

Annual Performance *Report*

2021-2022



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA



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A futuristic robot with a black and white body is shown in profile, looking towards a glowing digital interface. The interface features a large white outline of the letter 'A' and is filled with various icons representing technology, business, and communication. The background is a vibrant blue with a network of glowing lines and a bright light source at the top right.

Dart

**General
Information**

GENERAL INFORMATION

Physical address: Suite L2, Enterprise Building
Mark Shuttleworth Street
The Innovation Hub
Lynnwood
Pretoria
0087

Postal address: Private Bag X894
Pretoria
0001

Telephone number: 012 844 0925

Fax number: 086 681 6144

Email address: naci@dst.gov.za

Website: www.naci.org.za

2. LIST OF ABBREVIATIONS

4IR	Fourth Industrial Revolution
AI	artificial intelligence
APP	Annual Performance Plan
ARC	Agricultural Research Council
AU	African Union
BRICS	Brazil, Russia, India, China and South Africa
CHE	Council on Higher Education
CSIR	Council for Scientific and Industrial Research
CSTP	Committee for Scientific and Technological Policy
CUT	Central University of Technology
DAAD	German Academic Exchange Service
DHET	Department of Higher Education and Training
DSI	Department of Science and Innovation
DSBD	Department of Small Business Development
DTIC	Department of Trade, Industry and Competition
DTPS	Department of Telecommunications and Postal Services
EU	European Union
FCS	Food Consulting Services
GERD	gross expenditure on research and development
MTT	Ministerial Task Team
NACI	National Advisory Council on Innovation
NDP	National Development Plan
NRF	National Research Foundation
NSI	national system of innovation
NSTIIP	National STI Information Portal
OECD	Organisation for Economic Cooperation and Development
S&T	science and technology
SAASTA	South African Agency for Science and Technology
SALT	South African Large Telescope
SDGs	Sustainable Development Goals
SME	small and medium-sized enterprises
STEM	science, technology, engineering and mathematics
STI	science, technology and innovation
TENET	Tertiary Education and Research Network of South Africa
TIP	OECD Working Party on Innovation and Technology Policy
TVET	Technical and vocational education and training
UJ	University of Johannesburg
UNESCO	United Nations Educational, Scientific and Cultural Organization
UP	University of Pretoria
WEF	World Economic Forum

3. FOREWORD BY THE CHAIRPERSON



Dr Shadrack Moephuli
Chairperson

On behalf of the National Advisory Council on Innovation (NACI), I am delighted to present NACI's 2021/22 Annual Report. This is the third report in the term of the current Council, which began in the third quarter of 2018/19.

During the year under review, NACI continued to build on its previous efforts to strengthen planning, monitoring, and evaluation capability in the national system of innovation (NSI). The Council and Secretariat also responded to requests made by the Minister of Higher Education, Science and Innovation, and continued to advance the quality, relevance and efficacy of its advice to the Minister and, through the Minister, the Cabinet.

The Council works to ensure that NACI influences industry-wide consideration of the foundations of science, technology and innovation (STI) (disciplines or knowledge domains, infrastructure and human resources) and the role of STI in addressing the socio-economic challenges of education, health, food security and global change. For instance, NACI developed advice on auditing the state of the bioeconomy.

NACI has been performing extensive work to facilitate international and local networking and partnerships, and to ensure knowledge sharing and skills transfer, thereby deepening the understanding of the latest global STI policy trends. NACI has also participated in international forums and contributed to knowledge sharing.

Acknowledging the significance of all stakeholders in the NSI, NACI continues to serve the nation. This report will provide information on the way in which the NSI and ordinary citizens benefited from the work undertaken by NACI in the 2021/22 financial year.

We also reflect on NACI's performance during the second year of the Covid-19 pandemic, and the way in which the pandemic showed the national system of innovation's capacity for providing solutions for the benefit of society and the economy. This demonstrates the need for more concerted coordination, including the provision of the resources required to enable greater impact, particularly during national or regional crises.

I would like to extend a special note of appreciation to the Acting CEO, Dr Mlungisi Cele, and the Secretariat team for their dedication and hard work.

The Council acknowledges with gratitude the unwavering support afforded to NACI by the Minister of Higher Education, Science and Innovation, Dr Blade Nzimande, and the Director General of Science and Innovation, Dr Phil Mjwara.

A handwritten signature in black ink, appearing to read 'Shadrack Moephuli', written over a horizontal line.

Dr Shadrack Moephuli

Chairperson

National Advisory Council on Innovation

31 July 2022

4. STATEMENT OF RESPONSIBILITY FOR AND CONFIRMATION OF ACCURACY OF THE ANNUAL REPORT

We confirm that, to the best of our knowledge and belief –

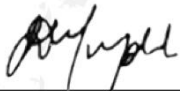
- all information and amounts disclosed in the annual report are consistent with the annual financial performance;
- the annual report is complete, accurate and free from any omissions;
- the annual report fairly reflects the operations, performance information, human resources information and the financial affairs of the National Advisory Council on Innovation for the financial year ending 31 March 2022.



Acting Chief Executive Officer

Dr Mlungisi Cele

31 July 2022



Chairperson of the Council

Dr Shadrack Moephuli

31 July 2022

5. STRATEGIC OVERVIEW

Vision

A leading advisory body for government on science, technology and innovation within a well-coordinated, responsive and functioning national system of innovation.

Mission

To provide evidence-based advice to the Minister of Higher Education, Science and Innovation and, through the Minister, the Cabinet, on science, technology and innovation matters, through research expertise and engagement with stakeholders.

Values

- Professionalism.
- Integrity.
- Innovation and knowledge sharing.
- Transparency and accountability.

6. LEGISLATIVE AND OTHER MANDATES

The National Advisory Council on Innovation Act, 1997 (Act No. 55 of 1997), provides the mandate for NACI. The Act mandates NACI to advise the minister responsible for science and technology and, through the minister, the Cabinet, on the role and contribution of science, mathematics, innovation and technology, including indigenous technologies, in promoting and achieving national objectives, namely, to improve and sustain the quality of life of all South Africans, develop human resources for science and technology, build the economy, and strengthen the country's competitiveness in the international arena.

7. ORGANISATIONAL STRUCTURE





The background of the image is a collage of business-related elements. It includes a large, semi-transparent white letter 'B' that serves as a central graphic. To the left of the 'B' is a sleek, black and white humanoid robot with a helmet-like head, standing and looking towards the right. The background also features a blurred image of a person's hands working on a laptop, a glass of water, and various business charts and graphs. The overall color scheme is dominated by blue, yellow, and white, with the robot adding a high-tech, futuristic touch.

