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COFISA Provincial Innovation Foresight Overview Report

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1. Introduction

Between October 2007 and March 2008 provincial Foresight exercises were undertaken in the Eastern Cape, Western Cape, and Gauteng provinces under the auspices of the Cooperation Framework on Innovation Systems between Finland and South Africa (COFISA). The exercises drew participants from a broad range of sectors (including, public, private, research and tertiary education sectors) and focused broadly on innovation and the role it could play in the future of each province.

This report presents a synthesis of the outputs of these Foresight exercises, and it serves as an introduction to the substantial number of reports that were generated during the process, and which may be accessed at www.cofisa.org.za. It is hoped that this report will stimulate interest amongst practitioners (both existing and potential) in the role that Foresight can play in building regional (i.e. sub-national) innovation systems. In particular, it is intended to act as a "user-friendly interface" to the present Foresight exercise, to the details of the processes followed, tools used, and outputs generated.

The report is set out as follows. First, some background to the Foresight exercises is provided, followed by a summary outline of the process used. Next, some of the highlights of a synthesis of the process outputs are presented. To our knowledge, Foresight techniques have not been used at a provincial level in South Africa before, so it is doubly important to record the lessons learned from this ground-breaking initiative. These are set out in the succeeding section, followed by conclusions.

2. The Foresight project background

COFISA is a programme that has been developed jointly by the governments of South Africa, through the Department of Science and Technology, and Finland, through the Ministry of Foreign Affairs. Its objective is to contribute to the enhanced effectiveness of the South African National System of Innovation (SANSI) contributing to economic growth and poverty alleviation.

It is widely accepted in many countries that complementing a national innovation policy with a strong regional (i.e. sub-national) development focus has been successful in the development of regional capacities that benefit from national or supra-national flows of resources. However, the SANSI has been criticised for the weak integration between national level policy on the one hand, and on the other, organisations and innovation-related policy and support measures at provincial and local level.

The concept of a regional innovation system is relatively new in South Africa. Hence, the SANSI and its related policy must find concrete manifestations at the regional or local level. Furthermore, successful innovation processes occur between a large number of actors such as companies, R&D organisations and the public sector.

Regional innovation policy and mechanisms are needed to provide platforms for cooperation between these different actors.

In 2001 and 2002 the European Union (EU) was confronted with similar situations in the ten Newly Associated Countries (NACs - Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Poland, Romania, Slovakia and Slovenia). The EU launched a range of projects aimed at developing and implementing regional (i.e. sub-national) innovation strategies in each NAC. Foresight techniques have been widely used in each NAC and are continuing to prove of high value at every stage of the process of establishing their regional innovations systems.

Hence, Regional Foresight was one of the major mechanisms chosen by COFISA to stimulate the development of South Africa's regional systems of innovation, by building shared strategic visions on regional innovation, creating and amplifying regional "triple helix" collaboration, and supporting planning. Given Finland's globally recognised expertise in Futures research and the application of Foresight techniques, particularly as applied to its world class innovation systems, a Finnish expert[1] was contracted to lead this process, in collaboration with South African Foresight experts and practitioners.

Foresight consists of a family of techniques and methods used collaboratively to capture the dynamics of change by placing today's reality within the context of tomorrow's possibilities. It is inherently proactive, reflecting the belief that the future is influenced by today's decisions and actions. It is not prediction, and recognises that addressing the future necessitates the management of uncertainty. It develops a well-informed context for current decisions via dialogue involving all stakeholders. And it emphasises the human abilities of forethought, creativity, and systems thinking, in addition to our capacities for analysis and judgement which have tended to dominate strategic planning throughout the industrial era.

