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REPUBLIC OF SOUTH AFRICA

Department of Science and Technology Draft Regional Innovation Systems Strategy

**A Framework for Engagement in
Regional Innovation Systems Development**

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Executive Summary

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LIST OF ACRONYMS

AMTS	Advanced Manufacturing Technology Strategy
AMTS-IU	Advanced Manufacturing Technology Strategy Implementation Unit
BRIC	Biotechnology Regional Innovation Centre
BEE	Black Economic Empowerment
COC	Centre of Competence
COE	Centre of Expertise
COFISA	The Collaborative framework on innovation systems between Finland and South Africa
CSIR	Council for Scientific and Industrial Research
DFA	Department of Foreign Affairs
DoE	Department of Education
DPLG	Department of Local Government
DPSA	Department of Public Service and Administration
DST	Department of Science and Technology
DTI	Department of Trade and Industry
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HEI	Higher Education Institution
HCD	Human Capital Development
IASP	International Association of Science Parks
ICT	Information and Communication Technologies
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
INSPIRE	Provincial Information Strategy Development Programme
IPAP	Industrial Policy Action Plan
LED	Local Economic Development
MTEF	Medium Term Expenditure Framework
NBN	National Bio Informatics Network
NIPMO	National Intellectual Property Management
NRF	National Research Foundation
NRDS	National Research and Development Strategy
NSI	National System of Innovation
PSI	Provincial System of Innovation
NGO	Non-governmental organisations
PGDS	Provincial Growth and Development Strategies
PPP	Public Private Partnership(s)
R&D	Research and Development
R&D&I	Research and Development and Innovation
RDPM	Regional Development Platform Method
RIS	Regional Innovation Systems
RISSF	Regional Innovation Systems Strategic Framework
IRIF	Inter Regional Innovation Forums
SAFIPA	South Africa - Finland knowledge partnership on ICT
SOE	State Own Enterprises
SEDA	Small Enterprise Development Agency
SMME	Small Micro and Medium Enterprises
SA	South Africa
TIA	Technology Innovation Agency
THRIP	Technology and Human Resources for Industry Programme
TR	Technology Road Mapping
VC	Venture Capital

1. INTRODUCTION AND RATIONALE

Global economic growth will increasingly depend on innovation, particularly at a regional level. The need to develop structured and coherent regional systems of innovation, aligned to the development priorities and ambitions of regions, is therefore becoming increasingly important in the quest for global competitiveness and regional economic growth. (A regional innovation system (RIS) refers to the interaction between businesses, research and technology organisations, innovation support agencies, venture capitalists, local/provincial/national government and other role players jointly and individually play a role in promoting the innovation process within a region. Naturally, the success of this interaction depends on the networking, technology diffusion and leadership abilities, among others, of regions across all levels of the triple-helix.

Collaboration and cohesion between the innovation role players are essential for turning knowledge into competitive economic advantage. This all demands active and continuous efforts by enterprises along with supportive government policies that create the right conditions for businesses to innovate within a specific region. The structure of different successful regional innovation systems can diverge, but thriving systems normally display general characteristic of intense co-operation among firms, superior available labour force, flexible work structures, concentrated infrastructures of supporting institutions and organisations, a culture of innovation and a regional government that actively promotes and facilitates the enhancement of its regional innovation system. (By their very nature, the South African provincial and local governments have a direct and immediate impact on the regions and communities they serve.

This Strategy provides a framework for DST to support the efforts of the innovation role-players at regional level towards the development and enhancement of regional innovation systems. Generally, provincial and local government strategies on economic development do not explicitly incorporate innovation strategies. Owing to this, and the realisation of the importance of developing innovative local economies, certain provinces have already put plans in place to enhance their regional innovation systems at a higher level.

The Western Cape is planning to form an Innovation Council, which will elevate the concept of innovation. The Free State is planning a Regional Innovation Centre which will be a platform for strategic thinking and planning. The Office of the Premier in Limpopo has already established a Technology Innovation Council unit tasked with the transfer of strategic advice to the premier and the provincial executive council which will allow the provincial economy to take advantage of the emerging and knowledge driven economy.