Part

**Performance
Information**

1. OVERVIEW OF OUTGOING COUNCIL'S PERFORMANCE

The Council's tenure was shaped by a combination of external and internal forces and drivers affecting the National System of Innovation (NSI). The Covid-19 pandemic has been catastrophic, contributing to deepening social, economic and environmental crises. At the same time, public awareness and appreciation of the role of STI has grown. The NSI still has to analyse the long-term effects of Covid-19 and develop measures to mitigate future pandemics.

The NSI has been undergoing policy review and renewal. NACI has played a critical role in this regard, conducting reviews of major policies and a foresight exercise to inform the new White Paper on STI and the STI decadal plan.

The Council contributed to monitoring and evaluating the performance of the NSI, publishing the STI Indicators Report annually. The launch of this flagship report has become a constant feature in the calendar of NSI actors.

The STI Indicators Report serves various purposes for various stakeholders. NACI has not yet conducted a study to examine its utilisation, but there are indications that policymakers use it to inform policy and improve performance. Researchers and students use it for research and study purposes, and international partners use it to improve their knowledge and understanding of the NSI as well as to strengthen bilateral engagements. The section below provides a summary of the Council's contribution and interventions.

Advice

The Council produced advice at the behest of the Minister or proactively, for example, on the establishment and implementation of the sovereign innovation fund, and the renewal and repositioning of NACI. NACI also produced a high-level framework for the development of the STI decadal plan, the South African Foresight Exercise for STI 2030, a report on the regional renewable energy agenda, an audit of the Bioeconomy Strategy, and Facing the Facts 2019: Women's participation in science, engineering and technology.

The South African Foresight Exercise for STI (SAForSTI) 2030 sought to investigate the future of STI in South Africa, and the potential of STI to address ongoing societal challenges (including unemployment, poverty, inequality, health and education), as well as to support the creation of inclusive and sustainable socio-economic development. Systemic societal challenges require long-term planning and a broad, holistic approach. At an international level, these challenges have been articulated as the Sustainable Development Goals (SDGs) in the United Nations 2030 Agenda for Sustainable Development. The SDGs need to be addressed in an integrated fashion, and the emphasis should therefore be on interlinkages, collective actions, policy coordination, and collaborations between different nations and institutions.

The SAForSTI emphasised that, before a sustainable and just economy could even be discussed, a broader understanding of both inequality (and its economic, gender, spatial and class dimensions, among others) and sustainability was required. Knowledge is vital for the transformation of society to something more equitable and sustainable. Knowledge is needed to inform policy, which will require bringing together different areas of STI, with all their economic, environmental and social dimensions, to create new growth for South Africa.

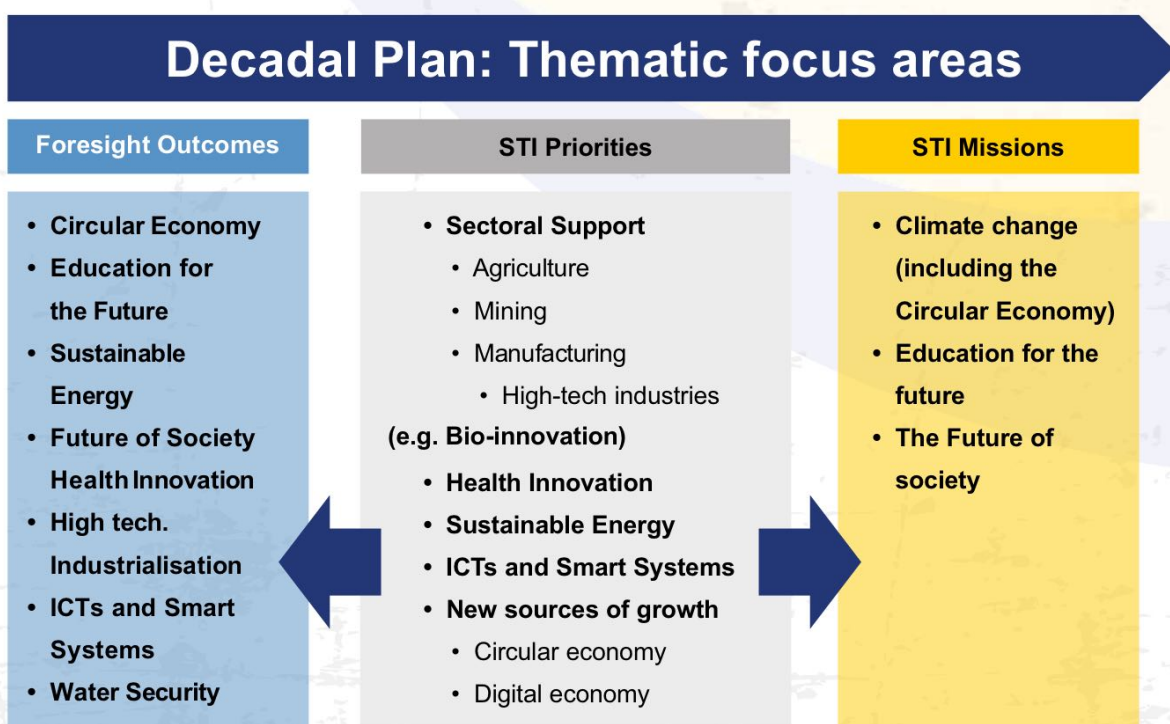
To maximise the value of the outputs of SAForSTI for the decadal plan, the study focused on uncovering STI with the potential to contribute to achieving the vision of the NDP. While existing capabilities and capacities can produce new impact, new thinking is typically involved, and there was an emphasis on the possibility of new impact being delivered by STI areas that are new to South Africa. The following were borne in mind when the areas of STI on which to focus the foresight process were identified and analysed:

- Areas of STI that are currently robust and working effectively, and in which no significant change is anticipated.
- Areas of STI that appear to have high growth potential.
- Areas of STI that are relatively new in the context of the South African national system of innovation.

In the end, SAForSTI identified the following nine STI domains (with their associated priorities or thrusts):

- The circular economy.
- Education for the future.
- Sustainable energy.
- The future of society.
- Health innovation.
- High-tech industrialisation.
- ICTs and smart systems.
- Nutrition security.
- Water security.

The Council was encouraged by the uptake of its advice, for example, its framework and the foresight study in the development of the decadal plan for STI and the identification of its STI priorities (see Fig 1).



