

# TECHNOLOGICAL INNOVATION AND ENTREPRENEURSHIP IN SOUTH AFRICA

Proceedings Report



science  
& technology

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NATIONAL ADVISORY COUNCIL ON INNOVATION

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# 1. Welcome

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Ms Claire Busetti welcomed everyone at the start of the session, indicating that the National Advisory Council on Innovation (NACI) was looking for participation, as the session was a working group. Presentations would be provided to get the thought process going, but contributions from the sector were needed.

She then introduced the acting CEO of NACI, Dr Mlungisi Cele, indicating how delightful it was that he was able to attend the workshop.

Dr Cele expressed sincere gratitude and appreciation to all present, for taking time out from their busy schedules to participate in the roundtable discussion and thus assist NACI to fulfil its mandate. He then provided a perspective on the day's proceedings:

NACI is a statutory body that advises the Minister of Science & Technology, by: analysing data produced by different research institutions; engaging with our stakeholders in various forums, in order to distil ideas that emerge from the engagement. The ideas are used to generate policy advice to government. Importantly, NACI looks at the national system of innovation and identifies gaps, monitors and measures, and makes recommendations that will help improve the system.

The topic for the day is not uniquely South African and there is interest from various international actors and the following points would help to contextualise the topic:

- The recent economic crisis (since 2008) has served as a useful wake-up call for all governments to check that their science, technology and innovation (STI) policies are fit for purpose. In response, policy has been adjusted to strengthen public research, resulting in an increase in the promotion of excellence, a positive impact on society and the economy, and a boost to entrepreneurship and active global cooperation on STI. This is particularly important, as entrepreneurship has long been recognised as a vital force driving innovation.
- Interaction between innovation and entrepreneurial policies stimulates gains in the economy. By underpinning the firm creation and expansion of entrepreneurship and policies for Small, Medium and Micro Enterprises (SMME), we will strengthen innovation. Policies aimed at innovation would spur the creation of firms and help SA shift to a knowledge-based economy. This is the primary vision that the Department of Science & Technology (DST) is working towards, and why the link between entrepreneurship and innovation is under renewed vision.
- He emphasized the point that everybody is aware of the various benefits that will accrue from investing in entrepreneurship and innovation and in the early part of this century many countries systematically reviewed their policies and shifted towards an innovation approach (including Mexico and Korea). It is in this context that NACI has identified what needs to be found fit as a country and should not be left behind, as other countries have recognised the importance and value of linking innovation and entrepreneurship – which will be elaborated on later.

Dr Cele encouraged all attendees to participate in the engagement, as NACI wanted to hear everyone's ideas on how NACI and the STI actors could take this further and ensure that SA derives benefit from STI. He concluded by saying that NACI is both humbled and happy about a good turnout for this round-table and expressed his sincere gratitude to those who would be delivering presentations during the day.

## 2. Overview: NACI Innovation and Entrepreneurship Focus Area

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Ms Claire Busetti delivered a presentation titled Technological Innovation and Entrepreneurship in South Africa. The following comments were provided as part of the presentation:

NACI has been repositioned after the reflection on whether it was fit for purpose. It advises Cabinet on all matters that span STI in the entire value chain and commercialisation is part of this. The reason for NACI's existence is to ensure that STI benefits SA and it must therefore advise on the conditions to ensure this, specifically to ensure economic growth. The repositioning has resulted in NACI emphasising how it will assist government with its top priorities: job creation, economic growth, sustainability, and innovation. NACI is strongly embedded in the system of science and technology (S&T), but is moving through to how products and services end up in the market – which is why this topic of discussion was decided on.

Sustainability is a big issue and there are four rapid areas of focus for SA. Energy is already an issue and water is fast becoming a major problem. Food security will soon become another issue because of climate change. The nexus is important, as you use water to create energy. One problem is the amount of water used by industry and agriculture, which means one needs to look at how to ensure that there is enough water and in the portable quantities.

Ms Busetti said there is a need to question how to ensure that there is a well-functioning national system of innovation and that the good work done ends up as a product or service. This is a huge area of entrepreneurship and innovation, with the focus on entrepreneurs, as large companies do innovate, but tend to do this to reduce jobs. Small business tend to innovate more, as people leave big business to start small businesses and are therefore risk takers by nature. NACI is looking at entrepreneurs in the technology space and technology and innovation for purposes of product and service development through innovation, remembering that there is no innovation without the sale of a product/service. Starting small businesses is therefore important and NACI needs to ensure that there is a transformation of SA into a knowledge economy – which is the reason why this round-table was organised.

Ms Busetti provided brief details on the members of the Entrepreneurship and Innovation Working Group present:

- Dr Jamine: He is involved with measuring innovation and was participating in the session.
- Ms Monnakogtla: She has started her own business.
- Ms Busetti: she is part of SiMODiSA, a non-profit organisation that provides real, practical solutions and tools for the SMMEs.

As NACI needs real and practical solutions, two technical experts were appointed to assist with this project: Ms Ela Romanowska, who is involved in the technology transfer area; Ms Alexandra Fraser, who is a doyen in industry in terms of helping to get technology businesses off the ground. The Secretariat support group at NACI did most of the work and they also organised this round-table.

Some background to the sessions can be seen in the speech delivered by Minister Pandor in February 2015, which Ms Busetti said had her transfixed and that everything that was said is embodied by the group. Also consider:

- All high growth emerging markets have used technology and innovation to compete with the First World and increase the Gross Domestic Product (GDP).
- NACI is funded by DST and as a DST entity it must assist in bridging the innovation chasm. There are wonderful patents, PhDs and periodicals, but there is no commercialisation; this is the chasm that must be bridged. For commercialisation to occur, there is urgent need for partnerships between government, academia and the private sector and there is need to consider that while the country has one of the best academia cohorts in the world, it has one of the lowest levels of entrepreneurship in the world.
- SA has wonderful ideas and projects, but these are going nowhere and not ending up as business and this needs attention – such as an enabling system. Ms Busetti said “It is sad that our great entrepreneurs are not funded here; they go overseas for funding, but then stay there, as Silicon Valley funders want you in Silicon Valley. If we want

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to improve our national system of innovation here, you have to incentivise people – not tell them to stay here”.

- There is a need to leverage government capital and the DST budget, which is not the biggest, and one can achieve this through private capital.
- If one looks at the National System of Innovation (NSI), there are gaps which need to be considered in order to improve the system and to ensure that innovation ends up with products and services in the commercial arena.

Ms Busetti reiterated that the day was designed for NACI to ask for ideas from its stakeholders on why we are not commercialising. Some of the pointers are:

- The gap between S&T and innovation is commercialisation. An enabling system for technology start-ups is required. In this regard Ms Fraser would report on the problems and challenges reported by PwC. She then indicated that her own research indicates the problem being that SA interventions are based on inputs, as it is easy to say what the inputs are for a NSI, e.g. number of PhDs, how many projects were done and what research and development (R&D) is done at the universities and science councils. And this then become the business model and framework – the problem being that the framework must be based on outcomes. So we need to change the framework and start measuring the outcomes: with the right framework, we would measure the number of sustainable businesses, turnover, tax paid and profits.

In trying to assist government to achieve its objectives, we must determine: number of jobs created, how people’s lives have been improved, the Rand value of beneficiated products, etc. If we must use innovation to improve GDP and solve our own problems, we must measure this, because if we get a return on investment (government funding), we can reinvest and get the cycle going. Ms Ela Romanowska would provide an indication of what other international parties do to get innovation commercialised and how to make it happen.