3. Overview of the Foresight process

For each of the target provinces, the purpose of the Foresight exercise was:

- To introduce participants to the importance of regional innovation systems and the role futures thinking has in helping to establish and maintain them.
- To introduce participants to the value and practice of some commonly used Foresight tools and processes.
- To use these methods to encourage the participants to collaborate in creating a range of possible future scenarios for their province and to consider the challenges and opportunities that emerged from these scenarios.
- To ask the participants to prioritise the challenges and opportunities they had identified, to examine the highest priorities in more depth (again, from a

[1] Mr Olli Hietanen, University of Turku, Finland.

future viewpoint), and to create action plans that would enable them to be addressed.
- To encourage the various relevant stakeholders (including the participants themselves) to start working with these action plans.
- To encourage the multi-sectoral, multi-disciplinary networks of people established throughout the Foresight exercise to continue to communicate and collaborate with each other.
- To build capacity by involving in the process three coordinators (with no previous Foresight experience), one for each province, who would receive initial training in some Foresight techniques through learning-by-doing.

A total of nine workshops were held between October 2007 and March 2008, made up of three workshops in each of the three pilot provinces, i.e. the Eastern Cape, Western Cape, and Gauteng.

First set of one day workshops

The first workshop in each province began with a fairly substantial introductory session. First, the aims and the background of the COFISA programme were presented. Second, an overview of the current state of the province's system of innovation was discussed. Third, the basic concepts of Foresight were presented, and the rationale for the Foresight techniques chosen for this exercise was explained.

A small number of groups (usually three) of between four and seven delegates were established to work together for the rest of the day. The first task of each group was to create a futures wheel capturing their ideas of the main features of their province in 2050, and then to prioritise the most important themes identified in this process. Next, each group drew up tables (called ACTVOD tables[2]) capturing the most important characteristics of at least one of these themes. Finally short stories were written by each group intended to bring to life the reality of some aspects of their themes (called scenario fragments).

Second set of one day workshops

Based on the specific themes that were identified during the first workshop in each province, subject matter specialists were identified for each theme. Together with the majority of the delegates of the first workshop, these specialists were invited to the second workshop to provide expert inputs to the proceedings.

The second workshop began with an introductory session to ensure that all delegates (newcomers and experienced alike) understood the role of COFISA, the aims of this Foresight process, and the stage it had reached. For each theme, the

[2] ACTVOD is an acronym standing for the main components used to analyse the themes, namely Actors, Customers, Targets, Values, Obstacles, and Drivers.

main characteristics identified in the first workshop were listed, followed by some important issues if the 2050 scenarios were to be realised. A small number of groups of between four and seven delegates were again established, each tasked to work on one of the main themes identified in the previous workshop.

Futures wheels for 2050 were developed by each group for their theme, which allowed them to identify a range of more focused issues which they again prioritised. ACTVOD tables were then drawn up for the most important of the focused themes, and scenario fragments were written.

Third set of two day residential workshops

In some cases, a few further specialists (based on the focused themes created in the second workshops) were invited to add their expertise to the final, residential workshops. The third workshop began with a session which reviewed the process so far to ensure that all delegates (newcomers and experienced alike) were primed for the workshop. At this stage, as in the previous workshops, three or four groups were established to work on one of the focused themes for the remainder of the workshop.

During the afternoon of the first day of this third workshop, the groups developed policy recommendations to foster enabling environments for realising the desirable futures which they had created. The main outputs produced on the second day were fairly detailed action plans that were developed for each of the chosen focused themes. Some higher level aspects of these outputs are discussed in the following section,

Throughout the above process, workshop participants were drawn from the public, private and tertiary education sectors, as well as civil society. The objective was to have inputs of ideas, issues and opportunities from as many legitimate viewpoints as possible, thereby encouraging lateral thinking and creativity.

Building full scenarios

The general provincial futures wheels for 2050 produced in the first set of workshops were very rich. Once all the workshop sessions were completed, it was decided to take this base material from one of the provinces (Eastern Cape was chosen), and attempt to work them into full-blown provincial scenarios. None of the experts involved had built scenarios in this way before, so it was a venture into the unknown. The material from the Eastern Cape futures wheels was collated and clustered. Two major axes emerged, and so quadrant-based scenarios were developed for three of the four quadrants. (The fourth was seen as "business as usual", and was not developed further). Three substantive scenarios (approximately fifteen pages each) were generated by the South African Foresight experts based on this material, requiring an intense period of writing (two to three days per scenario). The process was deemed so successful that as input to a subsequent COFISA provincial

biotechnology Foresight exercise, a similar method was used to create sets of three scenarios for the other two provinces, namely Gauteng and the Western Cape.