Monitoring and evaluation

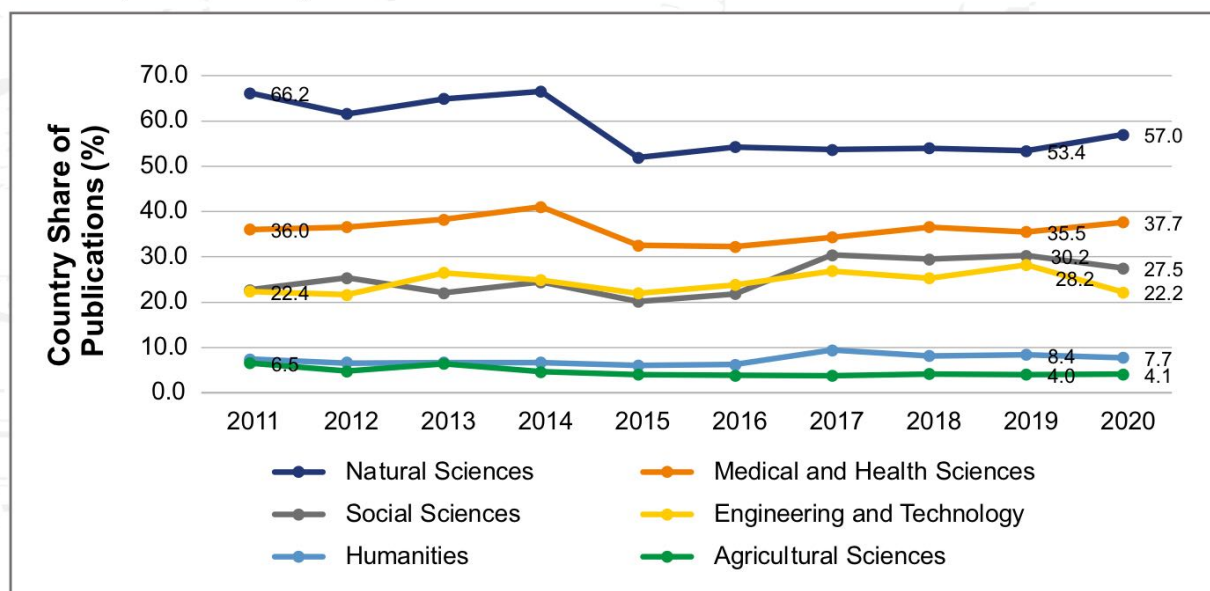
2020 South African Science, Technology and Innovation Indicators Report

The White Paper advocates the use of STI to address societal challenges and contribute to the creation of an inclusive and sustainable economy. It seeks to strengthen the monitoring and evaluation capability of the NSI. The STI Indicators Report is part of NACI's contribution to building the monitoring, evaluation and learning capability necessary for assessing the state of the NSI.

At a system level, the indicators suggest areas of strength and areas of weaknesses. Some of these are set out below.

- Research output measured in terms of publications has been increasing steadily. South Africa has increased its global share of publications and citations. However, recent data suggest that this increase is slowing down.

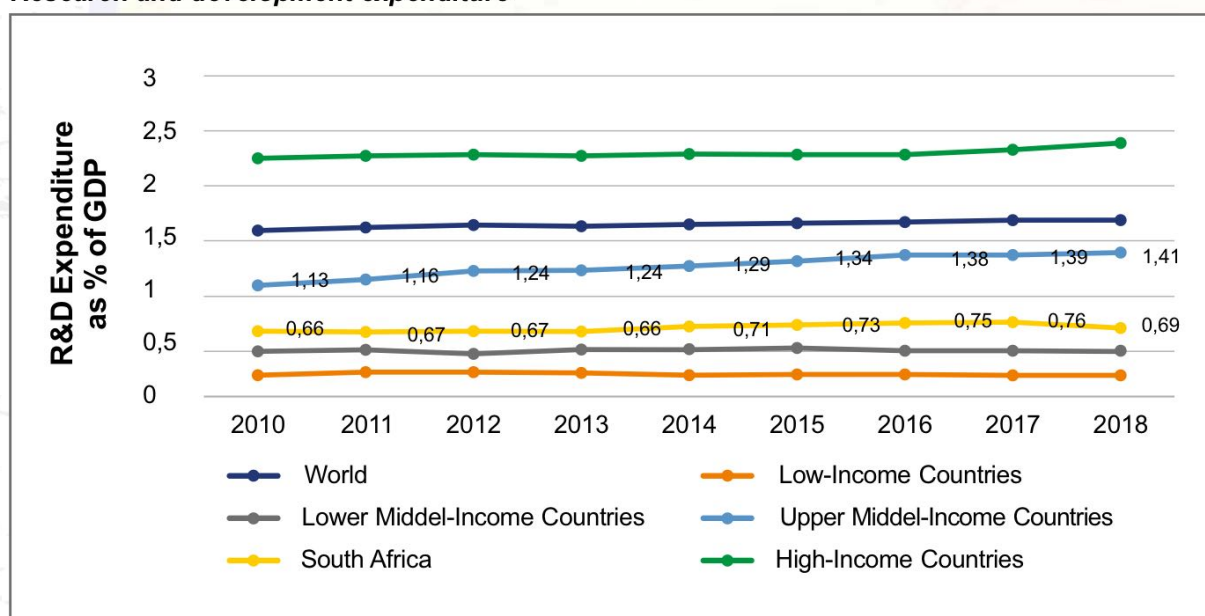
Share of publications by scientific field



Source: Web of Science Core Collection

- Several indicators suggest that the system is not working as well as it could. South Africa's share of patents at the United States Patent and Trademark Office has declined significantly. South Africa has also not performed well in terms of composite indices such as the Global Innovation Index.
- Several indicators suggest that the system is not very efficient. Despite the best efforts of policymakers, technology and innovation outputs have stagnated or risen only very slowly. This creates an urgent need to ensure that policies and resources are rendered more effective in respect of technology and innovation. There is considerable scope for efficiency gains within the existing resource constraints.
- Investment in research and development (R&D) remains inadequate.

Research and development expenditure



Source: UNESCO Institute for Statistics; OECD Main S&T Indicators; 2019/20 National Survey on Research and Experimental Development Report

Review of the National Research and Development Strategy and Ten-Year Innovation Plan

The review was a retrospective assessment of the 2002 National Research and Development Strategy and Ten-Year Innovation Plan (2008-2018), which were the instruments used to implement the 1996 White Paper on Science and Technology's broad vision and framework of STI activities. This was the first major review of the two policy instruments since their inception and was intended to identify, map and reflect on all related activities or policy initiatives (in and outside the DSI) to develop a better understanding of the progress or lack of progress in implementing the two policy instruments. To ensure that review results could find immediate application in the development of the new decadal plan for STI, the emphasis was on indicating what had worked and what had not, recommending actions to address current policy gaps, and informing the development of future strategies or plans.

Development of monitoring and evaluation framework for the NSI

The 2019 White Paper on STI advocates strengthening monitoring and evaluation (M&E) capability in the NSI to bolster policy performance, assigning NACI the task of developing an M&E framework to address, among other things, inadequate mechanisms for policy learning. One concern addressed by the M&E framework is the need for enhanced learning processes. A workable and effective framework requires a sound and comprehensible theoretical foundation, a transparent and relevant analytical model, appropriate information sources and contextualised performance indicators. The NSI M&E framework incorporates the views and interests of all major stakeholders and actors in the STI system, and both public sector and private sector perspectives were taken into account.

