request to produce guidelines for EU-member states in respect of IP ownership when EU partners are conducting research in South Africa, taking into account the IPR Act, as well as the Science and Technology Cooperation Agreement that was concluded between SA and EU in 1996 – there is a concern that these agreements may be in conflict with each other.

2.3 The envisaged workshop to provide for a session on “Access to medicine, the Patent Act and Innovation in South Africa”. This topic will be of interest to many EU partners who sponsor clinical trials at South African Institutions.

2.4 The envisaged workshop to provide for a session on how Tax incentives can directly or indirectly benefit EU-collaborators on SA research projects.

Recommendation 3 on Stakeholders

3.1 Esastap Plus to disseminate the general information on all the identified stakeholders by means of a website. This requires a professional approach to ensure that the hyperlinks are active, data is current and the information in general useful to SA and EU stakeholders.

Recommendation 4 on the State of Innovation in SA

EASASTAP Plus used the WIPO Global Innovation Index 2013 as one of many reports generated by stakeholders around the world to analyse the state of innovation in countries such as South Africa. According to this Report SA ranks 58 of 142 countries.

4.1 Esastap Plus to review other available reports in more detail with the aim to present a short paper at the envisaged workshop. Briefly, the state of innovation requires further investigation.

Recommendation 5 on SA-EU Innovation Cooperation

The Trade, development and cooperation agreement (TDCA) constitutes the legal basis for the overall relations between South Africa and the EU, together with the Science and Technology Cooperation Agreement that was concluded in 1996. In terms of the latter agreement Scientific collaboration between South Africa and the EU is monitored and facilitated by the Joint Science and Technology Cooperation Committee (JSTCC), established under the Agreement.

5.1 Esastap Plus to engage with the JSTCC. Furthermore, Esastap Plus to engage with DST to develop concrete action plans in support of the Horizon 2020 programme.

Final remark

The recommendations above are preliminary recommendations and in support of the envisaged workshop. It is envisaged, however, that further recommendations are made during the workshop.

7. SA Government Funding Instruments

DTI (2.1.1.1.46)

The DTI provides financial support to qualifying companies in various sectors of the economy. Financial support is offered for various economic activities, including manufacturing, business competitiveness, export development and market access, as well as foreign direct investment.

APPLICATION PROCESS

[A Guide to the dti Incentive Schemes 2012/13;](#)

<http://www.investmentincentives.co.za/>

SECTOR

Advanced Manufacturing	Mining	Health	ICT
Industrial Biotechnology	Agriculture	Energy	

FUNDING INSTRUMENTS

Funding Instrument	Comment
Aquaculture Development and Enhancement Programme (ADEP)	To be completed
Automotive Investment Scheme (AIS)	
Black Business Supplier Development Programme (BBSDP)	
Business Process Services (BPS)	
Capital Projects Feasibility Programme (CPFP);	
Critical Infrastructure Programme (CIP);	
Co-operative Incentive Scheme (CIS);	

Clothing and Textile Competitiveness Improvement Programme (CTCIP)
Employment Creation Fund (ECF)
Export Marketing and Investment Assistance (EMIA)
Film and Television Production Incentives
Incubation Support Programme (ISP)
Isivande Women's Fund
The Manufacturing Competitiveness Enhancement Programme (MCEP)
Manufacturing Investment Programme (MIP)
People-carrier Automotive Investment Scheme (P-AIS)
Production Incentive (PI)
Sector-Specific Assistance Scheme (SSAS)
Small Medium Enterprise Development Programme (SMEDP)
Tourism Support Programme (TSP)

OTHER FUNDING INSTRUMENTS (with links to Paragraphs in this Report)

Programme	Paragraph
Section 12I Tax Allowance Incentive (12I TAI);	2.1.1.1.19
Technology and Human Resources for Industry Programme (THRIP);	2.1.1.1.47
Support Programme for Industrial Innovation (SPII) ;	Fehler! erweisquelle konnte nicht gefunden werden.
Seda Technology Programme (STP)	2.1.1.1.51