4. Highlighted outputs

The focus of particularly the first two workshops in each province was at a high level. The outputs from these included futures wheels, ACTVOD tables and scenario fragments. Together, these outputs constituted a multi-faceted, often complementary (but sometimes contradictory) picture or vision of what life in the province would look like in 2050. By analysing and synthesising this material, a more-or-less coherent vision emerges for each province. These are presented in the subsection that follows.

The third workshop focused at a more detailed level. Each working group developed action plans for one focused theme that they selected as being central to the future that they desired to see emerge by 2050. An introduction to these action plans is also presented below.

Finally, opportunities, risks and weak signals that were common across all three provinces are described.

4.1. Visions of the future

4.1.1. Eastern Cape

By synthesising the outputs across the working groups, a vision for 2050 emerges that is characterised by the following:

- Democracy and participation;
- A central role for agriculture, agro-processing and food production;
- Industrial strength based on strong engineering competencies;
- A synergistic balance between the urban and rural sectors, in which both sectors are prioritised and thrive;
- A focus on eco-friendly "green" policies, technologies and strategies, in which social well-being is central.

This vision is depicted in Figure 1 below.

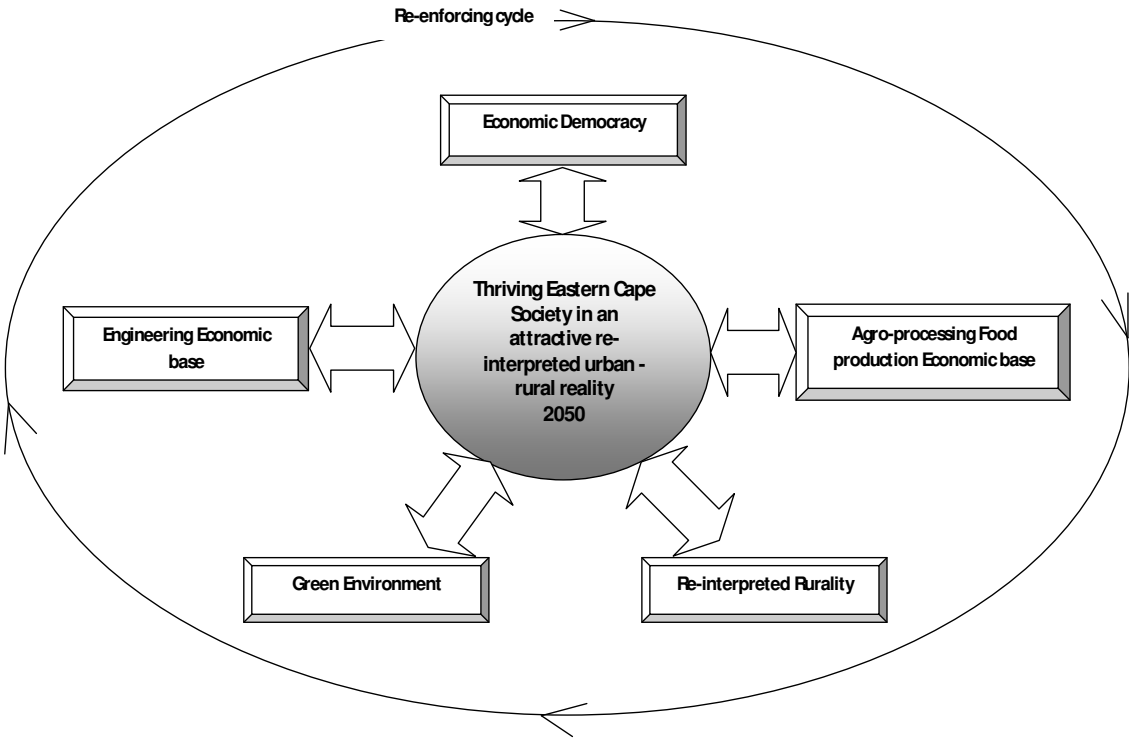

Figure 1: Future 2050 vision of a thriving Eastern Cape society

This vision offers a holistic view of a mutually-reinforcing ecology which undergirds a thriving Eastern Cape society. The economy is grounded in the competitive advantages of the Eastern Cape Province, i.e., Engineering, and Agro-processing for food production. These economic activities are undertaken in ways that maintain and contribute to a green environment in which 'rural' is no longer perceived (by the urban centres of power) as being marginal and unimportant. Instead, economic activity is nurtured and thrives in small dynamic towns, as well as on smallholdings. Thus agriculture is not dominated by large, industrial farming enterprises, but a symbiotic balance is found that enables both small- and large-scale agriculture to flourish.