The NSI M&E framework deals with the overarching systems level (not sector, programme or any other lower level). Developing a systems-level M&E framework was challenging. The proposed multi-perspective framework built on decades of M&E traditions and best practices in South Africa and elsewhere has five core components, namely, (a) an adaptation of the national system of innovation, (b) theory-based evaluation derived from a theory of change approach and an associated logic model, (c) an integrated set of domain-specific evaluation questions and system-level evaluation questions, (d) the application of a wide range of quantitative performance indicators, and (e) introducing M&E information platforms, such as an STI scoreboard with an STI index, to track and measure the general performance of the entire system and how it moves forward.

The M&E framework makes a clear distinction between monitoring objectives and evaluation goals. In respect of monitoring, the framework presents the criteria for systems-level performance indicators and a variety of possible candidates, ranging from background or context indicators to high-priority key performance indicators. NACI took cues from the European Innovation Scoreboard as a particularly interesting indicator-based model for designing such an analytical tool for South Africa. Such a tool should distinguish between two important complementary functional approaches to assessing the general health of the South African STI system, namely, international and domestic benchmarking. An analysis of the currently available indicators, and how they map onto the structure of the STI model, offers many options for applications in M&E settings but also reveals important information gaps and missing indicators that need to be developed.

In respect of evaluation, the framework applies the theory-based evaluation approach and focuses on systems-level evaluation questions related to previous, current or proposed STI policies and interventions. The STI policy intents and ambitions in the White Paper on STI were used as input, as were relevant systems-level issues in South African STI domains, and international and global trends in STI. The framework's tailor-made approach puts a strong emphasis on connections between actors and processes in the system, both national and international.

The STI data and information portal

The National STI Information Portal (NSTIIP) is intended to be a central repository of all key STI data and information. NSTIIP highlights include the following:

- The successful hosting of a two-day hackathon that brought together diverse multidisciplinary teams of coders, data scientists, programmers, innovation policymakers, researchers and students. The teams drew on one another's expertise to solve challenges experienced with NSTIIP. The solutions contributed to efforts to upscale the NSTIIP, by improving the statistics section and implementing the new planned modules.
- The Council appointed a service provider to upscale the portal by solving challenges experienced in the first version and developing additional capabilities.
- NACI continues to engage different universities to establish collaboration around a directory of experts.

Review of Sector Innovation Fund

A review of the Sector Innovation Fund Programme was carried out. The study was a design and implementation evaluation of the programme, addressing issues related to the programme's theory of change, relevance and evidence of early impact. An international benchmark analysis of the programme was also conducted. The evaluation was conducted through a combination of document analysis, an online quantitative survey and qualitative interviews. The report presented findings, lessons learnt and key recommendations.

2. OVERVIEW OF 2021/22 PERFORMANCE

This section covers NACI's activities, performance and outputs for the 2021/22 financial year.

NACI achieved most of its objectives for the 2021/22 financial year at the end of March 2022. Among others, it continued to monitor the performance of the National System of Innovation (NSI) resulting in the draft Science Technology and Innovation (STI), the Bioeconomy Audit, energy storage, and the Facing the Fact 2019: Women's participation in science, engineering and technology (SET) reports. NACI developed a discussion document on the renewal of NACI and an STI Integrated Regional Agenda on Renewable Energy. It also produced and tabled the 2022/23 Annual Performance Plan (APP).

Renewal and repositioning of NACI

The Council reflected on the implications of the 2019 White Paper on STI and the Higher Education, Science, Technology and Innovation Institutional Landscape Review Report for NACI. It then developed a discussion document with concrete proposals on how to renew and reposition NACI. The proposals could contribute toward legislative amendments that may be required.

Integrated regional agenda on renewable energy

The report provides an assessment of the renewable energy landscape across the region to identify opportunities for regional integration, as well as a review and critique of the current renewable energy programme at the DSI. Several development thrusts were suggested for a South African-led regional research, innovation, and technology development initiative, focusing on energy, nutrition security, health, and enabling technologies.

It is believed that DSI has the capacity to develop national strategies and policies for rapid technological change. This includes taking stock of and leading regional, international and multi-stakeholder cooperation – on energy innovation and other development themes.

The report proposes that a pan-African STI agenda be adopted and implemented through a concerted approach, focusing on selected Sustainable Development Goals for regional integration. This is a compelling case for harnessing enabling cross-cutting frontier technologies for accelerated development and growth is presented. The strategy involves a prioritisation of selected thrusts to fast-track regional engagement development: harnessing enabling technologies, developing for greater energy access and efficiency, improving nutrition security and agricultural development, confronting disease, and improving health.

The emphasises is for rapid, leap-frogging adoption and integration of existing technologies in the short and medium term, accompanied by human capacity development and technology transfer strategies to develop endogenous capabilities in the longer term. The regional innovation strategy for sustainable development will be characterised by the transformative potential of rapid technological change and the strengthening of national innovation systems, across the region.

Women's participation in science, engineering and technology

This report forms part of the NACI's transformation initiative. It analyses the extent to which women have benefited from investments in SET. The Report uses a loose framework informed by a set of indicators that formed the basis of the 2004 and 2009 Facing the Fact reports. It highlights progress and lack of progress in different areas. Women's participation in SET degrees' enrolment

has increased by 45%, from 106 941 in 2009 to 154 631 in 2019. Women are no longer making up the majority of students enrolling for SET degrees, as was the case in 2009, but between 2016 and 2019, women made up the majority of graduates. In enrolment and graduation, African women are in the majority throughout the reporting years. The report also shows that the NSI is on track to meet some National Development Plan (NDP) STI targets. While the NSI is making progress towards achieving gender equality, the pace is too slow and the transformation process needs to be accelerated.

Impact of imported technologies in South Africa

Policy research on the impacts of imported technologies was necessary for two reasons, namely, South Africa's failure to harness the untapped potential of innovation that could create jobs and reduce poverty, and the belief held by South African government officials that importing foreign technologies is bad because it is expensive and might lead to dependency. Therefore, the purpose of the research was to assess the impacts of foreign technologies (capital goods and intermediate products) on manufacturing firm outcomes, such as output, employment, export performance, corporate tax revenue, and total factor productivity. The data used came from (i) company income tax from registered firms that submit tax forms; (ii) employee income tax certificates submitted by employers, and (iii) detailed product-level customs transaction data on firm exports and imports.

According to the research findings, South Africa experienced a decline in the high-technology content of its imports as well as its gross domestic product (GDP), partly due to the strong demand for imports of consumer goods. The country's economic growth and growth in the value of high-technology imports also lagged behind its emerging market peers. At the same time, the findings show that high-technology imports have a positive influence on firm productivity, employment, corporate tax revenue, and export performance, as well as on economic growth.