### 3. Gaps in Technology-based SMEs and Start-ups Ecosystem

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Ms Ela Romanowska delivered a presentation titled Technology Innovation and the Entrepreneurship Ecosystem in SA. She explained that when she was asked to become involved in the current process, she realised that two days could be spent discussing the innovation ecosystem, but there was only half-an-hour. Therefore, she had structured the presentation to catalyse a conversation for the round-table discussion, in order to assist NACI in thinking about the issue and guide it i.t.o. the additional work that needed to be done to provide evidence-based advice to the Minister and to government. She indicated that she would sketch a framework for an ecosystem and then open the discussion to obtain input from attendees, but this would be sketchy, given the time allowed and the presentation was therefore not exhaustive. She then provided the following comments on the slides, as per the slide number indicated.

There are three key areas that must interact in a constructive and productive way in an innovation ecosystem. The starting point is good ideas that can become products and services in the market. But in order to make them travel that journey successfully, capital is needed, plus support for an idea and the people who will take the idea forward, as well as access to markets. This is underpinned by a conducive regulatory environment. The model presented provides a simple idea of an innovation ecosystem and the elements can be unpacked further.

Companies that are created require specific things and this talks to the ecosystem. When developing high tech products, such as a drug or medical therapy, many decades and patience are required, which mean these technology innovations are a challenge that require specific interventions compared to other forms of innovation – and they require sophisticated innovation and technology support. In the life sciences, certified laboratories are needed, which are very expensive – likewise the required skill. And they need special support and legal and regulatory support. So the capital investment is enormous, as is the time investment, which means that people must be in it for the long run, as success will not come tomorrow. So there are key elements that distinguish innovation based on new technology.

Other kinds of start-ups are different, e.g. with an internet cafe you don't need millions of Rands – you need a few thousand, which some individuals (who have worked) get as a loan from a bank and within a year the business is ticking along nicely. This is very different to brand new innovation. So the ecosystem for innovation and technology needs to be a little different to other types of innovations and businesses.

The dimensions of an ecosystem indicate what is needed, the stage of development, the sector (as there are different players and services) and who the actors are. An exhaustive discussion is not possible at this forum, so we will focus on stages and actors and try to unpack those two dimensions.

When you look at the business lifecycle, you see that a business trying to develop a new product or service is in the early part of the lifecycle, with a lot of money going in and very little coming out. At some point revenue will be generated and at some point there will be a positive cash flow. The red arrows in the model show the R&D period of testing, showing it will work, testing the marketing, putting up a pilot plant, etc. – all of which requires huge investment, with no revenue or insufficient revenue being generated, even during the pilot phase. Then eventually, there is enough revenue.

The stages along which to map the actors in the framework of innovation are seen. First, someone has an idea, e.g. in a laboratory, someone comes up with an idea for a new drug for TB. This is a concept, but you don't know if the science will work and if it is a breakthrough scientific discovery. Next is the process of trying to do some work - R&D, early market test – for purposes of proof of concept, using seed investment, which means you are using money to see if something could perhaps work in the market and whether or not there is a viable business case. The early stage when money starts to be made follows, then follows the modality of growing and revenue coming in and eventually the business will mature and then decline. These five stages of development of a product or service are being mapped to the framework.

There are different types of actors and DFIs operate like government funders. All actors can play a role as funder or business support structure or both and can provide market access.

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This is a summary of what is in the Aspen network for development entrepreneurs – not the whole map. But what is the point of all this information? It is that the question is: Is the whole list applicable when we are thinking about innovation based on new or improved technology? The truth is, it is not. Support and funding for new technology is quite specific and quite different: one can't just take the list, see how many players there are and get support from all of them, as the list becomes much too short for high tech players.

Ms Romanowska provided brief innovation about the government service providers, i.e.:

- Technology Innovation Agency (TIA) is not necessarily about money, but it certainly provides support for technology.
- Innovation Hub is in Gauteng and geared towards tech start-ups.
- The SEDA programme has more than 40 incubators, but many are the same type of incubator that is repeated. Many do not look at technology businesses, while some look at lifestyle businesses and services provided to the Information Technology (IT) industry, e.g. E-Tech Inc. Only Chemin, EgoliBio, SNII and SoftStart are geared to providing good support to high tech businesses. Chemin is in several regions, but the others are only in specific locations. This again indicates that the list of service providers is not long.
- Eastern Cape IT and CITI are in certain regions only.
- NIPMO provides support funding.
- Gazelles is trying to find exciting young entrepreneurs whom they can fast-track.
- But even these programmes are not targeted at high tech, although they can support high tech. Some regions can, however, provide peripheral assistance.

Technology Transfer Offices are one of the few service providers that help with ideas statements, while Startup Bootcamp deals with very early stage matters. The others are not well geared for business to deliver new services and technology.

- Startup Weekend is just a weekend.
- Resolution Circle is a university initiative, but is strongly involved with people outside the university.
- The NWU programme and some others offer assistance to outside people, but are located within a university and are geared to this.
- It can then be seen that the list becomes much shorter than what is on the map.

There are many corporate programmes, but these are generally more geared to enterprise development and not high tech development, although there are some exceptions.

More homework needs to be done to understand who is in the sector and which regions can be served. Some providers are brokers or offer mentoring support, but not always enough for tech businesses.

- TIA stops assisting at the start-up stage.
- With SPII you have to pay first and then receive a refund, which is challenging for many start-ups.
- THRIP could secure resources from universities and match the company funding when using the student, but this has now ended and we are waiting to see the new instrument and where it will be positioned.
- The IDC VC instrument has been reframed for a new sector and support is provided at various stages of development.
- Many schemes run by government focus on job creation and are therefore lifestyle creation schemes and not more sophisticated instruments for funding new technology and innovation – so they aren't included here.
- There is also another programme for job creation, but there is no funding for technology innovation.

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The list is not long i.t.o. of where the VC funds operate, with many in the later stages of business development and many in certain sectors. If someone is in life sciences or biotech, it is very difficult to get funding. One interesting intervention was introduced in the income tax act in 2009, but since then only three VC funders or instruments have been set up under Section 12J, which allows for the investor into a fund to get a tax deduction – but one is only just starting up and one is in resources/junior mining: so there is no focus on the broad range of start-ups.

It is hard to access angel investors, as they operate under the radar and there is not much capital. The expected survey on the VC industry will provide more detail, but the numbers have dropped about 70%.

- Crowd funding links social investment to an individual to create an impact for the individual – not for funding a new drug.
- Private equity comes in much later and many are listed as very late stage players.
- Some people who indicate they will provide assistance are brokers and don't have much money.
- This means that the picture on funding from the private sector is dismal.

More analysis is needed across the country (not just in Cape Town). The studies that are being done will inform the picture, but won't grow the picture substantially.

In closing, Ms Romanowska thanked Ms Fraser for assisting with preparing the presentation.

## 4. Questions and Comments

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Discussion followed the presentation, with the following questions and comments (Q/C) from the floor. Responses (R) were provided by Ms Romanowska, Ms Fraser, Dr Cele, Ms Busetti and other NACI representatives.

Q/C: I noticed that you used an outdated model rather than a more tech push model or linear model for innovation. This is problematic, as it leaves out important aspects such as infrastructure for technology.