EU RELEVANCE

Co-funding required	YES	EU participation allowed	YES	IP Ownership	RSA
Opportunities	•				
Constraints	•				
Existing EU collaboration	•				

TIA (2.1.1.1.3)

APPLICATION PROCESS

<http://www.tia.org.za/Funding-Procedure>

SECTOR

Advanced Manufacturing	Mining	Health	ICT
Industrial Biotechnology	Agriculture	Energy	

FUNDING INSTRUMENTS

Intellectual Property (IP) Fund	The Intellectual Property fund is a modest royalty instrument for individual entrepreneurs and Small, Medium and Micro-sized Enterprises (SMMEs), to enable them to protect their intellectual property.
Technology Development Fund	This is a royalty or grant instrument for Biotechnology Platforms, Technology Stations and Institutes for Advanced Tooling (IATs) and to consortia of HEIs and SCs where TIA agrees to fund pre-commercial research without an industry partner.
Youth Technology Innovation Fund	The Youth Technology Innovation Fund caters for innovators between the ages 18 and 30 years who are not already part of the mainstream funding process. With this fund, young innovators are assisted by issuing vouchers to access services and/or resources they could otherwise not afford.
Industry Matching Fund	This fund offers matching funds to small, medium and large companies where partnerships with small companies, HEI's and SC's will be incentivised. Royalties and loan structures are typically deployed.

EU RELEVANCE

Co-funding required	YES	EU participation allowed	YES	IP Ownership	RSA
Opportunities		<ul style="list-style-type: none"> • TIA invests in the following technology sectors: Advanced Manufacturing, Agriculture, Industrial Biotechnology, Health, Mining, Energy and ICT. • Average Project Funding: ~ R5 million • University, science council and industry participation allowed • Co-funding improves success rate • Well established technology platforms around the country 			
Constraints		<ul style="list-style-type: none"> • IP to be owned by SA entity • All investments or financial support instruments utilised by TIA are subject to the IPR Act and the beneficiary must therefore be a South African legal entity 			
Existing collaboration	EU	<ul style="list-style-type: none"> • Swiss South African Joint Research Programme (HR capacity building) 			

IDC (2.1.1.1.49)

APPLICATION PROCESS

<http://www.investmentincentives.co.za/>

SECTOR

Africa Unit	Forestry and Wood Products	Mining and Minerals Beneficiation	Healthcare
Agro-Industries	Green Industries	Strategic High Impact Projects	ICT
Chemicals and Allied Industries	Metals	Textiles and Clothing	Media
Tourism	Venture Capital		

FUNDING INSTRUMENTS

Funding Instrument	Comment
Gro-E Scheme	To be completed
Risk Capital Facility Programme	
Support Programme for Industrial Innovation	
Transformation and Entrepreneurship Scheme	
Green Energy Efficiency Fund	
Women Entrepreneurial Fund	
Distressed Fund	
Manufacturing Competitiveness Enhancement Programme	

EU RELEVANCE

Co-funding required	YES	EU participation allowed	YES	IP Ownership	RSA
Opportunities	•				
Constraints	•				
Existing collaboration	EU	•			

SPII (2.1.1.1.48)

APPLICATION PROCESS

http://www.spii.co.za/application_process.html

SECTOR

Advanced Manufacturing	Mining	Health	ICT
Industrial Biotechnology	Agriculture	Energy	

FUNDING INSTRUMENTS

Funding Instrument	Comment
The product process development scheme	
The Partnership Scheme	
The matching scheme	

The product process development scheme:

Applicants	Scheme limit	0% – 25% BEE ownership	25.1% – 50% BEE ownership OR 25.1% – 50% BEE ownership by women/people with disabilities	>50% BEE ownership	>50% BEE ownership
<ul style="list-style-type: none"> Provides financial assistance to small, very small and micro-enterprises and individuals in the form of a non-repayable grant. A percentage of 	R2 million (maximum grant)	50% of 'qualifying' costs incurred	75% of 'qualifying' costs incurred	85% of 'qualifying' costs incurred	85% of 'qualifying' costs incurred

'qualifying' costs incurred in the pre-competitive development activities associated with a specific project.