This RIS Strategy has benefited from a number of consultative workshops on RIS hosted by DST, where specific inputs were collected and used in the formulation of the Strategy.

Through this Strategy, National-regional partnerships will be forged to promote the embedding of regional innovation systems strategy within the PGDS, IDP and microeconomic development planning processes of the regions. Leveraging of resources and managing the efficient financing of initiatives would be an important priority in the implementation of the Strategy. The establishment of more robust innovation networks within specific regions will be supported. The Strategy will also look at initiating regional innovation surveys which will collect and interpret baseline regional data. The knowledge gained from these surveys will inform policy-makers as to the future needs of the regions.

1.1 Wealth creation and poverty reduction through Innovation

There are a number of reasons why South Africa should strengthen and develop its regional innovation systems. Conventional thinking of regional innovation systems tends to focus narrowly on growth sectors within the new economy e.g. biotechnology, nanotechnology etc. Unfortunately, most South Africans are still employed in the traditional areas such as agriculture, mining, manufacturing, government and community services, and commercial services e.g. retail and hospitality. Economic sectors within the knowledge economy mostly utilise advanced skills. More efforts are required to apply innovation strategies to sectors of the “old” and second economy to create products and services that will create jobs for people who lack advanced education and skills typical of the knowledge economy.

Every region has an active innovation system that supports its regional economy. However, the challenge is to enhance the interaction of the different role players

within each region to develop the RIS to levels that will lead to the creation of new products or services, resulting in much needed job creation.

The World Bank defines Local Economic Development (LED) as offering local government, the private sector, the not-for-profit sectors and the local community the opportunity to work together to improve the local economy. It aims to enhance competitiveness and thus encourage sustainable growth that is inclusive. Regional Innovation Systems is an important component of LED and should receive the necessary impetus to make a considerable impact.

The RIS development process is not a short-term planning process. It consists of developing a dynamic relationship between action and practice between stakeholders within a specific region to improve sharing of information to advance innovation by combining knowledge resources and creativity for the creation of new products or services in the old, new, first and second economies. These products and services are important drivers for much needed economic development that will drive job and wealth creation.

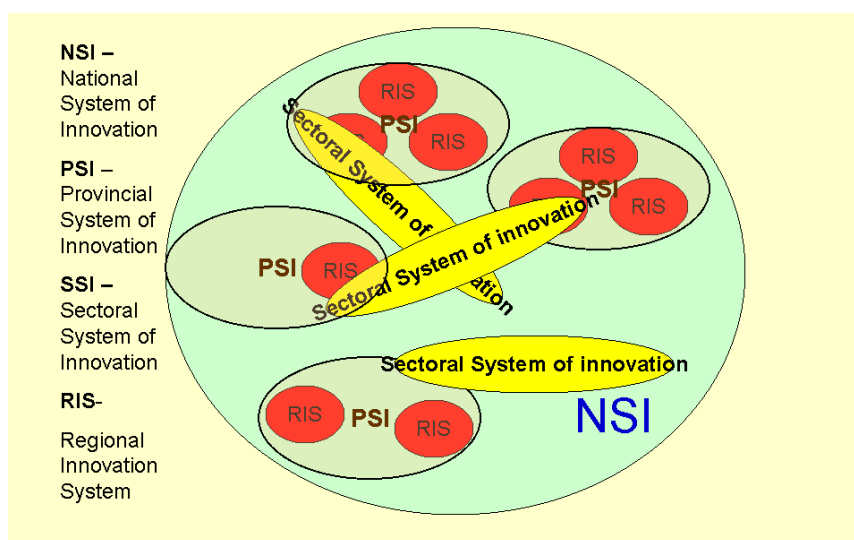


Figure 1. Illustration of the National System of Innovation containing Sectoral Systems of Innovation and 4 Provincial Systems of Innovation containing their own Regional Innovation Systems.