4.1.2. Western Cape

A synthesis of the outputs from the working groups in the Western Cape results in a vision for 2050 that positions the province as having:

- A world-class education hub;
- A thriving knowledge economy that creates opportunities for many;
- A green economy, characterised by the ongoing development of innovative, sustainable technologies;
- A tolerant society, marked by social and economic justice in which poverty is history.
- Exemplary leadership;
- An economically and environmentally sustainable society.

This vision is depicted in Figure 2 below.

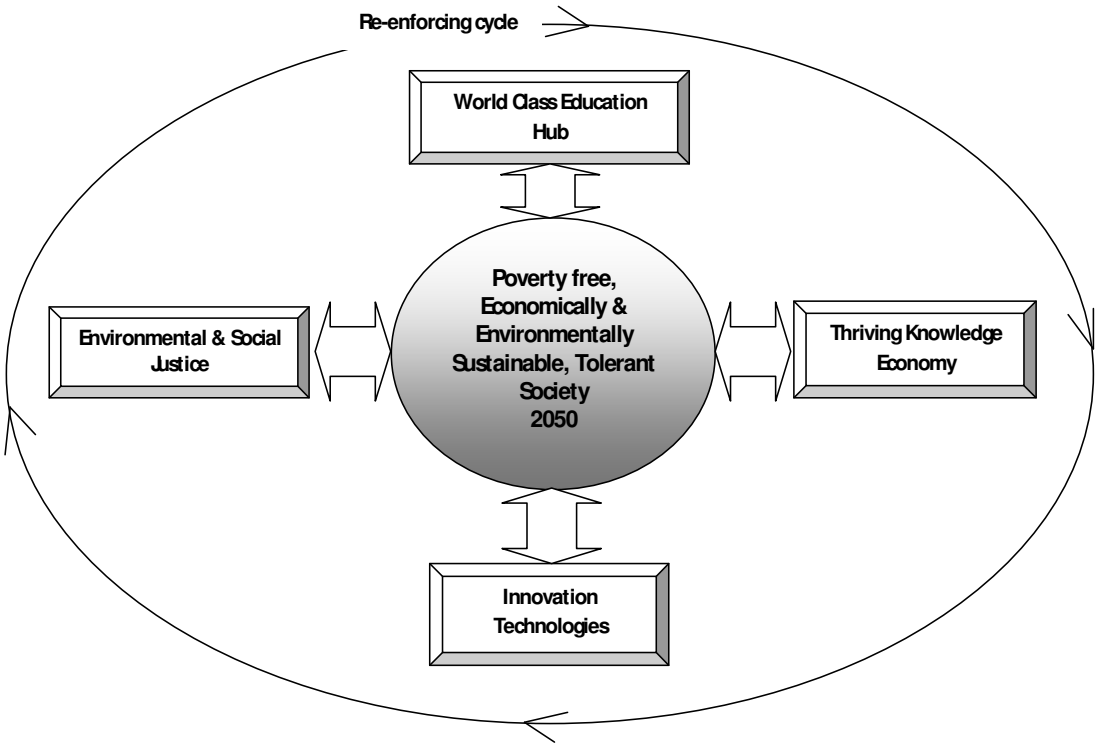

Figure 2: Future 2050 vision of a poverty-free, economically viable Western Cape society

4.1.3. Gauteng

The vision for 2050 that emerges from the synthesis of the outputs from Gauteng's working groups is marked by:

- A vibrant knowledge economy;
- A dynamic and innovative society;
- The ongoing development of green technologies, that contribute to the quality of life for green, healthy communities;
- Effective and responsive government that is supported by automated systems;
- High-quality, integrated service delivery mechanisms;
- Sustainable economic growth in which the environment is conserved.