R: This was not left off because it is not important, but because there is no time to unpack all the layers. It was indicated on the first bubble slide i.t.o. market access and it does look at that as well.

Q/C: This was a useful exercise, but it is important to distinguish between service providers and initiatives, e.g. Start Up Weekend is an initiative deployed by many providers – it is not a provider. It would be useful to interrogate the placement of a provider, e.g. those listed as not for profit. Also interrogate the mandate on paper and the theoretical role service providers should play compared to what is actually done, e.g. with government services, as there are mismatches.

R: Agreed. There needs to be some analysis done of what people claim to do and what they actually do. For those who enter and want to access systems, it can prove extremely frustrating and this can frustrate the innovation process.

R: We do not claim to have all the information in the right place, but had to make decisions based on the information online, much of which is incredibly outdated and limited, which makes it difficult for an external person to determine anything. This increases the challenge for entrepreneurs.

R: As per the previous comment, this information will be fed into policy information and we need to find and validate the information, as there is a pool of quality information that must be leaned on and that must be fed into the processes. Also note that the information provided is not the result of a weekend's work, but of many months of work. I.t.o. VC companies, there are very few of them, but there is also a quality vs quantity issue and some have deep pockets but are struggling to find deals. This means we need to look at what they have funded and the leveraging of existing funders.

R: Also consider the private equity sector and the issues of why we need a VC industry. When we look at the ecosystem, we must ask how much of the ecosystem is putting money into inputs and not getting outputs. We have seen an explosion of incubators, because of supply chain management (SCM) and entrepreneurial development points. And although these provide support and training, we still do not have operating businesses making money, as the framework is still input based, i.e. we are not seeing what we are getting out for our money. For example, TIA invested R3 billion of government's money and there was another R4 billion, but there has been no capital pay-back and if one measures the number of operational businesses delivered for the R3 billion, there is not much – because the system is input based. We need an output based model with incentivised outputs. Incubators incentivise on inputs. Our system then has very little that is based on output and producing products and services, and SA is one of the lowest in the world i.t.o. VC and levels of entrepreneurship. Consider that Tunisia has 54 VC funds compared to our 10 – 15, on a GDP that is 10% of ours. The way we are running the NSI is not giving us the required output and is not questioned because it is the status quo. It is time for us to question, measure output and put in place a framework to measure output. We need to think differently about this, as some are rewarded on number of deals done, etc.

Q/C: The NACI focus is exploring the ecosystem gaps and the Department of Trade and Industry (the dti) is hosting a session on commercialisation of technology and the Small Business Department is talking about Gazelles: where is the alignment between the three ministries? And how are we aligned?

R: We are aware of these initiatives, but it is a challenge to coordinate these things. The Small Business Department is into all kinds of start-ups and SMMEs, but we see the biggest gap in business based on new products and services, i.e. going beyond creating jobs to going global, which these types of innovations can do. But coordination is not a trivial matter and there are problems in government that mean it is not productive.

Q/C: The environment pictured today is a national one and it is a bleak and depressing picture, which needs something to be done about it; but we must also see ourselves in the global sphere and there is much in the international arena of interest and we need to link up with entrepreneurs in this area.

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Q/C: Thank you for the presentation and the keynote welcome. Is it correct that decision making should be based on scientific research, so that what we do is informed? The main purpose of this organisation is to identify gaps and improve policy, which is correct. But experience of government is that there is a lack of support at the end of the day and that recommendations are not implemented; which situation you don't have in organisations. So what do you do?

R: Yes, it's true that NACI has encountered situations where we provided advice to government and it was not taken up. The Minister of Science & Technology has recognised that challenge and part of the solution is to empower the NACI Council to have direct access to her – which was not the case previously. Then if Council comes up with advice, they can explain it to her and cut out the bureaucracy. Also, the nature of advice was problematic, with those who know better arguing relevance and importance, when scientific advice depends on the purpose for which it was generated. If advice is not carefully thought through, bias dealt with, existing progress recognised and the added value of the advice demonstrated, it becomes difficult to obtain acceptance. The NACI Council and the DST are working towards improving this and ensuring advice is taken, including from this process – and not just by DST, as some recommendations have to be taken by others. We need to indicate which ministry and what must go to Cabinet as a whole, for them to consider. We must also appreciate the competing interests in government; therefore if government is the implementer, it is not solely dependent on the quality of advice, as there are other factors to consider. But NACI is always striving to improve its competence and quality of advice.

Q/C: Thank you for the presentation. The critical issue is start-ups, particularly the more complex ones, which is what SA needs for the future. But there is a lack of manufacturing capability and NACI needs to help with better quality manufacturing facilities and the quality of manufacturing. There is also a problem with competitive prices: SA can't produce competitive products and so products are sent to China for manufacture at a cheaper price. This is a serious issue. VC talks to company formation, but a big challenge is lack of licensing opportunity.

Q/C: There was a focus (by Ms Buseti) on incentivising output, but one key aspect of the presentation should have been securing property rights, as it is important that you secure your idea. What are the structures available to people to secure property rights for these innovations and how effective are they compared to other countries?

R: This aspect is provided in the bubble graph. In my view the framework for securing rights is good, e.g. legislation and other mechanisms. There has been debate regarding re-examining the system and if our legislation is on par with international good practice. There is also legislation in place and institutions i.t.o. security rights for technology developed with public funding. So we have good frameworks in place to register Intellectual Property (IP) and manage them for the individual and the SA tax payer. But there may be other aspects that require discussion.

Q/C: Two weeks ago there was a VC gathering in Nigeria and burgeoning groups are entering the VC space, with seed funders in Africa, etc.; but where Kenya, Nigeria and Tanzania are moving ahead, SA is not really an active part of the network. So how do we become part of it? There was one angel network, but how do we grow this? There must be a conversation between the players on this. With the African business angel network, the people driving it sit outside of Africa, e.g. in Europe and the US. So it is important that we consider this. SA is an economic power in Africa: how do we take this back and burgeon it here, as we are involved in important innovation? When we talk about taking innovation and technology global, an important aspect is that many companies are coming into SA, as they see us as a market. Private sector global companies are coming here and bringing their own technology: so how do we encourage them to use our innovations?

R: Ms Fraser indicated that she is one of the founding members of the African business angel groups that are able to support potential investments, but was unable to attend the meeting in Nigeria. VC for Africa people may be based in Amsterdam, but the board members travel a lot and have Skype conversations from all over the world and we are actively working together. VC for Africa also provides a supporting role. ABAM had an angel investing masterclass in SA and later I will touch on stimulating the angel investor system.

R: The second point is important: global companies are coming in with their technology – but that is trade and economies thrive on that, as they bring investment and create jobs. We need to focus on building the next global company out of SA and to have a few audacious views, as we won't have dominance unless we break through with technology. The issue is

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not preventing international engagement in SA – it's about doing to them what they are doing to us. But remember that many international corporates make a real difference to the local economy, e.g. Microsoft Business Park is one of the most successful, with jobs, funding businesses, free hosting, free technology, etc. Also Google and Amazon are providing much support, but we need more knowledge transfer and skills gain. We also need to look at visa regulations: people bring in experts when they come here and drive up salaries when they hire locally, as the demand for skills is high because of the shortage of skills. This means we need to look at legislation and demand and bring in experts to get maximum skills transfer, but get big corporations to do more training and development, etc.