1.2 Global Regional Innovation Systems Trends

Globalisation has accelerated the race towards greater poverty for many without the right skills to take part in the knowledge economy. The world has shifted away from the sole focus of industrial manufacturing of goods to relying more on the creation

and application of information within the knowledge-based economy. Free trade agreements have change the way that many industries do business abroad. Markets without borders have created greater competition for mature industries e.g. the textile industry within South Africa who has seen a large decline over the last few years. It has also created wealth for people with specific knowledge intensive skills.

Globalisation has also created unparalleled disparities within the South African society and had given rise to social dislocation as a result of widespread unemployment and wealth inequality. An ever changing global social and economic environment has increased the imperative to develop effective RIS strategies and policies that can deal with these negative social factors.

2. STRATEGIC OBJECTIVES

Assist Regions in Evaluating and developing their Systems of Innovation for exploiting regional economic opportunities by:

- Mobilising innovation role-players
- Promoting instruments for planning, vision-building and collaboration related to RIS e.g. Foresight Exercises and Technology Roadmapping.
- Development of Regional Innovation Strategy and policy (based on input from other strategic objectives)
- Developing Sectoral Innovation Systems strategies (incorporating cluster or innovation network development) e.g. Diamond Beneficiation in the Northern Cape
- Integration into the National System of Innovation
- Facilitating consistency in regional innovation policy across the provinces/regions

Facilitate the establishment of mechanisms for Local Innovation in the Regions through:

- Mechanisms for Triple-Helix: e.g. Science Parks and Centres of Expertise Programme
- Specialist Research, Development, Technology Transfer and Innovation Centres: e.g. Centres of Competence
- International partnerships on Innovation and Skills Development
- Community partnerships on S&T for Social Development

Alignment of Regional Innovation Strategy with National Industrial and Innovation Policies including the:

- National Industrial Policy Framework
- DST 10-Year Innovation Plan
- Technology Innovation Agency Act, 26, 2008
- National R&D Strategy
- National Science Park Development Plan
- Priority areas as defined by Cabinet

Build Capacity at Regional Level for RIS Development

- Capacity Development Programme for Regional representatives: e.g. - and Exposure to international systems
- Development of Regional Innovation Forums and a National Innovation Working Group

- Application of regional innovation systems development tools e.g. RDPM method etc