This vision is depicted in Figure 3 below.

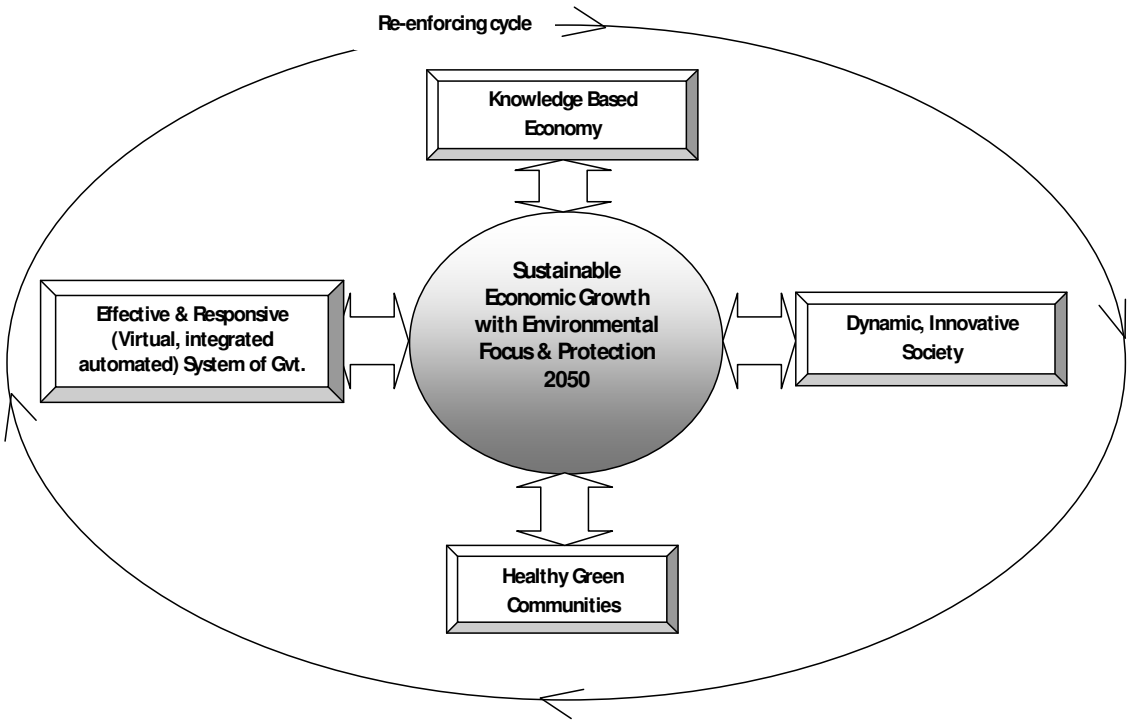

Figure3: Future vision of sustainable economic growth with an environmental focus

4.1.4. Common high level future themes

Although independently developed, there was significant commonality between the visions from the three provinces, along with features that were specific to each province. The aspects of the visions that were shared across the three provinces were:

- Free societies, with full participation in the economy and governance through free and transparent access to-user centric knowledge.
- "Green futures", where there was no contradiction between meeting human energy, housing, and food needs and maintaining a high-quality environment where people lived in a self-sustaining, pollution-free ecosystem.
- A knowledge society, with a knowledge-driven economy.
- Innovative societies with a particular focus on innovative green technologies.

4.2. Focused themes and high-level actions

As described in section 3, the groups in the three provinces worked to create their vision for 2050, and use that vision to prioritise focused themes. They then developed action plans related to a single high-level action that they had identified as being key to the theme. These high-priority, focused themes and their corresponding high-level actions are set out in Table 1 below, for each group, and for each province. As a means of highlighting the commonalities across the three provinces, the themes and actions are colour-coded using the following key:

Key

	Theme category
	Green innovation
	ICT-led technological solutions
	Knowledge intensive businesses & services
	Entrepreneurial excellence