Energy storage

South Africa has an opportunity to deploy energy storage technology to contribute meaningfully to a more resilient, stable and sustainable electricity system. The country's potential to successfully integrate energy storage was specifically noted by the International Finance Corporation/Environmental and Social Management Plan study focused on emerging markets. It is critical to find the best approach to how the South African government should enable the development and growth of a utility-scale integrated energy storage market in the country, given its available policy levers and best practices globally. This question, as well as the need to understand the priorities to inform the investment to be made by the country, were the key research questions pursued throughout this study.

The study confirmed energy storage to be an emerging technology that is fast becoming a cornerstone of the modern power system. It offers unprecedented versatility and agility across the electricity value chain. Investigation into the various market segments along the electricity value chain revealed that South Africa should prioritise the development of those segments that are driven by the private sector. These include developing and growing the market for stationary energy storage applications at the bulk generation level through independent power producers at the distribution level through third party ownership and service procurement based on the energy services company model, and small and large front of the meter/behind the meter controlled customer-sited solutions. While the development of other market segments has to remain on the agenda, it is advised that, given the limited financial and non-financial resources that government possesses, their active developments are pursued after the market for private sector participation is unlocked.

The international experience pointed to a variety of measures introduced by various countries using policy, regulation, procurement, incentives, and tariff levers to harness the full opportunities brought by stationary energy storage systems. The same levers have been identified as available to the South African government; however, analysis of the preparedness of these environments to unlock various market segments along the country's electricity value chain revealed numerous gaps. Most of the gaps are found in the regulatory framework, followed by the policy environment and tariff regimes.

Among the most pertinent changes identified as required to unlock the stationary energy storage system market in the country is the need to review the legislative environment. The review of the ERA currently under way provides an opportunity for a definition of energy storage to be included as a distinct function,

laying the groundwork for the later development of a comprehensive regulatory framework. Unlocking market segments, however, will require a holistic approach with complementary incentives, tariffs, and procurement frameworks. The coherence and alignment of these frameworks can only be assured through a clearly defined vision for stationary energy storage systems. While the proposed amendments to the legislative framework aim to address the ambiguity of the market rules, concurrent amendments of policies, including the White Paper on Energy Policy, and energy plans at all stages of the electricity value chain would facilitate a streamlined design and application of other frameworks.

2021 South African STI Indicators Report

NACI produces an annual South African STI Indicators Report as part of its monitoring of the NSI and implementation of the STI policy mix. The report is based on a loose framework drawn from the South African Innovation Scorecard. The 2021 report considered the global and local contexts characterised by the Covid-19 pandemic, deepening economic, ecological, and social reproduction crises. Covid-19 has created opportunities and challenges for the NSI. NSI actors experienced budget cuts. However, they managed to work collaboratively to achieve desired outputs such as the modelling and identification of variants and the production of ventilators. Covid-19-related scientific publications increased from 400 in 2020 to almost 700 in 2021. There has also been increasing recognition of the role and influence of STI on policy making, and on inclusive and sustainable socio-economic development. In the future, a deeper analysis of the impact of Covid-19 on the NSI will be critical.

Macroeconomic challenges are affecting the NSI. Investment in research and development (R&D) as a percentage of growth domestic product (GERD) has declined to 0,62%, which is worrying trend regarding the 2030 target of 1,5%. There was a significant decline in the share of the business sector in gross expenditure on R&D (GERD) in 2019/20. The share was 31% – less than a third of GERD – when the business sector should ideally account for more than half of GERD.

Medium high and high technology manufacturing (MHT) output decreased by almost 20% in 2020. Manufacturing exports declined by 10% and the percentage decline in MHT exports was more than 12,7%. While the total number of exporters increased marginally in 2020, the number of export transactions fell by 9% and the number of products exported declined by almost 2%. Unemployment in South Africa is a problem that cuts across sectors. Formal employment in the manufacturing sector declined by 7% in 2020 and there was a similar decline in MHT employment. The social composition of researchers is changing. The proportion of female academic staff at South African public universities increased from 46,40% in 2010 to 50,44% in 2019. The academic staff consisted of 45% African, 40% white, 8% Indian, and 6% coloureds. There was also an increase in the number of female professors, from 22,05% in 2010 to 30,8% in 2019. The majority remain white female professors. There has been a slight increase of African female professors from 1,51% in 2010 to 4,19% in 2019. Support through initiatives such as the NRF's Black Academics Advancement Programme and DHET's Future Professors Programme could be a reason for this.

Investment in research and development is an important input and contributes to provincial economic development. The data shows that between 2015/6 and 2019/20 financial years, Gauteng enjoyed the highest R&D expenditure, followed by the Western Cape and KwaZulu-Natal. The provinces with the highest R&D expenditure have high numbers of leading public research institutions (PRIs) and universities, high-technology industrial activities, and/or knowledge-based services, which attract new start-ups and highly qualified personnel.

The number of scientific publications grow in South Africa continues to increase, although the growth slowed in 2020. The fields that experienced a decline in the number of publications in 2020 are social sciences, engineering and technology, and the humanities. This was the first time since 2013 that publication numbers decreased for social sciences. Most of the gain in the number of publications over the last year occurred in natural sciences (10,0%) and medical and health sciences (9,4%). The share of social science publications decreased from 30,2% in 2019 to 27,5% in 2020, and the share of engineering and technology publications decreased from 28,2% in 2019 to 22,2% in 2020.

Audit of the Bioeconomy Strategy

In 2014, the South African government launched the National Bioeconomy Strategy, with the aim of enabling the bioeconomy to make a significant contribution to South Africa's GDP by 2050. NACI proposed indicators to use for measuring, evaluating, and monitoring the South African bioeconomy. These indicators assess the impact of the bioeconomy on the whole economy and its contribution to innovation within the economy. During the 2021/22 financial year, NACI used these indicators to assess the progress that has been made since the strategy was launched. To understand how the Bioeconomy Strategy implementation has affected investment behaviour within the sector, NACI decided to obtain data for the years 2008 to 2019. The average for the years 2013 to 2015 was used as the baseline to mitigate against any possible year-by-year fluctuations.

With very few exceptions, all of the data that are required to evaluate the impact of the Bioeconomy Strategy on the economy as a whole and on the areas in which the DSI has a direct influence, are available. The NACI analysis showed that the South African bioeconomy sector was 8,2% of GDP in 2008. During 2013-2015, the situation remained almost the same, with the bioeconomy sector representing 8,0% of GDP. In 2020, the bioeconomy's growth remained flat at 8,3% of the total GDP. Agriculture, forestry and fishing is the biggest sector with a 67% share of all employees in the bioeconomy, followed by food, beverages and tobacco at 19%. However, the food, beverages and tobacco sector contributes 36% of the bioeconomy sector GDP, while agriculture, forestry and fishing contributes 34%. This is because food, beverages, and tobacco is more capital intensive, involving mostly manufacturing, while agriculture, forestry, and fishing are more labour intensive.