Q/C: Mapping the ecosystem was excellent work. But it is still mostly supply driven and perhaps a level of analysis is required on what tech businesses actually need, specifically, e.g. how to regulate an unregulated environment, etc. Some organisations do have some experience from servicing their own organisation and we need to look at how they can service outside their own organisation, e.g. handling one type of start-up. We need to tap into that experience, rather than set up yet another incubator to deal with a once in a while.

R: This also speaks to how we leverage our resources and how do we make what is available in Gauteng available in the Eastern Cape, etc.?

Q/C: I refer to technology and innovation on the one slide: I would have expected that the dti would have featured and made a contribution, as the topic is relevant to them and would have enriched the process, as they are a significant part of developing small business. I understand that universities are a significant part of the NSI and have been engaged since the early 2000s and the massive funds invested to develop the activation of institutions such as the CSIR and research production. But who are you talking to? Everybody, perhaps, as there is no specific focus for universities, so you included me. Two statements were made: Claire made an interesting point about big industries tending to do massive innovations, but pushing innovation at the expense of manual work. Reading between the lines, it seems that innovation is somehow problematic when it doesn't create jobs and we need to look at this. Then: we are speaking about solving local problems while remaining globally competitive. This requires consultation as we have laws and active labour unions. But I feel that the role of universities could also be substantial if this was articulated from your side and driven and pushed and given a platform, e.g. push universities to develop things – rather than say we focus on inputs not outputs. We must fix the problem where it is broken.

R: The role of universities, science councils and publicly funded institutes was peripheral to the study. We could argue that some funding was given by government, but we can discuss this offline later. We haven't articulated that role clearly enough, as it is an important seeding role in the process.

R: These are all very important comments to help craft this further.

Q/C: I'm looking from a funder perspective in the context of the ecosystem and the point of IP rights was raised earlier. Policy matters need to be kept in mind. The issue is: something that is really there vs the perception, e.g. we are a local funder and we take tech companies global. There is perception regarding policy that is not necessarily supported and not assured. There is also uncertainty regarding policy, so creating certainty is important. From a funder perspective, two years ago at an event we attended, Dave from Silicon Valley, who has 500 start-ups to his name and who is a very successful VC investor, said that all you need is to take the obstacles out of the way, as entrepreneurs are resourceful and will get to the end product. So when you have the end in mind, even if you are at the very beginning, you have to think about each point you will get to. So don't think in pockets – think in a single value chain, as any weakness will hold us back.

Ms Buseti concluded the discussion by saying that many good points had been raised and it was good to be controversial and for people to air their views.

## 5. TSP – Socio-Economic Impact Indicators

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Ms Buseti introduced the next speaker, saying that TIA has started measuring output and what the reaction is. This is an important discussion about tech push and pull and TIA started with push and is now moving to tech pull and measuring outputs.

Mr Vusi Skhosana delivered this presentation. He provided the following comments as part of his presentation:

TIA is part of the NSI network. It provides technology support to intensify technology innovation to benefit and improve economic growth and the life of all South Africans through funding and non-financial instruction, e.g. programmes. The presentation will cover one programme: Technology Station.

A triple helix model is used for the programme and all higher institutions shown are part of the Technology Innovation Station Network (TISN).

In the conceptual programme, much previous focus was on working with the former technikons, but now the programme is also working with traditional universities. There is also a good working relationship with the Germans, to provide an international benchmarking element and to look at what support is provided for technology innovation globally.

- Two programme objectives have been included in the programme; the first will enable SMMEs to enter the field. There is a lot of know-how at the universities and we want to use this to support the needs of industry.
- There are a number of management indicators and the corporate ones are indicated in bold. There is a strong internship programme, with over 100 interns per year who gain work-related exposure at Tech Stations and on projects.
- Projects are categorised and we measure the technology uptake of industry from the Tech Stations.
- We develop new tailored programmes to feed into universities to design new programmes that feed into industry needs.
- These are input oriented and have been filtered down to the standard of living, but going forward we need to reflect the socio-economic impact or contribution to industry.

We moved to looking at clients and not just at the programme and will do this on an annual basis to check if we are doing the right things. We will gather data on client profiles to understand who we are serving and check if we are really doing competitive improvement. Item b is important.

The bubbles led us in developing the questionnaires and the key was to ensure prompting questions. Impacts measured derived from the objectives of the programme itself.

We started with 50 questions, then filtered these down to 36.

Some interviews lasted an hour because of the excitement.

- The electronics category was younger and textiles the oldest (19 years).
- We spoke to start-ups and these were mostly in the electronics sector.
- Labour was not highly skilled in textiles and highest in electronics, where qualifications are good.
- There is a strong Historically Disadvantaged Individual (HDI) showing in textiles.
- The biggest obstacle was funding.
- Some respondents indicated that government policy indicated where to go for support, but there were too many things to look at and entrepreneurs were not sure where to go.
- There are social problems in the textile industry.
- There was strong input from electronics on green products, e.g. energy. Textiles is also doing a lot i.t.o. green and tooling is converting steel and plastic.

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The study tried to obtain a sense of why clients work with tech stations (TSs) and the following was seen:

- The average relationship with TSs was 3 years in electronics and almost 5 in textiles.
- We also learnt about how we market ourselves, e.g. create a bad reputation, and we saw referrals from the Design Institute and the universities pushing the TSs.
- Clients receiving funding from TIA and came to the TS for further support.
- If a competent person at the TS works closely with TS clients they come back – and if they have good contacts in the industry.
- The need for quality products is key
- There is a misconception that local industry wants Chinese products: this is not so – they come to the TS as they want quality.
- Key is being quick to respond to the needs of SMMEs.

Some of the main impacts were categorised into four sectors categories and we saw:

- In the electronics sector, we have removed financial and technical barriers, to get closer to a market with innovative ideas. An earlier presentation showed a negative curve to get to a market; but some of our clients have confirmed that working with the TSs has helped them get to a market.
- We capacitated skills improvement.
- We assisted textile clients to retain their own staff. (We wanted to measure how much employment was created, but also found we have saved jobs in the textiles industry.)
- In Cape Town we have created fashion platforms for youngsters to produce without expensive infrastructure expense.
- We are creating jobs, but not necessarily directly, as the number of jobs created is low.
- Improvement in energy is low.
- Patent registration is low, but this is because most clients have already patented.
- The second finding was consistent across the three sectors, so we made technical support available that they would not otherwise have been able to access.
- The fourth item needs a lot of attention, but not much effort has been seen to penetrate this market, so there is the technology innovation side and the business development side and the question is: How much has this hindered new companies from entering the market.
- Tech development requires at least three years?
- There is a lot of innovation in the electronics and ICT space.
- Cost saving is key, but clients want to do further research
- We also subsidised first batches for trials.
- An example client is Hybrid Tracking Systems (HTS), which now has interested customers, annual turnover up to \$15 million and good international demand.
- There is an issue with quality product and improvement.
- Retention of employees is key.
- We enabled them to produce a little more and networks enabled new orders to be signed.
- Faru Products is a success story, as we reformed a struggling company, increased production volume and created six additional permanent jobs.
- The equipment issue is key, as some equipment costs millions. We can provide shared use tools so that they can use the machines without having to buy their own.

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- ICT will support scarce skills in the diamond industry, as the average diamond toolmaker is now 50 – 60 years old.
  - A success story was Aman Technology, which moved from a typical steel product to plastic.