Table 1: Focused themes and high level action

Province	Theme	High-level Action
Eastern Cape		
	Green transportation, rethinking transportation	Establish a transport think-tank
	Renewable energy & efficient use of energy	Set up driving force plus energy futures research institution Carry out futures energy needs analysis
	Platform for agrarian innovation & transformation	Establish integration framework
Western Cape		
	Service innovation via Knowledge Intensive Business Services (KIBS)	Kick start KIBS for industry (mapping)
	Sharing technology and technology for sharing	Build the "Free Cape"
	Hub of entrepreneurial excellence	Identify and work with role models
Gauteng		
	ICT-KM for transparency and democracy	Develop a multi-stakeholder partnership strategy and model
	Free info-infrastructure:	Use market drivers to kick start process

	breaking the monopolies	
	Mechanisms for green, urban built environment	Set up "green design" futures KIBS

More details concerning the action plans may be found in the reports of the third workshops, at www.cofisa.org.za.

4.3. Opportunities, risks and weak signals

During the analysis and synthesis of the workshop outputs, the presence of opportunities, obstacles and risks, and weak signals that were common across all three provinces was noted. 'Opportunities' in this context are mature technologies or services that are currently available, and so can be utilised immediately to enhance society and the quality of life enjoyed by the population. 'Obstacles and risks' are those factors that would result in a diminishing of the quality of life. 'Weak signals' on the other hand, are signs of emerging factors (e.g. technologies, societal changes, opportunities) likely to change the way we do things in future. As an example, in the 1980s there were reports of internet technologies, well before the internet matured. These, at the time, were 'weak signals'. Thus, they may be interpreted as the factors that are not yet obviously important, but those to which attention should be paid.

These three types of factors, and how they interact with the vision of 2050, are depicted in Figure 4 below.

5. Learning from the Foresight process

In this section we review the effectiveness of the tools and processes used in the provincial Foresight exercise, particularly with the interests of practitioners (both experienced and potential) in mind.

5.1. Insights concerning tools

The futures wheel: provided a non-judgmental brain-storming mechanism to tap into participants' diverse views on issues and possible opportunities concerning the future, in a synergistic way that is not normally experienced in the working environment. It is a non-adversarial mechanism, even when contentious issues arise. It encouraged participation by all, rather than domination by single individuals, which resulted in a sense of joint ownership of the futures envisaged.

The futures wheels proved easy to use for both delegates and facilitators alike, quickly resulting in surprisingly rich and innovative material, and fostering energy and enthusiasm amongst the participants.

The ACTVOD table: provided a structured and logical tool to map out the various components of the prioritised futures themes identified using the futures wheels. In

general, participants found the ACTVOD approach challenging to learn, but those that grasped it used the technique effectively to map out a range of possible future paths. It seems that those groups that first defined the customers and services progressed better with the rest of the table.

The scenario fragments (short stories): helped participants to "flesh out" concrete images of their chosen futures. They facilitated thinking through their scenarios, emphasising how the desired futures could be realised. However, in most cases their development tended to be dominated by one or two delegates, limiting inputs of interesting ideas from other delegates. The positive outcome of this process was that it identified the champions likely to carry the themes forward. In future, it is suggested that the writing of these fragments should be done by individuals (or perhaps pairs), and not by larger groups.