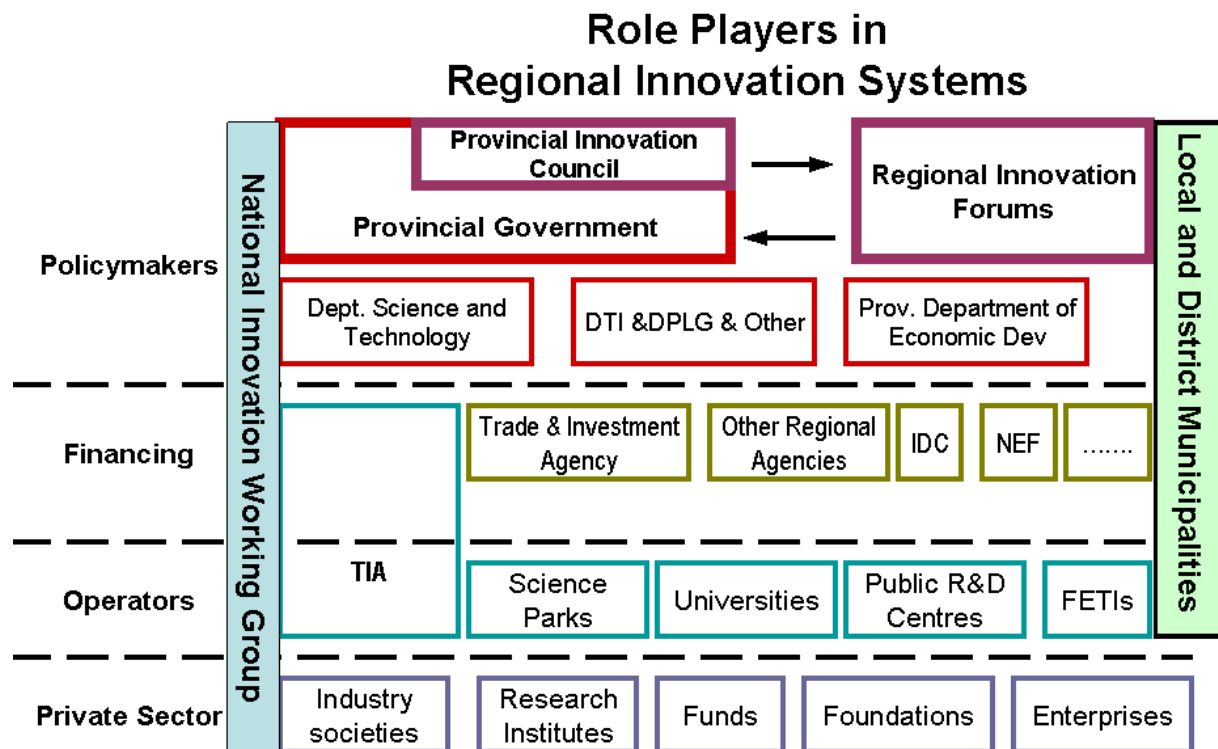


Figure 2. Stakeholders within a typical Provincial System of Innovation.

3. CONSULTATION AND PLANNING

One of the most important components of a sound innovation policy is its constant self-evaluation, improvement and feedback from stakeholders. Without this, a region’s ability to innovate will be compromised. Some of the main stakeholders or role players typical to a South African RIS is given below, together some of the planning tools necessary to effectively manage the input and policy directives from these stakeholders.

3.1 Stakeholders

Academia

The universities’ main role is to produce qualified labour to the private and public sectors. Newly qualified and ambitious staff bring with them new knowledge and creativity which are both necessary for innovation. Universities can be seen as engines of the knowledge-based economy and as tools for regional development.

The founding of a university in a region has an impact on the development of that region. Regions would be different without the intellectual influence of universities. Universities should be informing RIS policy and consequently also be the focus of regional policy development as well as solving regional R&D questions.

Provincial and Local Government

Provincial Government will play a facilitative role and coordinate the implementation of Regional Policies. A Provincial Innovation Council can be used as a mechanism for advising the provincial leadership on innovation policy, through engaging the Provincial Innovation Forum of the province.

Generally, in the South African context, the provincial department responsible for economic development, together with the office of the Premier, will be the most important provincial structures to drive the development of RIS strategies for associated regions.

Local government, through its LED programme, should be seen as implementation agents for regional innovation strategies, through an LED or another appropriate agency established and capacitated for this purpose.

The infrastructure development for science parks is normally driven at a local level. The city regions should specifically be leading infrastructure development projects linked to associated RIS strategies.

The concept a RIS must be imbedded into the PGDS and IDP of municipalities to allow meaningful benefits from the knowledge economy.

Industry

Industry, as both a receiver of knowledge and the main innovation driver within the region, should be allowed to play the important role in giving input into the development of regional innovation strategies and related policies, in co-fund innovation and human capital development initiatives with government, and in strengthen the linkages with academia and other industrial sectors. Greater input from the private sector is needed when developing economic policies.

Department of Science and Technology (DST)

DST strives towards introducing measures that would allow science and technology to make an impact on growth and development in a sustainable manner in areas that matter to all the people of South Africa. DST's 10-Year Innovation Plan is helping to drive South Africa's transformation towards a knowledge-based economy, in which the production and dissemination of knowledge leads to economic benefits and enriches all areas of human endeavor. This includes focused interventions, networking and acting as a catalyst for change in terms of both productive components of our economy, making it competitive in a globally competitive liberalised environment, and also in respect of the huge development backlog existing among the poorest communities.

DST would develop initiatives, in partnership with regional governments, for the exploitation of regional sustainable economic opportunities through leveraging, and thereby enhancing, the regional innovation systems (RISs).

DST-supported programmes with initiatives in regions will play specific roles when e.g. larger S&T infrastructure is developed or specific projects within Provinces are implemented.