The matching scheme:

Applicants	Scheme limit	0% – 25% BEE ownership	25.1% – 50% BEE ownership OR >50% ownership by women/people with disabilities	>50% BEE ownership
<ul style="list-style-type: none"> A percentage of 'qualifying' costs incurred in the development activities of a specified development project. 	R 5 million (maximum grant)	50% of 'qualifying' costs incurred	65% of 'qualifying' costs incurred	75% of 'qualifying' costs incurred

The Partnership Scheme

Applicants	Scheme limit	0% – 25% BEE ownership	25.1% – 50% BEE ownership OR >50% ownership by women/people with disabilities	>50% BEE ownership
<ul style="list-style-type: none"> The levy-based grant is based on a percentage of sales over a fixed 	R 10 million (minimum contribution)	50% of 'qualifying' costs incurred	50% of 'qualifying' costs incurred	50% of 'qualifying' costs incurred

number of years.

· The levy percentage and repayment period are established at the time of the grant.

The qualifying costs in SPII are as follows:

- ☒ Personnel Related Costs;
- ☒ Travel Expenses (defined maximum);
- ☒ Direct Material;
- ☒ Capital Items and Tooling (pro rata);
- ☒ Software (not general software);
- ☒ Documentation;
- ☒ Testing and Trials;
- ☒ Licensing Costs;
- ☒ Quality Assurance and Certification;
- ☒ Patent Costs; and
- ☒ Subcontracting and Consulting.

The following are non-qualifying costs:

- ☒ Production and commercialisation related;
- ☒ Marketing and administrative costs;
- ☒ Product/process development for a single client;
- ☒ Basic and applied research;
- ☒ Projects which, at the time of application, are more than 50% (70% for PPD) complete; and
- ☒ All costs incurred prior to submitting a duly completed application.

EU RELEVANCE

Co-funding required	YES	EU participation allowed	YES	IP Ownership	RSA
Opportunities	•				
Constraints	•				
Existing collaboration	EU	•			

MRC (2.1.1.1.75)

APPLICATION PROCESS

<http://innovation.mrc.ac.za/>

SECTOR

Advanced Manufacturing	Mining	Health	ICT
Industrial Biotechnology	Agriculture	Energy	

FUNDING INSTRUMENTS

Funding Instrument	Comment

WRC (2.1.1.1.80)

APPLICATION PROCESS

<http://www.wrc.org.za/Pages/Research.aspx>

SECTOR

Advanced Manufacturing	Mining	Health	ICT
Industrial Biotechnology	Agriculture	Energy	

FUNDING INSTRUMENTS

Funding Instrument	Comment

Resources

Southern African HEI TTOs

http://www.sarima.co.za/portfolios/innovation-and-technology-transfer/resources.html#resource_satto

UNIVERSITY	WEBSITE	TELEPHONE
University of Cape Town	http://www.rcips.uct.ac.za/	021 650 4015
University of Stellenbosch	http://www.innovus.co.za	021 808 3079
North-West University	http://www.nwu.ac.za/i-tt/index.html	018 2994964
University of KwaZulu-Natal	http://research.ukzn.ac.za/IntellectualPropertyTechnologyTransfer.aspx	031 260 3326
Nelson Mandela Metropolitan University	http://techtransfer.nmmu.ac.za/	041 504 4216
Eastern Cape Regional Technology Transfer Office	http://techtransfer.nmmu.ac.za/Regional-Technology-Transfer-Office	041 504 2688
University of Witwatersrand	http://hermes.wits.ac.za/Enterprise/	011 717 9370
University of Johannesburg	http://www.uj.ac.za/EN/CorporateServices/Commercialisation/Pages/home.aspx	011 559 3747
University of Pretoria	http://web.up.ac.za/default.asp?ipkCategoryID=12840	012 420 4568
University of the Western Cape	http://www.uwc.ac.za/Research/Pages/default.aspx	tto@uwc.ac.za.