Mr Skhosana indicated that the presentation was only a synopsis of the study and that NACI would make the presentation available to all attendees. In closing, he indicated that TIA can advise, but needs to go to clients and understand their needs and it is ready to roll out the model and the methodology with its partners.

Ms Buseti thanked Mr Skhosana for the presentation, saying that it was such a good story of an institution starting to measure what industry and its clients need and then aligning its business model around those needs. Some things have been put in place, but now the task is to move towards client needs.

## 6. Questions and Comments

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Discussion followed the presentation, with the following questions and comments (Q/C) from the floor. Responses (R) were provided by Mr Skhosana, Ms Buseti and other NACI representatives.

Q/C: Thank you for the good presentation and the success of the TSs. You didn't cover all TSs, e.g. agriculture and food stations and adaptive TS, which could also be part of the study. Are you planning to do more of these and roll it out? At CPU we are looking at multi-disciplinary support from TIA in this connection.

R: When we did the measurement, we had support from Germany, which has a background in economic assessment. Ideally, we would want to do this frequently and do more, but resources are limited. With CPU, management of the TS showed interest in bringing in industry and the engineering department to provide more resources, as the TS shouldn't do the measurement with a client, so CPU have buy-in to provide resources, as they have expressed the same comment and should do this for other sectors.

Q/C: Thank you for an inspiring presentation, which has given a lot of hope i.t.o. what can be achieved on the innovation front. Claire showed how much large companies tend to innovate, but at the cost of jobs, while small companies innovate and create jobs. Ela showed an important item at the bottom of the diagram with the regulatory environment, but where is the dti? NACI is trying its best to promote innovation, but cannot do so alone; so where are the other government departments? How can this promote innovation in the country? I have been in other forums like this and the point is that the dti is spending billions on a few large organisation projects, but not creating jobs and leading to more capital intensity and not labour intensity. So is this then not a lovely prototype that can be extended to different sectors to show government intervention can be totally enabling and construction – not destructive. Could we use this prototype with the DST's help, as the money needed is relatively small compared to the billions being spent on other programmes, with little coming out? This could change the entire innovation landscape if it is extended actively.

R: These are positive inputs. In May, this was presented and critiqued and input provided and we were told to expand the process through consultation with regulated bodies. We are ready to roll this out. The Minister for Small Business also expressed the same issue, i.e. gather more data to profile clients and the gaps in SMME sectors. But there is only a certain amount of work we can do, as we need appropriate resources.

Q/C: Thank you for the presentation. As an industry association, you need to understand the demographics of your clients, e.g. race, gender, in order to understand what type of intervention is required for what demographic.

R: We looked at HDIs and some client profiling, but not youth and we didn't look at ownership. We can see female, management, ownership, youth and disabled – that data is available. We have assisted over 2 000 clients per annum, so can use that to get an idea of the profile.

Ms Buseti thanked Mr Skhosana.

# 7. Challenges Experienced by Technology-enabled Emerging Companies in SA as Reviewed by PwC and silicon Cape

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In introducing the next presentation, Ms Busetti said that there may be some depressing information, but that stakeholders could make wonderful things happen and government could have a huge impact on SMMEs and the private sector, which is what the aim is – but more government money must be obtained in order to do this.

Ms Fraser delivered the presentation, commenting that she didn't see the information in a negative light, but rather as information that we could effect change to. She said that we may not be where we want to be, but we could start moving there from the base information available. She advised that she is the outgoing chair of Silicon Cape and runs a technology strategy consulting business, working with start-ups to take products to markets and access funding and grants.

In delivering this presentation – Ms Fraser provided the following comments as part of her presentation:

- There have been many surveys done in the past, but these have usually been quite isolated, e.g. small players, geography aspect or one aspect – not one big national research report that incorporates case studies, thought leadership, etc.
- The study moved from a narrow definition of ICT to a broader definition.
- It looked at new business, i.e. less than ten years old, and tried to look at impacts – economic and social.

A number of partners were involved in the study and some of the main ones are indicated. An attempt was made to reach out to all technology transfer offices, to get a broad cross-section and money was spent advertising nationally through newsletters, Media24, etc.

- Industry is not growing fast enough to cope with some of SA's challenges. We need to create jobs and build a knowledge economy.
- Companies like Evalitic and GroupOn are growing fast and can change the landscape quickly, e.g. Groupon produced R0.5 billion in revenue in a few years and when the founders exited the business, became active angel investors. They have built three other spin-out businesses, made 14 angel investments, employ many young people, have a call centre and too much training – so they are an economic driver. This is why the high growth businesses are so important.
- They are not radical, but incremental improvements at the core.
- Start-ups without support were contacted through the broader system of government funders, private funders, accelerators, existing SMMEs, coding schools, etc., which meant a huge range of players were involved, but the focus was on innovation in the public sector. However, most innovation comes from the private sector and many don't seek protection via patents as it is too expensive.
- Most respondents were entrepreneurs. Consistent with industry stats, 60% were in new emerging industry.
- Access to market is the biggest challenge – not funding. Funding is second. Companies need customers and need to get in front of them. The regulatory hurdles come at a later stage.
- Access to markets is consistent with other research done in the past; so we need to find a way for them to engage with the market early and not at market launch stage. Otherwise design is based on an assumption of what the market wants and not on what it needs.
- The working capital cycle is problematic when selling to a large corporate institution or government, as the 90 day cycle can kill a business if there are large outlay costs. We need to bridge this with an innovative mechanism.
- There is also a struggle to manage capital while running dual business models, which causes tension in the business when managing two different business models.
- Many don't use advisers, so there is a gap to provide support.
- Once the business grows to scale it wants to sell off-shore or raise funding off-shore, but the cost of navigating the regulations is so expensive that they then move the business or IP off-shore – so SA does not get the benefit.
- Labour and skills are a problem: more attractive labour legislation is required to attract these companies into SA.

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Many respondents were very positive about the outlook and prospects. The growth rate predictions could drive job creation and the economy.

The issues come back to the need to manage cash flow, etc. There is selling time and the issue is trying to ensure a balance of short term cash on the generating side of the business while allowing the employer to build products on the other – or have half the staff supporting the other half.

- Very few had received funding, but 43% indicated they would raise funding in the next 12 months.
- The biggest inhibitor to venture capital (VC) funding is the funding mismatch to fund mandates. Entrepreneurs don't understand that mandates are fixed and the mandates are not easily available. Therefore much time is spent on the process only to find there is no match at the end. The CEO or CFO has to find the funds, not junior employees - and he is then not growing the business.
- People are not applying for government funding or angel investment funding, so there is an opportunity here.

Nigeria and Kenya are the main markets for growth. We have high growth businesses that want to exit to international players. The revenue should accrue to SA, but it won't if we don't deal with the tax and financial matters, as people will move the business off-shore early.

Those that did apply for funding found it a long and onerous funding cycle, so applying for government funding is not attractive for entrepreneurs, as it can take over a year. The red tape is too much to consider applying for government funding.

The figure of 27% employees being female is disturbing and there are few female founders of tech businesses. Ms Fraser then indicated that she is personally working with 3 women out of 50 entrepreneurs. The Fin24 statement reiterates the female issue, which needs to change.