Technology Innovation Agency (TIA)

The TIA's main function is to deliver socio-economic value through technological innovation across sectors of the economy by means of the following:

- Appropriately structured financial and non-financial interventions able to respond to the needs of the different stages of the innovation value chain.
- Development and maintenance of human capacity for innovation.
- Building a culture of innovation.
- Leveraging local and international partnerships.

TIA Functions:

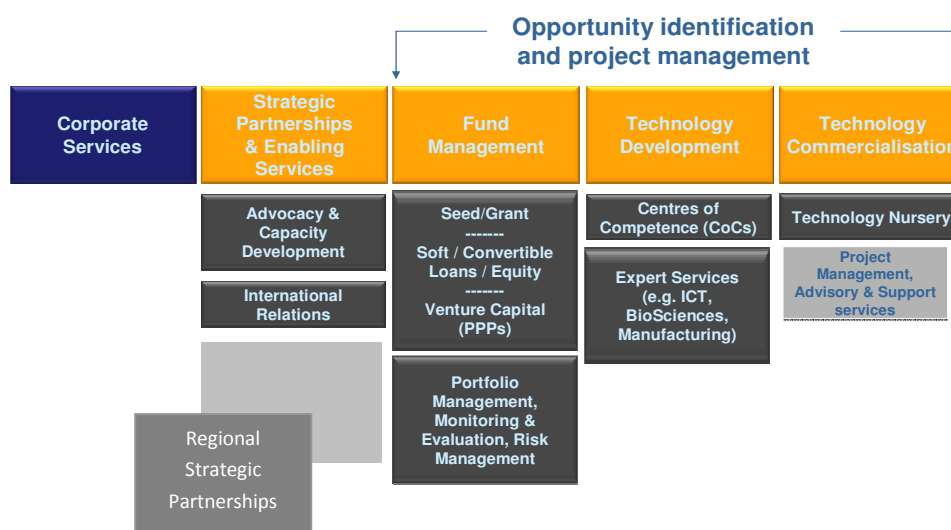


Figure 3. The proposed TIA structure comprises five functional areas.

A unit “Regional Strategic Partnerships” (RSP) under the strategic partnerships and enabling services programme can play an important role in enhancing the collaboration and developing linkages between stakeholders within a specific region. Each TIA regional office can have an RSP representative reporting to a central RSP unit at the TIA head office. The RSP unit will collaborate with the Local Innovation Unit within DST when developing programmes that support the development and enhancement of Regional Innovation Systems strategies and related policies. Each RSP representative could represent TIA on the associated Provincial Innovation Council and the Provincial Innovation Forums.

TIA’s regional office will play a significant role in most of the Regional Innovation Systems. Collaboration between Provincial and Local Government through this entity should be promoted via the Provincial Innovation Council. TIA will actively implement and support innovation in general through funding and supporting entrepreneurs with innovative products or services.

The Technology Commercialisation area will also play an important role in developing regional institutional structures such as Science Parks, Activators, and Living Labs, among others. The National Science Park Development Plan is discussed further in this document.

Department of Trade and Industry (DTI)

DTI is an important role-player within an RIS due to its core strategic objectives, namely, to:

- Promote and coordinate the implementation of the accelerated and shared growth initiative (ASGISA);
- Promote direct investment and growth in the industrial and services economy, with particular focus on employment creation;
- Contribute towards the development and regional integration of the African continent within the NEPAD framework;
- Promote broader participation, equity and redress in the economy; and
- Raise the level of exports and promote equitable global trade.

DTI will play a big role via its agencies, such as SEDA.

Both National Departments of Education (DoE)

The National Departments of Education play a direct and indirect role within regional innovation systems. They play a direct role by providing access to lifelong education and training opportunities available to the public, and indirectly via the role of universities within the RIS.

The right educational policies can influence the quality of education which ultimately impact on the knowledge and creativity within a region. The Departments of Education is the two most important role players over the long term for developing South Africa's RISs. Without quality education, our RISs will be ineffective and little R&D&I will take place.