Tshwane University of Technology	http://www.tut.ac.za/Other/minew/Innovation/Pages/default.aspx	(+27) 12 382 4985
Cape Peninsula University of Technology	http://www.cput.ac.za/research/tto	021 959 6431
Free State University	http://supportservices.ufs.ac.za/content.aspx?DCo de=459	0514019778

SEDA Centres (2.1.1.1.51)

Incubation Centres

<http://www.seda.co.za/MYBUSINESS/STP/Pages/Incubations.aspx>

CENTRE	SECTOR	PROVINCE
1 Chemin	Chemicals Industry	Port Elizabeth, Eastern Cape
2 Chemin	Chemical Industry	East London, Eastern Cape
3 Chemin	Chemical Industry	Durban, KwaZulu-Natal
4 Downstream Aluminium Centre for Technology (DACT)	Aluminium fabrication & casting	Richard's Bay, KwaZulu Natal
5 EgoliBio	Bio & Life Sciences	Pretoria, Gauteng
6 Furntech Durban	Furniture manufacturing	Durban, KwaZulu-Natal
7 Furntech George	Furniture manufacturing	George, Western Cape
8 Furntech Head office	Furniture manufacturing	Cape Town, Western Cape
9 Furntech Johannesburg	Furniture manufacturing	Johannesburg, Gauteng
10 Furntech Mthatha	Furniture manufacturing	Mthatha, Eastern Cape
11 Furntech Umzimkhulu	Furniture manufacturing	Umzimkhulu, KwaZulu-Natal
12 Furntech White River	Furniture manufacturing	White River, Mpumalanga
13 Lepharo	Copper, Zinc and Base Metals	Springs, Gauteng

14	Mapfura Makhura Incubator (MMI)		Bio-fuels plant production & processing	Marble Hall, Limpopo
15	Mpumalanga Development & Training (MASDT)	Agri-skills & Training	Agricultural Building Capacity	Nelspruit, Mpumalanga
16	Mpumalanga Initiative (MSI)	Stainless Steel	Stainless Steel Processing	Middelburg, Mpumalanga
17	Seda Agricultural & Mining Tooling Incubator (SAMTI)		Mining & Agricultural tooling	Bloemfontein, Free State
18	Seda Automotive Technology Centre (SATEC)		Automotive Industry	Roslyn, Gauteng
19	Seda Construction Incubator (SCI), Dundee		Construction	Dundee, KwaZulu-Natal
20	Seda Construction Incubator (SCI),		Construction	Durban, KwaZulu-Natal
21	Seda Construction Incubator (SCI), Mthatha		Construction	Mthatha, Eastern Cape
22	Seda Construction Incubator (SCI)		Construction	Port Elizabeth, Eastern Cape
23	Seda Construction Incubator (SCI)		Construction	Kwa-Mashu, KwaZulu-Natal
24	Innovation Technology Business Incubator (Invo Tech)		Mixed use High-Tech	Durban, Kwazulu-Natal
25	Seda Essential Oils Business Incubator (SEOBI)		Essential Oils-plant cultivation & oil distillation	Pretoria, Gauteng
26	Seda Essential Oils Business Incubator (SEOBI)		Essential Oils-plant cultivation & oil distillation	Nkandla, Kwazulu Natal
27	Seda Limpopo Jewellery Incubator (SLJI)		Jewellery manufacturing	Polokwane, Limpopo
28	Seda Nelson Mandela Bay ICT Incubator (SNMBICTI)		ICT	Port Elizabeth, Eastern Cape

29	Seda Platinum Incubator (SPI)	Platinum Jewellery	Rustenburg, North West
30	Seda Sugar Cane Incubator (SESUCI)	Sugar cane -plant cultivation & sales	Nelspruit, Mpumalanga
31	Soshanguve Manufacturing Technology Demonstration Centre (SMTDC)	Low-cost small scale manufacturing	Soshanguve, Gauteng
32	SoftstartBTI (SBTI)	ICT	Midrand, Gauteng
33	Timbali	Floriculture	Nelspruit, Mpumalanga
34	Zenzele Technology Demonstration Centre	Small scale Mining	Randburg, Gauteng
35	Seed Container Park(Secopa)	Mix Manufacturing	Diepkloof, Gauteng
36	Global Jewellery Academy	Jewellery Manufacturing	Lenasia, Gauteng
37	Smartxchange	ICT	Durban, KZN
38	Seda Limpopo Jewellery Incubator (SLJI)	Jewellery manufacturing	Polokwane, Limpopo
39	Seda Alfred Nzo Manufacturing Incubator (SANAMI)	Agro Processing	Mount Ayliff, Eastern Cape
40	Seda Atlantis Renewable Business Incubator (SEREBI)	Renewable Energy	Atlantis, Western Cape
41	Seda Northern Cape Diamond and Jewellery Incubator	Jewellery	Kimberly, Northern Cape
42	Ekurhuleni Jewellery Incubator	Jewellery	East Rand, Gauteng