- Education is a massive hurdle and we need to strengthen maths and science.
- Most SA entrepreneurs are not young – they are 30 and older and have industry experience. This enables them to enter industry as they understand the key commercial requirements of a potential product or solution and have networks to leverage off and take the product to market or to find the required tech skills.
- 75% have a tertiary education and 2/3 have a post-graduate qualification; this is in line with the global entrepreneurial report. However, in the tech sector, there is a bigger requirement for a tertiary education.
- 49% indicated mentorship.
- 17% indicated an accelerator or incubator programme.
- Finding a commercial co-founder is a huge challenge.
- There are not enough serial entrepreneurs staying in SA and building three, four or five businesses.
- More collaboration is required amongst multiple stakeholders and in stakeholder groups. The rise of the enterprise development funds will tackle this, but much more work is needed.
- More work needs to be done on red tape problems, especially with interns.
- We have to start driving entrepreneurs and high growth entrepreneurs in SA in order to deal with some of our historical problems.
- The notion of setting the stage is important. Chile had enormous success with setting up a programme for internationals to enter the country and set up a business. It kick-started the economy and the culture of entrepreneurship and created jobs.
- This roundtable initiative is a good initiative, but we must also engage many other stakeholders not in the room.
- We need policy and structures to make angel investment attractive. The reporting and management requirements don't make it feasible for you to do this.

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- Having read about the work done on start-up ecosystems, it is clear that it is not one thing that is needed – it is multiple programmes, as funding is just one part of the puzzle.

Ms Busetti indicated that the questions on the presentation would be held over until after the next presentation, as the two presenters were a team.

## 8. International Best Practice in Terms of Venture Capital Industry Support

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Ms Ela Romanowska delivered this presentation – see Annexure H. As an introduction to her presentation, she indicated that some of the outcomes of the survey reported on in the previous presentation were thought-provoking and provided useful input to her own presentation. One gap that must be plugged is the VC system. She said she would try to unpack this sentiment while looking at what has happened in other countries i.t.o. the ecosystem and how quickly they create a positive impact.

She provided the following comments as part of her presentation:

- VC is typically higher risk than other ventures, but it can create a much higher return if it is successful. It is a specific asset class and is defined as per the model.
- In some countries you can achieve the global growth in that country because of the population: compare 350 million people in the US with 50 million in SA. With a tech based product or service, you have to go off-shore at some point in order to create the returns, in order for the investor to invest.

The investor doesn't know if the technology will work as it should and if the market will adopt it; so there are many risks and unknowns. This market then invests in many ventures, knowing that some will fail outright, some will muddle along for a while and provide some return at the end, and some will be shooting stars that provide more return after ten years than if the money was invested elsewhere. This is the premise on which VC funds are built. They find money from other more conservative funds and their business model is different and geared at these businesses, because they require: more capital, more time, more patient capital. The longer they are in the market and using investors' money, the higher the return has to be. This is very important for tech businesses.

- These businesses are 3/4/5 years from generating income and require an equity model, multiple rounds of funding and must be set-up to deal with the phased approach to funding.
- The VC funding model is important as the funds are set up by seasoned entrepreneurs themselves or they have great experience in bringing up start-ups, which are often run by inexperienced people with good ideas, but perhaps undergoing their first experience in business. So the funders provide a special skill-set and know-how.
- Mentoring and coaching is more hands-on than just attending a board meeting once a quarter. They are more involved and want to help the business to success, as they are invested.
- They can support complex negotiation processes and facilitate market access, which means that when you have the right team, some of the other aspects fall away, as they are addressed by the funding model.
- VC funds are often set up by the funders who invest in the start, which means they have 'skin in the game', which is a real incentive to making sound decisions, e.g. liquidate or drip-feed more capital.
- It is important that the VC model allows a shift in type of business created in the country, i.e. from creating efficiency to creating innovation.
- This model is not a bag of money; it is more a multi-faceted intervention in this space.

SA is not performing well in the VC space, when compared either to the US or to Malaysia (which offers a better comparative). The question is: Are there enough things happening, is there a role for government and what is the role for the private sector?

Government can intervene and we can learn from other countries. The options are direct and indirect funding. With the latter, the private sector will do it, but they must still be incentivised and catalysed to make this easier for them, e.g. tax incentives, matching funds for funds, guarantee mechanisms, etc.

The history of the past fifteen years can be seen. In 2000, the IDC invested in four funds, then moved away from this. In 2009, DST funded a visit to New Zealand to look at their funders and in 2010 the conversation started regarding 'fund of funds' – in part due to limited funding at TIA. This type of programme would require about R2 billion over the next ten years.

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The poster child abroad is Israel and many countries have followed suit in various guises.

From the start they tried to attract co-investment from other players who were risk averse, e.g. pension funds, which are typically conservative investors. Much of the capital was not from Brazil and they were able to catalyse the involvement of conservative players and international investors, which provides interesting food for thought.

- Korea created a specialised VC bank that is now being privatised (presumably because it has been successful) – this was much like a fund of funds.
- New Zealand has 25% of companies based on S&T; these come out of the universities. They have 167 companies that are mostly exporting. With a much smaller population than SA, and disconnected from the planet, they have done something quite special with this fund and the average revenue generated per employee reveals a nice statistic. This indicates that these type of businesses don't just create a job that pays a salary, but create an additional dimension of impact, as they can generate much larger revenue.
- In the US, ideas come from universities and labs funded through public funding. Compare SA investment in this sector of less than 2%, which means there is much room for growth. The reason may be that there isn't enough capital and it is too risk averse.
- The indirect model creates bigger impact, but why should we think of this as a possible way forward?
- The first option is not easy – these people don't want to work for those organisations, they want to set up and manage a fund as they are entrepreneurial.
- The second option implies rules and they are conservative: so how can you get investment, as what is required for government money is completely inflexible frost start-up high techs and therefore not suitable for these businesses?
- If this country did 150 high tech start-ups per year, as per the US system calculated per capital and each person employed 10 people, in five years 8000 jobs would have been created, but with high salaries and export. These companies have to go global to get to scale and this will create exports.
- One can't make an investment to get a direct financial investment – one needs to catalyse to see an increase in the tax base because of the success of these companies. There is an argument and debate internationally about government agencies investing directly.
- The structure provided is as per the generic concept used elsewhere and indicates one way of indirect intervention in this space.
- Create a fund of funds with government funds. It invests into individual VC funds.
- It has an investment contribution from government and the institution via an LPS. The investors at arm's length may sit in an advisory capacity, but don't deal with day-to-day decisions.
- The fund is managed by seasoned professionals who know how to deal with the start-ups and will probably be required to invest themselves to ensure 'skin in the game' for better success.
- The first requirement is about exchange control, in order to attract foreign investment into local funds and companies. But this is difficult as repatriation returns become an exchange control hurdle. Therefore at whatever level, wherever the funding is, they go offshore – so this regulatory piece must be addressed.
- The framework must be outcomes framed, not incomes framed and we must measure if the intervention is working or not.
- There are not many funds out there, nor successful entrepreneurs. One can catalyse with seasoned managers who take a risk and government needs to support that with funding at a modest return requirement.
- We know the public R&D was jolted a few years ago with new legislation, which was a genuine opportunity for VC funds able to source opportunities out of the system.
- The angel market is estimated to be twice the size of the VC market, so angels are also important. Angels come in at the early stages and are important to seed activity.