In respect of innovation indicators, the analysis revealed that the R&D expenditure in fields related to the bioeconomy increased between 2008/09 and 2015/16, then decreased between 2016/17 and 2017/18. The number of firms that list R&D expenditure allocated to biotechnology (which was treated as a proxy for the bioeconomy) as more than 50% of their total increased in the period 2008/09-2012/13. However, there was a significant decline in 2013/14 despite some subsequent growth. The number of firms in the bioeconomy has remained constrained within the period of analysis.

The number of R&D personnel in headcounts and full-time equivalents for firms that allocate more than 50% of their expenditure for biotechnology from 2008/09 to 2017/18 also remained a constraint for a country of South Africa's ambitions. There was a decline in both the personnel headcounts and full-time equivalents in 2013/14, but an increase between 2014/15 and 2017/18. The number of biotechnology publications since the adoption of the Bioeconomy Strategy has increased steadily. However, the total number of South Africa's biotechnology-related patents granted by the United States Patent and Trademark Office and the European Patent Office decreased between 2008 and 2019.

3. STRATEGIC OBJECTIVES, PERFORMANCE INDICATORS, PLANNED TARGETS AND ACTUAL ACHIEVEMENTS

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 1: To learn from previous experience to improve efficacy and ensure evidence-based, informed, confidential, and timely policy advice to the Minister of Higher Education, Science, and Innovation and, through the Minister, to Cabinet						
To provide evidence-based advice on science, technology, and innovation matters to the Minister of Higher Education, Science and Innovation and, through the Minister, to Cabinet, on request or on NACI's initiative	Number of STI advice documents submitted to the Minister of Higher Education, Science, and Innovation	<p>Three STI advice documents were submitted to the Minister of Higher Education, Science, and Innovation by 31 March 2021:</p> <ul style="list-style-type: none"> National Research and Development Strategy and Ten-Year Innovation Plan Review Report Sovereign Innovation Fund Water security 	<p>Three STI advice policy documents submitted to the Minister of Higher Education, Science, and Innovation by 31 March 2022</p>	<p>Four STI advice documents were finalised by 31 March 2022.</p> <p>Renewal and repositioning of NACI</p> <ul style="list-style-type: none"> Facing the Facts: Women participation in STEM An Integrated Regional Agenda on Renewable Energy Audit of the bioeconomy. 	<p>The submission process could not be completed before the 31 March 2022.</p>	<p>The Council required a special session to finalise its discussion on the audit of the Bioeconomy Strategy. This session could not be held before the 31 March 2022.</p> <p>The submission of the remaining advice documents to the Minister will be made in the first quarter the of 2022/23 financial year.</p>

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 1: To learn from previous experience to improve efficacy and ensure evidence-based, informed, confidential, and timely policy advice to the Minister of Higher Education, Science, and Innovation and, through the Minister, to Cabinet						
				The renewal and repositioning of NACI document was submitted to the Minister by 31 March 2022. The others were not.		
STRATEGIC OUTCOME-ORIENTED GOAL 2: To contribute to the building of NSI monitoring, evaluation and learning capability, in order to assess the health of the NSI and its contribution to sustainable and inclusive development						
To assess the performance of the NSI	Number of the state of STI reports produced	2021 South African STI Indicators Interim Report developed by 31 March 2021	STI Indicators Report produced by 31 March 2022	STI Indicators report produced by 31 March 2022.	n/a	n/a
	Number of NSI monitoring and evaluation (M&E) reports	An interim report was produced on the state of innovation in technical and vocational education and training (TVET) colleges. A draft report was produced on the audit of the Bioeconomy Strategy.	Two NSI M&E reports finalised by 31 March 2022	Five NSI M&E reports finalised by 31 March 2022: <ul style="list-style-type: none">• An STI Integrated Regional Agenda on Renewable Energy• Facing the Facts: Women's Participation in SET	n/a	n/a

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 2: To contribute to the building of NSI monitoring, evaluation and learning capability, in order to assess the health of the NSI and its contribution to sustainable and inclusive development						
		A draft report was produced on science, technology, engineering, and mathematics (STEM) research capacity by 31 March 2021		<ul style="list-style-type: none"> Audit of the SA Bioeconomy Sector Assessing the utility-scale energy storage: Policy Study Impacts of imported technologies in South Africa 		
STI central data and information portal	Successful operation of the National Science, Technology and Innovation Portal (NSTIIP)	The NSTIIP was maintained and implemented. Agreements were made with the University of the Free State and Rhodes University to share their expert databases for inclusion in the directory of experts section of the upgraded NSTIIP	Directory of experts and communities of Practice platforms/modules developed by March 2022	Directory of Experts: 3 universities (North West, Limpopo, Free State) provided lists of experts, and communities of practice modules have been developed	n/a	n/a

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 3: To contribute towards building a well-coordinated, effective and, responsive NSI						
To contribute towards improving NSI coordination and planning	A high-level framework for the new STI decadal plan to be submitted to the Minister of Higher Education, Science, and Innovation	<p>The Department requested a follow-up study on the South African Foresight Exercise for STI, and studies on selected domains were conducted and completed. The outcome of this study was intended to inform the development of the DSI's decadal plan on STI.</p> <p>A partnership discussion commenced with the Higher School of Economics in Russia. The next step will be to draft a memorandum of understanding.</p>	One sectoral/ provincial/ regional foresight exercise conducted in partnership with relevant stakeholders by 31 December 2022	No sectoral/ provincial/regional foresight exercise conducted by 31 March 2022	Foresight exercise was not conducted	Covid-19 pandemic restrictions impacted the implementation of the project

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 4: Transforming NACI into a smart, efficient, and learning organisation						
To ensure the efficient and effective provision of administrative, financial, technical, and professional corporate services, among others, to support the discharge of NACI's core mandate	Communication plan implemented	<p>The Secretariat is working with the DSI Chief Directorate: Science Communication to enhance the communication of NACI's activities.</p> <p>Current activities are regularly updated on the NACI website.</p> <p>Media interviews were conducted covering the STI Indicators Report.</p>	Communication plan was updated and implemented by 31 March 2022.	<p>The communication plan was implemented by 31 March 2022.</p> <p>The NACI website and portal were updated throughout the financial year to reflect the latest events and outputs.</p> <p>The Chairperson and Acting CEO conducted interviews on SAfm.</p>	n/a	n/a
	Internal corporate governance system implemented	Final draft of the 2021/22 Annual Performance Plan was submitted to the DSI by 30 January 2021.	<p>The corporate governance system implemented, (2021/22 APP, 2020/21 Annual Report) developed and approved by the Minister, and submitted to Parliament by 31 March 2022</p>	<p>The 2020/21 Annual Report was approved by Minister on 23 September 2021</p> <p>The 2022/23 APP was approved by the Minister and Parliament by 31 March 2022</p>	n/a	n/a