DST Tax Incentive Guide

Scientific and Technological Research and Development Tax Incentive in South Africa

Effective 01 October 2012

<http://www.dst.gov.za/index.php/services/the-rad-tax-incentives-programme>

The Taxation Laws Amendment Act 2011 introduced specific enhancements to the existing scientific and or technological research and development (R&D) tax incentive provided under Section 11D of the Income Tax Act. These changes are effective from 1 October 2012.

A company undertaking R&D in the Republic of South Africa qualifies for a 150% tax deduction of its operational R&D expenditure. This incentive is available to businesses of all sizes in all sectors of the economy that are registered in South Africa.

All the eligible R&D expenditure will qualify for an automatic 100% tax deduction. An additional 50% uplift applies to expenditures on R&D activities that have been approved by the Minister of Science and Technology, based on the provisions of Section 11D of the Income Tax Act.

The incentive is aimed at encouraging businesses to undertake and invest in R&D in South Africa. The objective is to help companies build capabilities to create new products, processes, devices and techniques, and /or significantly improve existing ones. This incentive is part of a package of measures that the government of South Africa has introduced to support R&D led innovation, industrial development and competitiveness.

Application process

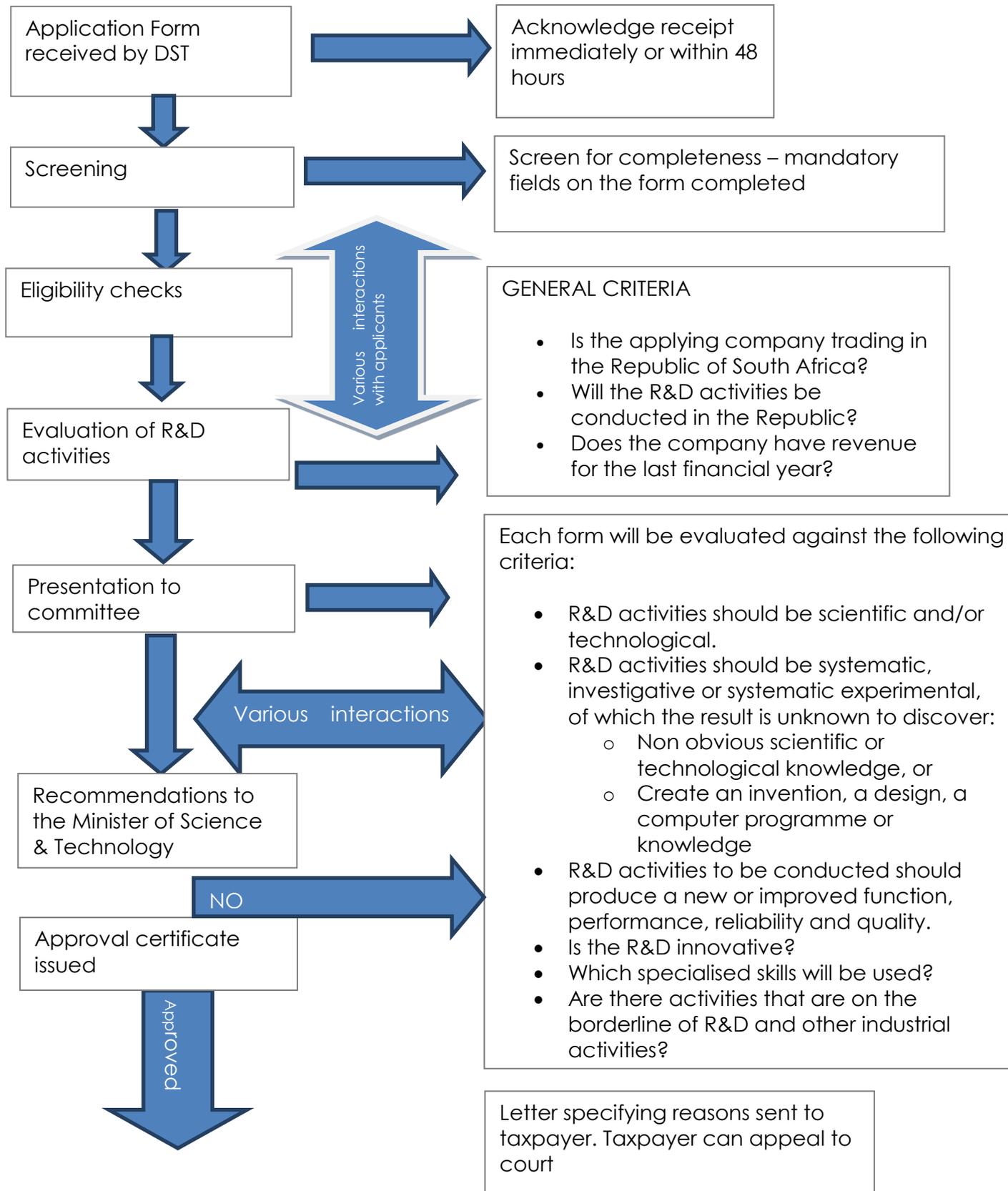
To access the programme, a company must submit an application to the Department of Science and Technology (DST), which is responsible for the administration of the process. The application form must be completed, sent and received by the DST before