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- The poster child for an angel to stimulate investment is Scotland, and New Zealand has also created good success.
  - It is very difficult to get syndicates going in SA.
  - Efforts have been made, e.g. the tax incentive, with more than a dozen registrations i.t.o. Section 12J - but only five of these are operational. So is this indirect instrument working, or must it be refined? Should we target it at angel syndicates, for example?
  - Do we pilot a VC fund programme and try to seed another 20 angel funds with R100 million from government each? The details could be looked at later.
  - Is Section 12J enough? What do we need to better catalyse funding in the sector and the unique support funding managers provide?

In closing, Ms Romanowska thanked all those who were involved in the study.

## 9. Questions and Comments

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Discussion followed the presentation, with the following questions and comments (Q/C) from the floor. Responses (R) were provided by Ms Romanowska, Ms Fraser, Ms Busetti and other NACI representatives.

Q/C: The question of inequality is lacking and how it plays to these matters, e.g. VC funding is low compared to other countries and we are at 10% of what Malaysia does. This might be natural due to the constraints of inequality. We may only be looking at 10% of entrepreneurs. If I am an investor, I am only going to invest if I am really sure I will be successful, so the reason our numbers look like this is that we may be only looking at 10 – 20% of entrepreneurs and the number cannot be grown. We need to look sideways and collect all our forces to move forward. Also, access to markets is a key constraint, which I can attest to: with our start-up and a brilliant idea, we could not convince people. In this country, there are large entrenched monopolies and there is no reason for the big company to consider your risky item, as he can just carry on with what he is doing. So the large inequality in the business sector affects this. We need to look at the other constraints in the system – and all systems have constraints – instead of just trying to push up the numbers.

R: I like to think about things in a different way: when talking about critical success factors, I was alluding to this and the lack of entrepreneurs, but I also forgot to say we must look sideways at what is missing in the ecosystem. But do we wait until all the pieces are there and try to fix all at the same time and bring them together? Is exchange control the elephant in the room and can start-up VC start to create internal interest for more lobbying to be done regarding exchange control. Or do we do one or two things we know are needed and start on them while we wait for the others?

R: There is a need for diversity in the sectors. Historically, entrepreneurs developed businesses out of need and with no other options, but these are not high growth. We will see more entrepreneurs in future, e.g. with the Telkom programme. Enterprise development has the ability to unlock markets, but there are challenges as well as innovative solutions we can look at. The other aspect is that to be an entrepreneur is not aspirational in SA: to have a steady job, a nice fancy car and work for a corporate is aspirational. So we need to make entrepreneurial success stories public to create interest and aspiration.

Q/C: Are we comparing apples with apples with the countries compared, e.g. Ms Fraser's stats on lack of commercialisation experience and less than 2% of IP can be commercialised, low levels of entrepreneurship and low levels of participation by the majority of the population – this does not lend itself to waiting until these things are in place.

R: It is difficult to find two exactly sized, coloured and shaped apples as all countries are different. Also, the study was not meant to be an exhaustive academic study – we wanted to see what we should be thinking about, not find a country that looks exactly like ours. Such extensive studies could be done, but we have not had the opportunity to do one. The question remains: What intervention must come first?

Q/C: Thank you for the presentation. I agree with much of what you said. The update on the VC fund and the fund the fund is that the Portfolio Commission has accepted the proposal to set up the VC fund. But the questions is how to do it and with whom and if it should be privately managed. Some of the obstacles here are: fragmentation of government, e.g. the dti, Small Business, DST, Economic Development, which is causing rivalry and overlaps with all trying to do much of the same thing. The ministries must be combined, as per the UK Department of Innovation, Development and Skills, which combines all the above with skills and education. But this won't happen because of political interest. The next is the development state at the centre of government thinking, so it is arguable if we will ever see this kind of market friendly policy from government, although we will continue working to help you with this. Lastly, it is sad to see Small Business missing from today.

R: One of the most successful VC programmes from China started 18 years ago and is now in its third iteration. It was so successful that another US\$20 billion is being put into VC programmes for investing into private VC models. China has used this very successfully – more so than Canada and New Zealand. With all VC funds in SA there is no pension fund – it is all private family funds and overseas funds; and we are behind the curve and competing with countries using VC funds to initiate entrepreneurship. One reason why all competitive countries go for markets outside is export and the

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VC programme is geared to set up high growth businesses that employ locally but export. A government programme is required as catalyst; we have seen it has to be initiated with a government support programme (including in the US, where it started in the 1950s, but where they continue to do this). We are behind 40-50 countries, even South American countries and the Saudis who are putting up a VC programme; and Russia is being supported by China. Some are more successful than others. In South America (e.g. Brazil), the impact was seen in three years and the increase in tech business start-ups was massive. The programmes are self-sustainable and geared to deliver a return, which can be reinvested. Government is just spending now and you have to put in more money each year; and all direct programmes ask for more money and every year Treasury says we don't have more.

R: This is not an either or situation. We need multiple programmes to stimulate different parts of the ecosystem. Also, we have to engage with the public sector, but it must be managed by the private sector, as the motivation and mandate of the private and public sector are fundamentally different. Then design a programme in conjunction with the market, measure the impact and compare which programme's performance is delivering the right results.

Q/C: Thank you for the presentations, as I see what you explained earlier. The examples and quantitative examples are important. With your research, VCs in SA sometimes struggle to find fundable programmes, which is a problem. Did you find anything that speaks to VCs struggling to find programmes? I feel we also need to see the qualitative side, e.g. Malaysia has success and the US, with the numbers providing evidence. But what would a qualitative study say about why the US or Malaysia has succeeded? Perhaps this is another research question. This is SA and the suggestion is to speak to the problem of VCs in SA: the problem is partly that we don't have enough, but another is how to deal with this qualitatively. Also when Alex said we need an environment that will allow VC business to flourish and decrease labour restrictions – we need qualitative research questions.

R: There is quantitative data in the survey. But there were 80 questions and I tried to draw out the highlights. The research report has the information on exact particulars. But we do need more international data. i.t.o. finding fundable investments, most are stretched to capacity and giving back to industry via mentoring, etc. Active VC players are active in developing the ecosystem to increase the quality of the deal; but earlier businesses have an angel investor and there is a gap between them and the VC funder. So we need a VC economy: once they exit, they become active angels and the cycle starts to develop.

R: The points are taken and valid and more research can be done.

Q/C: These were good presentations. The elephant in the room is exchange control, but it is a baby elephant. The real elephant is we are a very unequal and untransformed society - with other countries there is closeness of public and private sectors, so we have antagonistic forces all the time. The question is then are you investing in further racial inequality. We need to reorganise this and entrepreneurship and innovation needs to be at the centre of transformation. We are currently bombarded by international players who do all sorts of things in SA and Africa in developing production. Packages must include developing opportunities for the business sector and business players. We need to think about how we do this. Chaos can have opportunity and we need to do what we can now.

Q/C: Regarding Section 12J comments: there has been some progress, but not much uptake yet. In the last 18 months, revisions were made after conversation to legislation that goes back to 2009. Last year revisions were made to the tax act – mainly the tax deduction being permanent when investing in funds. This has changed the risk return calculation to direct more capital to these targeted sectors. Since the changes came through in January, there have been more than a dozen VCs registered with SARS and they are fundraising. But is that enough? When industry lobbied, it was to get SMME capital, so there was a size limitation you could invest in. But this doesn't mean it won't work with large companies, and we will see more VCs come out with this vehicle. But there is a lot of compliance required by the 12J structures, to prevent abuse. However, this makes the cost prohibitive to set up. Also, for now the main target audience is high net worth investors or family offices; but sentiment is poor. So although there is improvement, it is not enough: it is really hard to raise capital out there. We should continue to support it, as this could help, but some other aspects discussed today may offer better opportunity, because of the poor sentiment at the moment.