Strategic objective	Performance indicator	Actual achievement, 2020/21	Planned target, 2021/22	Actual achievement, 2021/22	Deviation from planned target to actual achievement, 2021/22	Comment on deviations
STRATEGIC OUTCOME-ORIENTED GOAL 4: Transforming NACI into a smart, efficient, and learning organisation						
	Knowledge management system implemented	The appointment of service providers was delayed.	Knowledge management system implemented by 31 March 2022	Meetings have been recorded and transmission for storage into Alfresco implemented. Knowledge management tools were developed with support from the service provider.	n/a	n/a

4. EVENTS AND STAKEHOLDER ENGAGEMENTS

Launch of the South African STI Indicators Report

On Friday, 26 August 2021, the NACI 2021 South African STI Indicators Report was launched at a webinar. The theme for the event was “Meeting the demands of society through science and innovation”. The event included a multi-stakeholder panel discussion on the role of innovation in responding to the Covid-19 pandemic. The programme also included a presentation of findings on the assessment of innovation at technical and vocational education and training colleges. Approximately 200 stakeholders in the national system of innovation attended the event.

Imbali Education and Innovation Precinct



The Imbali Education and Innovation Precinct initiative builds on a unique mix of educational institutions in a relatively confined geographic space in Imbali, Pietermaritzburg. The Minister requested for NACI to support work on the precinct, and a consultative workshop was held in partnership with the Durban University of Technology and the precinct project management team on 11 March 2022, along with a site visit of the precinct.





Virtual round-table discussions held by NACI

Event	Attendee	Date
Webinar on state of innovation in TVET	NACI and Stakeholders	20 July 2021
Webinar on the preliminary design for an in-depth study on mainstreaming innovative thinking in the South African government and Cabinet	NACI and Stakeholders	17 August 2021
Launch of the 2021 South African Science, Technology and Innovation Indicators Report	NACI and Stakeholders	26 August 2021
Webinar on an integrated regional innovation agenda	NACI and Stakeholders	28 September 2021
Workshop on a review of the progress and performance of the bioeconomy since 2014	NACI and Stakeholders	2 February 2022
Webinar on an econometric analysis of the impact of imported technology on South African firms' outcomes	NACI and Stakeholders	22 February 2022

Participation in international events

All the events below were attended virtually.

Event	Attendee	Date
3 rd Expert Group meeting on "Mobilising science in response to crises: Lessons learned from Covid-19"	Dr N Moleleki	1 April 2021
Committee for Scientific and Technological Policy (CSTP) Workshop on "Re-imagining the Future: The Role of Foresight and Anticipatory Governance in STI-led Transitions"	Dr M Cele	6 April 2021
118 th Session of the CSTP	Dr M Cele	7-9 April 2021
13 th Session of the Working Party on Biotechnology, Nanotechnology and Converging Technologies	Dr N Moleleki	6-7 May 2021
UNCTAD Technology Assessment in Africa, Geneva	Dr M Cele	20 May 2021
OECD-TIP R&D intensity project: "R&D policies for better post-pandemic futures: New approaches and tools"	Dr M Cele	20-21 May 2021
OECD STI Outlook 2021: Implications for South Africa science and innovation policy debates	Dr M Cele	28 May 2021
4 th Expert Group meeting on "Mobilising Science in response to crises: Lessons learned from Covid-19"	Dr N Moleleki	21 June 2021
Impact of Science Conference 2021	Dr M Cele	23-25 June 2021

Event	Attendee	Date
High-level dialogue on aligning the American and European climate transitions	Dr M Cele	13 July 2021
The pasts and futures of the African university	Ms Teti	26 July 2021
5 th Expert Group meeting on “Mobilising Science in response to crises: Lessons learned from Covid-19”	Dr N Moleleki	26 July 2021
High-Level Groups Africa-Europe Partnership Meeting	Dr M Cele	7 September 2021
OECD Global Science Forum-TIP workshop on science-industry interactions	Dr M Cele	16 September 2021
6 th Expert Group meeting on “Mobilising Science in response to crises: Lessons learned from Covid-19”	Dr N Moleleki	30 September 2021
CSTP research data workshop	Dr M Cele	19 October 2021
CSTP Policy Dialogue and CSTP plenary sessions	Dr M Cele	(20-22 October 2021)
National Consultation Workshop on Ukubuthwa/Mophato	Dr M Cele	20-22 October 2021
Inaugural meeting of Interministerial Committee on STI	Dr M Cele	25 November 2021
7 th Expert Group meeting on “Mobilising Science in response to crises: Lessons learned from Covid-19”	Dr N Moleleki	26 November 2021
12 th Session of the Working Party on Biotechnology, Nanotechnology and Converging Technologies	Dr N Moleleki	8 December 2021
8 th Expert Group meeting on “Mobilising Science in response to crises: Lessons learned from Covid-19”	Dr N Moleleki	28 January 2022
Advancing Energy Security: A conversation with Priscillah Mabelane, Sasol Executive Vice-President: Energy Business	Ms T Teti	27 January 2022
Facilitators Planning Meeting: National Consultation Workshop on Ukubuthwa/Mophato	Dr M Cele	1 February 2022
Africa Energy Indaba Conference “The Great Awakening for the African Energy Sector”	Ms N Maome	01-03 March 2022
9 th Expert Group meeting on “Mobilising Science in response to crises: Lessons learned from Covid-19”	Dr N Moleleki	31 March 2022

These events gave NACI the opportunity to share its experience and knowledge, and to learn about STI policy development, planning, and evaluation from a range of partners.



Part

G

Governance



1. THE NACI COUNCIL

In terms of the Science and Technology Laws Amendment Act, 2011, the NACI Council is required to meet at least once per quarter to ensure proper oversight over NACI's advisory work programme. To align with governance, the guidelines for NACI and its operations require the NACI Executive Committee to meet as often as is necessary to direct the programme of work and to deal with important and urgent matters.

The members of NACI, other than the CEO and an officer from the Department of Trade, Industry and Competition, are appointed in their personal capacity owing to their outstanding achievement in any field of science and technology, or special knowledge, experience and insight into the role and contribution of innovation in promoting and achieving national and provincial objectives.