commencing with the R&D, as only the expenditure incurred on or after the date on which the DST received the application will be considered.

The application form for the R&D tax incentive can be downloaded from the DST website www.dst.gov.za/r-d. DST officials can provide information and assistance regarding completing the application form.

Application Process



For approval purposes, the Minister is supported by a Committee comprising officials from the DST, the National Treasury (NT) and the South African Revenue Service (SARS).

Once an approval is granted, a company can claim the tax deductions from SARS when submitting its tax return. SARS will determine if the expenditures are attributable to the approved R&D activities and whether other provisions of the Income Tax Act are met.

General requirements

General requirements are that the expenditure should be incurred by a company directly and solely for R&D undertaken in the Republic of South Africa and the expenditure should be incurred in the production of income and in the carrying on of any trade and incurred on or after the date on which the DST received the application form for approval.

Where a company funds R&D that is undertaken by another company, the funding company is eligible for the incentive but limited to 50% of the actual expenditure and has obtained approval. In this case, the R&D must be undertaken by an institution, board or body that is exempt from normal tax under section 10(1) (CA); or the Council for Scientific and Industrial Research or a company forming part of the same group of companies, as defined in Section 41 of the Income Tax Act if the company that carries the R&D does not claim.

The company that carries on R&D may be the one that determines or alters the methodology of research.

Criteria for approval

The Minister of Science and Technology will approve applications for the R&D tax incentive based on (a) the innovative nature of the R&D, (b) the extent to which undertaking such R&D requires specialised skills, and (c) any other criteria that may be agreed on by the Minister of Science and Technology and the Minister of Finance.

The innovative nature of the R&D

The R&D

- ☒ Should involve innovation to the extent that it comprise experimental research,

development or invention to achieve technological advancement for the purpose of creating new, or making appreciable improvement to existing materials, devices, products or processes.

- ⊗ Is the invention that is new, involve an inventive step and is capable of being used or applied in trade, industry, agriculture or mining? (The application or the patentability of the invention strengthens the case for novelty)
- ⊗ Involves high levels of technical risk to the extent that it is meant to address a scientific or technological uncertainty. (Uncertainty exists when knowledge of whether something is scientifically possible or technologically feasible, or how to achieve it in practice, is not readily available or deductible by a competent professional working in that field)

Requirement for specialised skills

- ⊗ This considers the extent to which undertaking the R&D requires specialised skills in the respective fields and are categorised as scientists or researchers, engineers, technologists and technicians, managers and supporting technical personnel directly involved in the R&D.