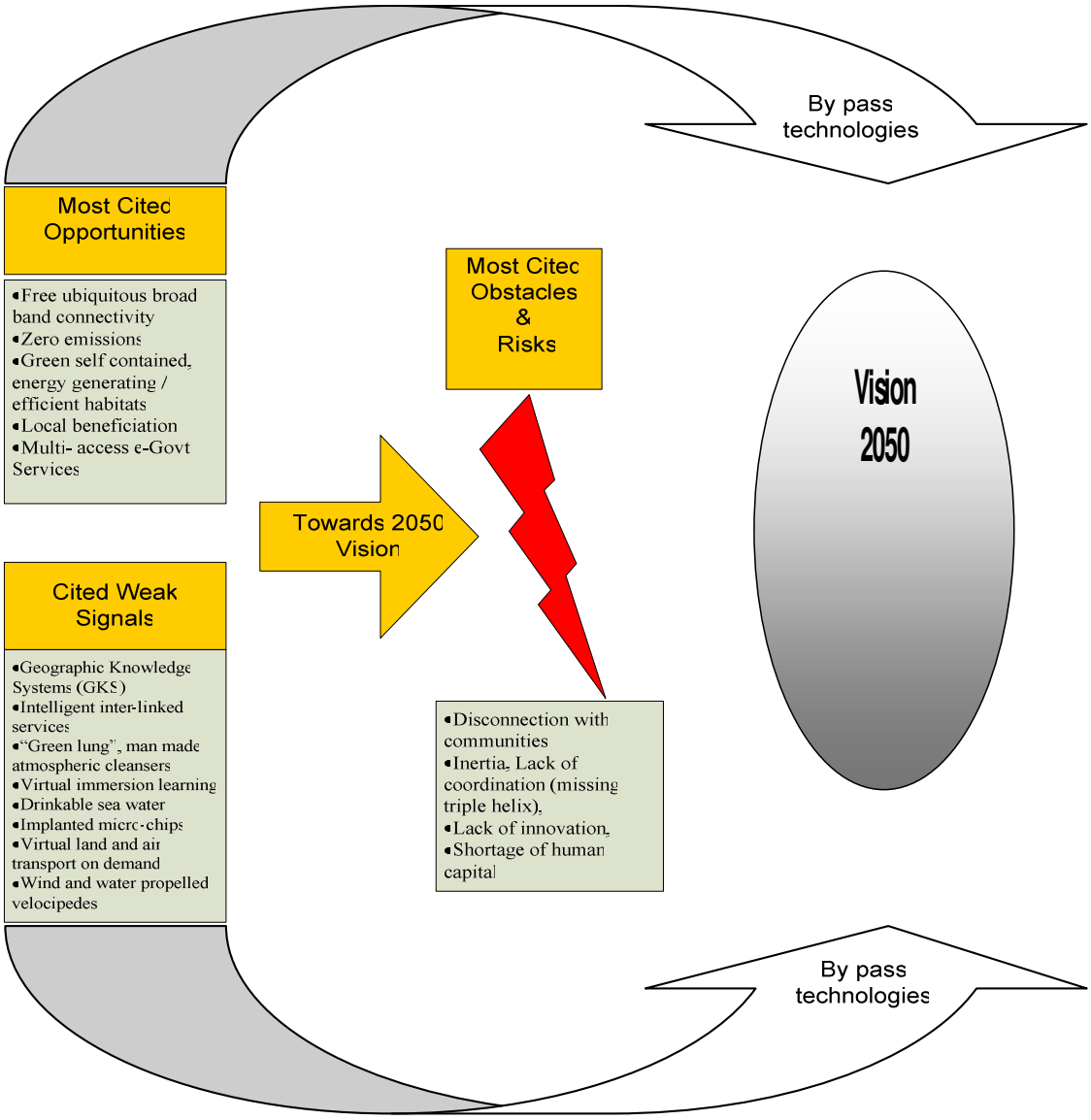

Figure 4: Common opportunities, risks and weak signals

Full Scenarios: the use of small groups and futures wheels enabled the rapid and efficient production of enough material of sufficient quality and innovativeness to develop very substantial quadrant-based scenarios (e.g. the E Cape scenarios – see section 3).

5.2. Insights concerning the process

Participant selection: In the first and second workshops, it proved valuable to draw workshop delegates from different sectors of society and the economy (public, private, tertiary education sectors, international community, civil society) to ensure that as broad a vision as possible of the future was captured. Bringing only "experts" together at this stage (which is often done in first world technology Foresight

processes) usually creates a very narrow vision of the future, which is less helpful in the context of emerging and developing economies.

However, the identification and subsequent participation of appropriate experts in the second and third rounds of workshops added to the plausibility, legitimacy and practicality of the focused future themes produced. Some even became champions of the ongoing actions.

Working group size: The value of using small-group sizes of between three and seven persons cannot be over emphasised. The volume and creativity of their outputs went significantly beyond the expectations of the organisers. In addition, their predominantly constructive (often humorous!) dynamics seems to have amplified the network building qualities that are an important, but difficult-to-quantify product of most Foresight exercises. Once the groups had worked together in person, it seemed that they also continued to work well together via digital mechanisms. Indeed, the impact of these groups was so impressive that collaborative research into their dynamics is planned by the Finnish and South African Foresight Experts.