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In closing the session, Ms Buseti said:

- Regarding the baby elephant in the room – there are others: the Minister of Science & Technology said this year that “government has decimated the innovation system in SA, because of the way it thinks about procuring solutions to its problems”. What it will take to impact this ecosystem is leadership that will better harmonise what government is doing in this space and address where people are failing in government and the private sector.
- We need to jump into a few deep ends to make this work. If we wait for all the pieces to fall into place, we will be having the same conversation in ten years’ time. There are things that can be done now.

She then thanked everyone for their critique and contributing information to the process.

# 10. Way Forward and Recommendations

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Ms Busetti shared the following thoughts at the close of the round-table discussion:

- We need to take a leaf out of Vusi's book, as there are an enormous number of interventions that help SMMEs. And we need to align interventions.
- As a country, we are doing an enormous amount of good work, but we need to do more and look for enterprise development business, as handing someone a hand-out is different to giving someone a job or an opportunity.
- We need to consider transformation with entrepreneurs. Programmes should address transformation and inequality and this industry should solve local problems.
- Our entrepreneurs, investors, science councils and universities see that what is coming out is amazing, but we need to commercialise.

She requested attendees to rate the workshop and to approach NACI with issues that weren't raised, as the workshop was only the start of NACI looking at entrepreneurs and innovation, which was a long-term initiative.

Finally, she thanked all attendees for joining the session, indicating that NACI was most appreciative of the time given. She closed by saying that we need to support entrepreneurs and start-ups and that the input was valuable and additional input could be forwarded, and that more qualitative research would be done.

# ANNEXURE A

## AGENDA



**science & technology**  
Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA



**NACi**  
NATIONAL ADVISORY COUNCIL ON INNOVATION

**NACi Round-Table Discussion**  
**Technological Innovation and Entrepreneurship in South Africa**  
**06 October 2015, 08:30 – 13:10; Premier Hotel, Pretoria**

**Programme**  
**Chair: Ms Claire Buseti**

08:30 – 09:00	Registration
09:00 – 09:10	Welcome Dr Mlungisi Cole, NACi Head
09:10 – 09:30	Overview: NACi Innovation and Entrepreneurship Focus Area Ms Claire Buseti, NACi Councilor
09:30 – 10:00	Gaps in Technology-Based SMEs and Start-Ups Ecosystem Ms Els Romanowska, Wits Enterprise
10:00 – 10:30	Questions and Comments
10:30 – 11:00	Tea / Coffee
11:00 – 11:30	Challenges Experienced by Technology - enabled Emerging Companies in South Africa as Reviewed by PwC and Silicon Cape Ms Alexandra Fraser, Baxstone
11:30 – 12:00	Science, Engineering and Technology Programme - Socio Economic Impact Indicators Mr Vusi Shosana, TIA
12:00 – 12:30	International Best Practice in Terms of Venture Capital Industry Support Ms Els Romanowska, Wits Enterprise
12:30 – 13:00	Questions and Comments
13:00 – 13:10	Way Forward and Recommendations Ms Claire Buseti, NACi Councilor
13:10	Lunch

## ANNEXURE B

# ACRONYMS

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<b>DST</b>	Department of Science & Technology
<b>DTI</b>	Department of Trade and Industry
<b>GDP</b>	Gross Domestic Product
<b>HDI</b>	Historically Disadvantaged Individual
<b>HTS</b>	Hybrid Tracking Systems
<b>IP</b>	Intellectual Property
<b>IT</b>	Information Technology
<b>i.t.o.</b>	in terms of
<b>M&amp;E</b>	Measurement and Evaluation
<b>NACI</b>	National Advisory Council on Innovation
<b>NAMC</b>	National Agricultural Marketing Council
<b>NDA</b>	National Development Agency
<b>NDP</b>	National Development Plan
<b>NGP</b>	New Growth Plan
<b>NSI</b>	National System of Innovation
<b>PDI</b>	Previously Disadvantaged Individual
<b>Q/C</b>	Question/ Comment
<b>R&amp;D</b>	Research and Development
<b>SA</b>	South Africa
<b>S&amp;T</b>	Science and Technology
<b>SCM</b>	Supply Chain Management
<b>SMME</b>	Small, Medium and Micro Enterprises
<b>STI</b>	Science, Technology and Innovation
<b>TIA</b>	Technology Innovation Agency
<b>TISN</b>	Technology Innovation Station Network
<b>TS</b>	Tech Station
<b>VC</b>	venture capital

## ANNEXURE C

## ATTENDANCE LIST

INSTITUTION	NUMBER OF DELEGATES
Agricultural Research Council (ARC)	1
BatStone	1
Bluecollar Occupational Health	1
Business Unity South Africa (BUSA)	2
Cape Peninsula University of Technology (CPUT)	1
Central University of Technology (CUT)	1
Centre for Public Service Innovation (CPSI)	1
Centre for Science, Technology and Innovation Indicators (CESTII)	1
Council for Scientific and Industrial Research (CSIR)	5
Democratic Alliance (DA)	1
Department of Correctional Services	1
Department of Economic Development, Tourism and Environmental Affairs (EDTEA)	1
Department of Economy and Enterprise Development	4
Department of Higher Education and Training (DHET)	1
Department of Home Affairs (DHA)	1
Department of Science and Technology (DST)	24
Department of Social Development (DSD)	2
Econometrix	1
Embassy of Italy	1
Embassy of Switzerland	1
German Embassy	1
Hlanganani Laundry (Pty )Ltd	1
Human Sciences Research Council (HSRC)	2
Industrial Development Cooperation (IDC)	2
Lepharo Incubation Centre	3
Medu Gutters & Installations (Pty) Ltd	1

INSTITUTION	NUMBER OF DELEGATES
Mobile agri-skills incubator	1
NACI Secretariat	9
National Empowerment Fund	1
National Intellectual Property Management Office (NIPMO)	2
National Research Foundation (NRF)	2
North West University (NWU)	1
Office of the Premier: Limpopo Province	1
Sanari Capital	1
Sasol Group Technology (SASOL)	1
Sengkhona Training and Development	1
SiMODiSA	2
Small Enterprise Development Agency (SEDA)	1
South African Bureau of Standards (SABS)	1
South African National Space Agency (SANSA)	1
South African Nuclear Energy Corporation SOC Limited (NECSA)	1
Stellenbosch University (SUN)	1
Technology Innovation Agency (TIA)	3
The Innovation Hub Management Company (TIH)	1
Tshwane University of Technology (TUT)	3
University of Pretoria (UP)	1
University of Venda (UNIVEN)	1
University of Witwatersrand (WITS)	2
University of Zululand (UNIZULU)	2
Water Research Council (WRC)	2
Western Cape Economic Development Partnership (WCEDP)	1
<b>Total</b>	<b>105</b>

Physical Address  
Suite L2, Enterprise Building  
Mark Shuttleworth Street  
The Innovation Hub  
Pretoria  
0087

Postal address  
The NACI Secretariat  
Private Bag X894  
Pretoria  
0001

Tel: 012 844 0925

[www.naci.org.za](http://www.naci.org.za)