Department of Provincial and Local Government (DPLG)

DPLG, through its LED programme, tries to build economic competitiveness of a local area to improve its economic future and the quality of life for all. It is a process by which public, business and non-governmental sector partners work collectively to create better conditions for economic growth and employment generation.

DPLG can play an important role in embedding innovation strategies within its LED activities. An effective RIS is a key requirement for LED in regions.

Other Government Departments

Other Government Departments, such those responsible for agriculture, energy, mining, etc, must be engaged as and when required, depending on the economic priorities of the particular region..

An opportunity exists to plan provincial and National innovation initiatives to prevent duplication of objectives, and to create a more structured approach to the development and enhancement of regional innovation systems.

3.2 Long-term Planning Tools

Foresighting

This refers to methods and techniques used to develop feasible and sustainable futures for a specific community. The strength of foresighting over short term development strategies is in its proactive development approach towards desired futures. It is a departure from short term incremental planning, which typically focuses on how to solve present problems. Foresighting on the other hand focuses on what is possible and then directing efforts towards systematically developing the selected futures.

Regions should use Foresighting as a starting point for developing a Regional Innovation System strategy. This planning technique normally allows stakeholders to give input into a process without formal structures and predefined outcomes. It allows all role players to give input without one dominating.

Qualified foresight practitioners should be utilised to effectively facilitate the process and report on possible policy and strategy recommendations as well as action plans for each chosen futures theme to enable the implementation of priority actions within a region.

Technology Roadmapping

Technology roadmapping (TR), is a form of technology planning, and can help deal with the increasingly global competitive environment. While it has been used by some companies and industries, the focus has always been on the technology roadmap as a product, not on the process.

Technology Roadmapping provides information to make improved technology

investment decisions by identifying critical technologies and technology gaps. TR could also identify ways to leverage R&D investments and be used as a marketing tool.

TR is critical when the technology investment decision is not clear. This occurs when it is unclear which choice to pursue, how rapidly the technology is needed, or when there is a need to coordinate the development of multiple technologies. The technology roadmapping process consists of three phases:

- Preliminary activity
- Development of the technology roadmap
- Follow-up activity.

Technology roadmapping can greatly enhance the setting of priorities for technology investment within a region. The Regional Innovation Forums and Provincial Innovation Council within a region should make use of TR to allow the region to develop when an investment decision is unclear.

4. INSTITUTIONALISING INNOVATION AT REGIONAL LEVEL

4.1 Human Capacity Development (RIS Training for Local and Provincial Government)

Specific RIS training programmes will be developed and presented to stakeholders within local and provincial government. (COFISA already launched the first RIS training course intake during November 2008 with a specific training programme focusing on RIS).

Special attention must be given to training that will enable local and provincial stakeholders to embed regional innovation strategy within the PGDSs and the IDPs.

Feedback from the Provincial Innovation Forums will inform the curriculum of these courses.

4.2 Mechanisms to Strengthen and Implement RIS Strategies

The Mechanisms consist of the formation of institutions e.g. TIA, formation of programmes to build HCD, implement infrastructure and networks that will support RIS e.g. Activator, Science Parks, international partnership which enhances the RIS and NSI e.g. COFISA, SAFIPA, INSPIRE and stimulating demand side innovation by localising large Capex projects.

4.3. Provincial and National RIS Structures

4.3.1 National Innovation Working Group (NIWG)

The NIWG's main objectives will be:

- To promote and market the concept of Regional Innovation Systems nationally.
- Promote the alignment of RIS policy between local, regional and national Government.
- Foster triple helix collaboration between regions within provinces and also between provinces.
- Assist the Regional Innovation Forums to develop and improve their RISs.
- Promote and coordinate regional, National and global collaboration networks.
- Direct and unlock access to additional resources and funding

sources.

4.3.2 Regional Innovation Forums (RIF) in each Province

The roles and responsibilities of the RIF are to:

- Promote innovation within a defined region within the province.
- Initiate the management and leveraging of funding for provincial innovation surveys.
- Act as a community of practice for the Activator Programme.
- Provide provincial representation on the NIWG.
- Interact with the Provincial Innovation Councils on issues of RIS.
- Provide networking opportunities for small and medium enterprises to participate meaningfully in the emerging knowledge and information driven global economy.