Exclusions and limitations

- ⊗ Where a company is due to receive or has received government grants towards R&D, an amount equal to such a grant will be excluded when the R&D tax deduction calculated.
- ⊗ Expenditure incurred on the following activities are not eligible for the R&D tax incentive:
 - market research, market testing or sales promotion
 - administration, financing, compliance and similar overheads
 - routine testing, analysis, collection of information and quality control in the normal course of business
 - development of internal business processes, unless such processes are mainly intended for sale or for granting the use or right of use or permission to the use thereof
 - social science research, including the arts and humanities
 - oil and gas or mineral exploration or prospecting, except R&D that develops

- technology that is used for such exploration or prospecting
 - creation or development of financial instruments or financial products.
 - Creation of trademarks or goodwill
 - Any expenditure contemplated in section 11(gB) or (gC)
- ☒ Under the new amendments, R&D assets brought into use on or after 1 October 2012 will be depreciated at an annual rate of 20% over five years, in line with Section 12C (h) of the Income Tax Act. R&D assets that were in use prior to this date will continue with the depreciation method that was selected when they were brought into use.
- ☒ R&D activities conducted outside South Africa, even if funded from within the country, are not eligible for this incentive.

Monitoring and Progress reporting

Companies that have been approved for the R&D tax incentive are required to report on any changes(if any) to their project prior to claiming the deduction, if there were no changes and they utilise the incentive they are required to submit a Monitoring Form to the DST on an annual basis downloadable from www.dst.gov.za/r-d

Failure to comply may result in approval being withdrawn.

Relevant other documents and references

The DST's website offers information and assistance to businesses wanting to access the R&D tax incentive programme. The following documents can be downloaded from www.dst.gov.za/r-d:

- ☒ Guidelines about the R&D tax incentive
- ☒ Application form
- ☒ Line-by-line explanatory notes to assist in completing forms
- ☒ Progress reporting template
- ☒ Monitoring Form

Contact information

You can contact the DST from Monday to Friday (except public holidays) during working hours from (08:00 – 16:30 by phone (012) 843 6829/6560/6478/6415/6493 or fax 086 685 9528 or send an e-mail to tax@dst.gov.za / Dimakatso.mokone@dst.gov.za

About the Application form

- ☒ The form is compatible with Acrobat Reader version 7.0.5 or later
- ☒ You can fill the form electronically
- ☒ Saving it to your hard drive for editing later, and can
- ☒ Submit by e-mail (Press submit button at the top)
- ☒ Additional Section 3 page loaded for multiple projects.

NB: Further refinement of the form will make it easy to duplicate and expand text boxes on demand.

South African Venture Capital Association (SAVCA)

<http://www.savca.co.za/membership/member-directory/member-list-and-contact-details/full-members/>

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- ☒ Regional Innovation Scoreboard 2012, European Commission

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- ☒ OECD Science, Technology and Industry Scoreboard 2011: Innovation and Growth in Knowledge Economies

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- ☒ "Financing SMEs and Entrepreneurs 2012 - An OECD Scoreboard", OECD, 19 April 2012

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<http://www.oecd.org/sti/financinghigh-growthfirmstheroleofangelinvestors.htm>

- ☒ The Global Economic Impact of Private Equity Report 2010 Globalization of Alternative Investments: Working Papers Vol. 3

http://www3.weforum.org/docs/WEF_IV_PrivateEquity_Report_2010.pdf

- ☒ Mini Study 06 – Microfinance & Innovation, Pro INNO Europe, 2009

☒ http://ec.europa.eu/internal_market/investment/index_en.htm

☒ http://ec.europa.eu/enterprise/policies/finance/index_en.htm

☒ http://ec.europa.eu/economy_finance/index_en.htm

☒ <http://www.ebn.be/DisplayPage.aspx?pid=29>

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☒ <http://www.ict-finance-marketplace.com/>