However, it should be recognised that only a limited number of such groups (up to four) can easily be managed simultaneously. For example, the logistics of trying to manage six groups in Gauteng proved problematic. It would have taken an impractical number of facilitators (or a great deal more time) to provide all six groups with the attention they needed to ensure the success of their work, especially when their progress was arrested by difficulties.

Input materials: The production of quality materials as inputs to each workshop pays dividends. Many delegates said that these documents gave the process stature and credibility, and encouraged them to fully commit. They also significantly saved on the amount of time required for each workshop, thereby reducing the inconvenience to the delegates, reducing the workshop costs, and improving the efficiency and quality of the overall exercise.

Workshop structure: Both one day workshops seemed rushed and difficult to manage. Significant time was required for the introductory session: to introduce new delegates; to overview the process so far; and to explain the workshop agenda and the input materials. Hence the working group sessions, which produced the important outputs of the workshops, were condensed into only half a day.

The second one day workshop proved to be the least useful. While the relatively few newly-introduced theme experts benefited from and added significant value to the process, many of the delegates who had attended the first workshop felt they were mostly duplicating their activities.

It is suggested that the outcomes of the second workshop could have been obtained electronically to the benefit of all participants.

The final, two-day workshop, being residential, introduced a new dynamic which significantly increased the commitment of and enjoyment by the delegates. The quality of the outputs appeared to benefit as well, as did the level of networking.

The above learning suggests that in future, similar exercises should not be spread over four one-day workshops (as originally planned). Instead, just two, two-day, residential workshops should be used, with a longer period between the two workshops to allow for significant value addition (especially from newly introduced experts) via electronic means.

6. Conclusion

To the best of our knowledge, this is the first time a Foresight initiative has been undertaken at a provincial (i.e. at a sub-national or regional) level in South Africa, and the innovation appears to have been successful. South Africa's earlier implementations of publicly-funded Foresight initiatives have been at the national level, they have addressed macro-issues, and they have seldom fulfilled the anticipated impact. By contrast, this regional Foresight approach, employing many small groups in short but intense and creative sessions, has consumed less time of the participants, been significantly less costly, and taken less than four months to produce results of high quality, innovation and value.

The exercise was intended not only to create useful future visions for each of the provinces, but also to create broader awareness of the value of futures thinking, and to build capacity. Capacity building in a "learning-by-doing" mode was achieved in two ways:

- Involve all workshop participants in the use of some of the most popular and easy to use Foresight tools so that they feel empowered to use them (unaided) in future as they see fit.
- Engage three local black consultants as coordinators (one for each province), and train them in the Foresight tools used, so that they start to be able to include the facilitation of similar Foresight exercises as part of their professional repertoire.

In addition, the exercise was an opportunity to bring together Finnish and South African Futures experts and researchers in an action learning environment to stimulate future collaboration, particularly in the adaptation of Foresight techniques to the needs and realities of an emerging and developing economy.

Indications are that this provincial Foresight exercise has succeeded beyond the expectations of the sponsors and practitioners. Feedback from many delegates indicates that the initiative has had some immediate successes, both to:

- Collaboratively create futures-oriented action plans;

- Spread understanding and the practice of Foresight tools and processes into commonly-used strategic processes that are incrementally-oriented (both organisational and individual).

In addition, there is good evidence that multi-disciplinary, multi-sectoral networking (that would not otherwise have happened) has enhanced the "triple helix" activity in each province (but particularly in the Eastern Cape). Further, following their participation in this exercise, several delegates have advocated and implemented Foresight tools and processes in their own work environments. For example, one national government department, one provincial-level parastatal, and three industrial sectors in the Western Cape (film-making, crafts, and music) have successfully implemented similar Foresight approaches as part of their strategy development processes.

In short, Foresight now has a much higher, and generally positive, profile amongst innovation practitioners in the three provinces. Indications are that the momentum created is continuing in certain areas. In five years time it will be possible to better assess the impact on the provinces of this and subsequent exercises, as well as the initiatives that are spawned from it.