The activities of the RIF should be financially supported by their respective provincial governments via their Provincial Innovation Councils.

4.3.3 Provincial Innovation Councils (PICs)

PICs will provide strategic advice to the premier and the provincial executive council, and allow the provincial economy to move along a knowledge economy trajectory.

The main functions of a PIC will be to:

- Guide and regulate how provincial government Departments should interact with Regional Innovation Forums.
- Provide funding, through the provincial treasury, for the activities of the Regional Innovation Forums activities.
- Guide their provincial government departments on the use of information and communication technology to increase service delivery to the public and triple helix stakeholders.
- Recommend measures to eliminate the digital divide between the urban and rural communities.

4.4 Science Parks

A Science Park is an organisation managed by specialised professionals, whose main aim is to increase the wealth of its community by promoting the culture of

innovation and the competitiveness of its associated businesses and knowledge-based institutions.

Science Parks are major innovation support mechanisms among the innovation assets with which to grow and support Regional Innovation Systems as well as the National System of Innovation. Science Parks also provide DST, other National Government departments and provincial government with implementation platforms to host and support innovation programmes. Such programmes foster collaborative innovation and ultimately impact on local social and economic objectives.

A National Science Park Forum has been established to advise on interventions related to the development of science parks in South Africa. As a framework for this, DST developed the Science Park Development Plan which aims to:

- Integrate and optimise Science Park development as a key instrument in the implementation of the 10-year Innovation Plan through a pro-active unit
- Create awareness of the role and value of science parks in social and economic development, specifically at the Local Economic Development Plan level
- Provide a supportive environment for science park developments in the country
- Build capacity for science park practitioners

4.5 Activator Programme (formerly Centres of Expertise Programme)

Activators are designed to develop Regional Innovation systems by developing the context, policies, methodologies and know-how to stimulate collaborative projects that ultimately results in creating sustainable opportunities for high-tech SME development and job creation within South Africa

4.6 Localisation of large Capex projects (Demand Side)

The infrastructure recapitalisation and expansion programmes of the State-Owned Enterprises (SOEs) has provided the South African economy with a major growth opportunity, provided that considerable elements of the required technological capabilities can be localised.

In a bid to increase the participation of local companies in these procurement opportunities, Government recently launched its Competitive Supplier Development Programme (CSDP) aimed at increasing the capacity, capability and competitiveness of the local supply base, through a range of demand-side and supply-side measures. The Department of Public Enterprises, together with the

Department of Trade and Industry and the Department of Science and Technology, are the main drivers of this Programme, in partnership with industry and development agencies.

The CSDP presents a massive economic opportunity for local business and the National and regional economies. These include:

- enhanced participation of local companies in the huge capital expenditure programmes, thus increasing GGP of regions and the country's GDP;
- reduced foreign exchange outflows;
- a platform from which the local supplier industries can export niche offerings;
- shortened lead times for product delivery to the SOEs, thereby improving the availability of capacity to meet end-user demand.

In addition to the localisation opportunities presented by the SOEs' capital expenditure programmes, DST has recognised similar major opportunities in other areas related to its portfolios. It has therefore recognised the opportunity to replicate the model in other areas of both public and private sector procurement, particularly in areas where it has the ability to play an influential role in facilitating partnerships between buyer agencies and supplier networks.

Not only will these technology localisation initiatives bolster economic development, it will lead to increased spending on research, development and innovation. At the same time, regional innovation role-players, particularly the provincial governments, will be challenged to facilitate local initiatives aimed at leveraging these opportunities.

4.7 Community Partnerships on S&T for Social Development

Living Lab

Living Labs in Southern Africa (LLiSA) is a project for establishing a community and network of Living Lab practitioners in the Southern African region, aimed at advancing and supporting open user-centric innovation and Living Labs in South Africa.