☒ <http://www.ictventuregate.eu/>

☒ <http://www.ymirproject.eu/>

☒ <http://www.access-ict.com/site/>

☒ <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>

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http://ec.europa.eu/enterprise/policies/sme/market-access/files/internationalisation_of_european_smes_final_en.pdf

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 Impacts of EU outward FDI, 2010, Copenhagen Economics for DG Trade

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- ☒ “An Industrial Property Rights Strategy for Europe”, Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee
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- ☒ “A memorandum on removing barriers for a better use of IPR by SMEs”, Pro INNO Europe - A Report for the Directorate-General for Enterprise and Industry by an IPR Expert Group
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- ☒ “Guide for SMEs: Managing Intellectual Property in FP7”, European IPR Helpdesk Factsheet
- ☒ “How to manage confidential business information”, European IPR Helpdesk Factsheet
- ☒ Enterprise Europe Network Intranet
- ☒ http://ec.europa.eu/trade/creating-opportunities/trade-topics/intellectual-property/index_en.htm
- ☒ http://ec.europa.eu/enterprise/policies/innovation/policy/intellectual-property/index_en.htm
- ☒ http://ec.europa.eu/research/sme-techweb/pdf/use_diffuse.pdf#view=fit&pagemode=non
- ☒ <http://www.epo.org/service-support/publications/official-periodicals/patent->

[bulletin.html](#)

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 <http://www.oecd.org/fr/sti/sci-tech/iprandinnovation.htm>

 <https://www.iprhelpdesk.eu/>

 <http://www.ip4inno.eu/>

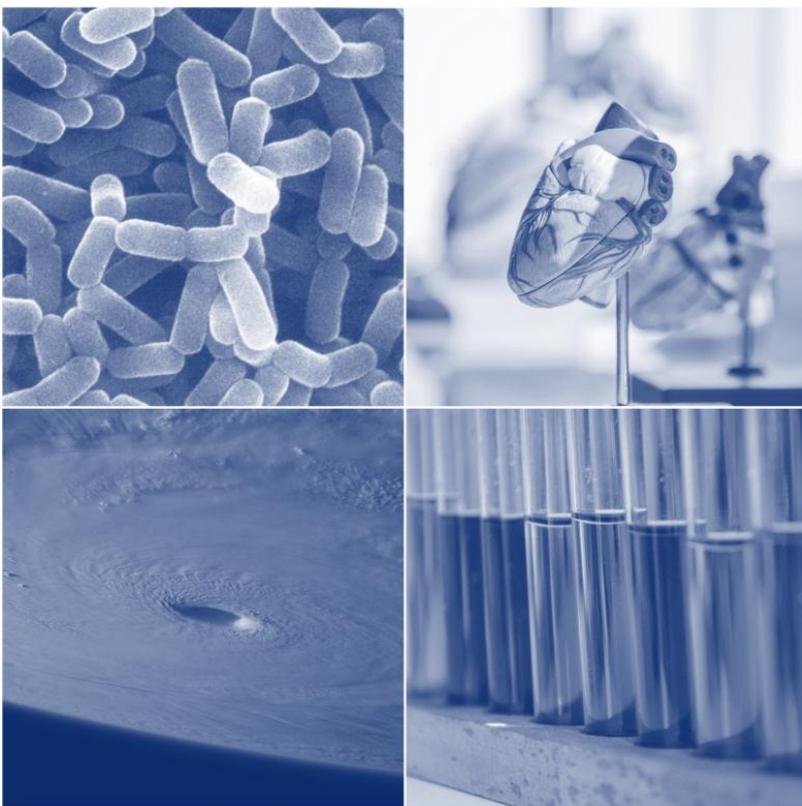
 <http://www.ipeuropaware.eu/>

 <http://www.ip-tradeportal.com/trading-ipr.aspx>

 <http://een.ec.europa.eu/forums/index.php>

 http://graphics.eiu.com/files/ad_pdfs/eiu_EuropelPR_wp.pdf

 <http://www.innovaccess.eu/index.php>



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