In Living Labs, users or citizens are seen as a source of new innovations, as co-creators of new services and products, typically linked to the creation or application of ICTs or ICT-enabled services. Living Labs are platforms for exploring these

opportunities in various areas; for instance in e-commerce, healthcare, transport, tourism development, energy production, etc.

The purpose of the network is to create capacity for understanding, establishing and developing Living Lab activities, support pilot projects in SA and to facilitate local and international collaboration and linkages. It links interested developers, research organisations, industry and government bodies together for advancing regional Living Lab initiatives. Its role is also to facilitate the network activities and learning opportunities in South Africa and between South African and European Living Lab communities, for instance the European Network of Living Labs (ENoLL).

The Living Lab initiative can play an essential role in establishing the linkages within a RIS. It therefore presents regional innovation stakeholders with the opportunity of developing and enhancing their RISs, through active participation in the activities of the network.

Facilitate Private Sector Innovation

Provinces, through their PGDSs and other economic development strategies, have already identified particular sectors as economic growth areas with high employment creation potential. Many of these sectors have also been identified as National growth sectors by National Government. Furthermore, regions have also conducted comprehensive studies on these sectors, identifying the innovation-based interventions necessary to facilitate growth. The challenge lies in regional innovation role players in establishing these interventions, leveraging National programmes in the process, thereby enhancing their RISs.

5. PROJECT STEPS TO ENHANCE REGIONAL INNOVATION SYSTEMS

The following is an outline of a possible project steps for strengthening regional innovation policy and institutional structures within a region. Contributions from all regional stakeholders are needed before a final regional strategy can be implemented.

1. Create buy-in from regional stakeholders at all levels
2. Explore if RIS enhancement initiatives currently exist within the Province, such as COFISA –supported projects. This will prevent duplication of regional knowledge generation.
3. Constitute a Regional Innovation Forum that can act a community of practice (CoP) for the triple-helix (See 4.3.2 for more information).
4. Drive the concept at a high level within the Provincial structures. Establish a Provincial Innovation Council within the Provincial Government (See 4.3.3 for more information).
5. Organise a regional foresight workshop to set long-term priorities that will enhance the regions innovation potential. This workshop should engage al the parties of the triple-helix.
6. Appoint a dedicated person that can champion the RIS development and advocacy work in the Region.
7. Appoint a RIS specialist to conduct a regional baseline study, using established RIS development tools.
8. Use the outcomes of the baseline study to draft a RIS strategy with all the stakeholders.
9. Implement and harmonise the RIS strategy within the Provincial Growth and Development Strategy (PGDS) and the Integrated Developments Plans (IDPs) for the region.
10. Constantly monitor and evaluate potential changes to regional strategies and modify the region’s approach annually.

6. IMPACT MEASURES

Enhancing Regional Innovation Systems will require the formation of linkages between all role players within a specific region. A number of impact measures can be established with respect to quantifying the success of the RIS Strategy, namely the linkages between triple helix players, establishment of regional institutional structures, number and type of collaborative projects, propensity to cooperate within a region, tax incentives for R&D investment figures and foreign or local investment within the region.

Table 1. Impact Measures

IMPACT FIELD	IMPACT INDICATOR	MEANS OF VERIFICATION
1. More Provinces Governments develop their own regional innovation strategies.	Number of Provinces that develop their own RIS strategies	Data obtain from the Provincial Premiers offices
2. Formation of Regional Innovation forums and Provincial Innovation Councils.	Number of Regional Innovation Forums and Provincial Innovation Councils.	Data obtain from the Provincial Premiers offices
3. Number of new international cooperation projects.	Number of International Cooperation projects	Data obtain from TIA and DST International Cooperation offices.
4. Crease of Innovation within the universities and private entities taking part in the RIF.	Number of patents filed by RIF members	Data obtain form the patent office.
5. Increase in innovation via collaboration projects.	Number of Activator (CoE) projects that are implemented	Data obtain form the Activator management offices
6. Increase in the innovation infrastructure within a regions	Number of Science Park or other research based infrastructure	Data obtain from the Office of the Premier and DST

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