2. COMPOSITION OF THE COUNCIL

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr S Moephuli	Interim Chairperson from July 2019 Chairperson from 3 Aug. 2021	Sept. 2018	–	PhD in Animal Genetics/Animal Science	Male, African	–	<ul style="list-style-type: none"> Nokukhanya and Albert Luthuli Peace and Development Institute – Board member Agricultural Research Council 	<ul style="list-style-type: none"> African Union-European (AU-EU) High Level Policy Dialogue for Food Nutrition Security & Sustainable Agriculture – Working Group member 	5
Dr M Cele	Acting CEO	Sept. 2018	–	PhD in Education Studies	Male, African	–	–	–	–
Ms C Buseti	Council member	Sept. 2018	–	BSc in Chemistry Master of Business Administration (MBA)	Female, White	–	<ul style="list-style-type: none"> Member of the NRF Board Member of SIMODISA Advisory Board Member of Spartan SME Finance (Pty) Ltd. Board Trustee of Debswana Pension Fund 	<ul style="list-style-type: none"> Member of CPUT Investment Committee 	4

Name	Designation in terms of Council structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr T Dlamini	Council member	Sept. 2018	–	<ul style="list-style-type: none"> Ph.D. Chemistry, Catalysis: WITS Master's in Business Leadership (MBL): University of South Africa (UNISA) 	Male, African	<ul style="list-style-type: none"> Materials science Technology and innovation management Strategic management 	<ul style="list-style-type: none"> Member of Business Partners International East Africa Board Member of CSIR Board 	<ul style="list-style-type: none"> Presidential Commission on the 4IR Member of Industry Advisory Board of the Faculty of Engineering and Built Environment, Wits University Member of the Board of the UNDP SA Programme Member of the Board of TUT Institute for Future of Work 	1
Mr I Engelbrecht	Council member	Sept. 2018	–	MBA	Male, Coloured	<ul style="list-style-type: none"> Innovation Technology Business leadership 	<ul style="list-style-type: none"> NACI Executive Committee 	<ul style="list-style-type: none"> Municipal Innovation Maturity Index Assessing the viability of utility-scale energy storage for the industrial, commercial transport and residential sectors in South Africa State of innovation at TVET colleges Mainstreaming of innovation in the public sector (member) 	4

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr R Gavhi-Molefe	Council Member	Sept. 2018	Apr. 2020	<ul style="list-style-type: none"> PhD in Mathematics MPhil in Science and Technology Studies (focus on public science engagement) 	Female, African	<ul style="list-style-type: none"> Mathematics Science Communication Science-society engagement 	None	<ul style="list-style-type: none"> Chairperson of NACI Working Committee: Transformation in the National System of Innovation 	N/A
Ms I Karg	Officer of the DTIC	Sept. 2018	–	<ul style="list-style-type: none"> BCom Economics School of Government: Presidential Strategic Leadership Development Portfolio: Executive Development Programme 	Female, White	<ul style="list-style-type: none"> 4IR and related issues Skills, technologies, advanced manufacturing, strategies, etc. Government plans: National Development Plan, Medium-Term Strategic Framework, Medium-Term Budget Policy Statements and Industrial Policy Action Plan Strategic planning and thinking Governance and ethics Financing of programmes Budget, expenditure, and cash flow 	<ul style="list-style-type: none"> Board member and Co-chair for Intsimbi Future Production Technologies Initiative 	<ul style="list-style-type: none"> Local Member of Ministerial Task Team on Post-School Education and Training System for 4IR NACI Executive Committee MTT DTPS: Presidential Commission on the 4IR Steering Committee member: Industrial Development Think Tank with Centre for Competition Regulation and Economic Development (UJ) 	5

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
						<ul style="list-style-type: none">• National budget preparation• Feasibility studies: funding models• Editing and publishing financial and economic data• Legal: compliance and regulation• Public Finance Management Act and Treasury regulations• Policy formulation and development• Performance management		<ul style="list-style-type: none">• Implementation / Working Committee member: Human Resources Development Strategy Review and Co-chair for 4IR Skills and Training• Task team member for the Digital Skills Strategy of South Africa• Judge: Factory of the Year Competition International• 2018/19 Chairperson (Rotating Chair as presiding BRICS country)• Member of Advisory Committee: BRICS Partnership on New Industrial Revolution• (Founding member of International 4IR Workgroup)• Steering Committee Member: SA-EU Dialogue Facility	

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Ms Funeka Khumalo	Council member	Jan. 2021	–	<ul style="list-style-type: none"> BSc (Chemistry) UCT MBA (GIBS) PMP (PMI) 	Female, African	<ul style="list-style-type: none"> Manufacturing Innovations Chemicals Project Management 	<ul style="list-style-type: none"> FoodBevSeta Kevali Chemicals 	<ul style="list-style-type: none"> BRICS Business Council member of Manufacturing Workstream World Economic Forum (WEF) member: Shaping the Future of Advanced Manufacturing and Production, Global Community Group WEF Africa participant AU: 4IR participant Member of Commonwealth Digital Connectivity Working Group 	4

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Prof. Tawana Kupe	Council member	Jan. 2021	–	<ul style="list-style-type: none"> • BA(Hons) • MA(University of Zimbabwe) • DPhil(University of Oslo, Norway) • DHum(honoris causa) Michigan State University, United States of America) • DHum(honoris causa)(University of Montpellier, France) 	Male, African	Education Journalism and Media Studies	<ul style="list-style-type: none"> • Amabhungane Board - Centre for Investigative Journalism • Media Monitoring Africa • Ubuntu-Botho Investments (Pty) Ltd • University Sports Company 	<ul style="list-style-type: none"> • Universities South Africa (USAf), Member: Executive Board • Australia Africa Universities Network (AAUN), Africa Co-Chair • World Universities Network (WUN), Member • Montpellier University of Excellence (MUSE), Member of International Advisory Board (MIAB) • African Institute for Mathematical Sciences (AIMS), Co-Chairperson: Kifra Prize Selections Committee • Association of Commonwealth Universities (ACU), Council member and Trustee • Association of African Union (AAU), Member 	4

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr T Lepphoto	Council member	Sept. 2018	–	PhD (Molecular and Cell Biology)	Female, African	<ul style="list-style-type: none"> Microbiology Biotechnology Bioinformatics Genomics Science Innovation 	<ul style="list-style-type: none"> Nematech Bioscience GoMaths Foundation 	<ul style="list-style-type: none"> Academy of Science of South Africa (ASSAf), Council Member Alliance for African Partnership (AAP), Board Member NACI Bioeconomy Audit Project Chairperson NRF Committee member for Thuthuka grant applications for 2020 NRF Committee member for the review of applications submitted in the 2018 Free Standing Innovation and Scarce Skills postdoctoral: call for 2019, 2018 NRF Committee member for the review of applications submitted in the 2018 Free Standing Innovation and Scarce Skills Postdoctoral: Call for 2018, 2017 	2

Name	Designation in terms of Council structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Mr A Madella	Council member	Jan. 2021	–	4 Year (Higher) Diploma in Social Work, Bphil in Values and Policy Analysis, Bhon in Public Administration Certificate in Human Resource Management and Postgraduate Diploma in Poverty Land and Agrarian Studies	Male, Coloured	<ul style="list-style-type: none"> Social Work, Human Resource skills, Labour relations, Skills development, disability rights advocacy and lobbying 	<ul style="list-style-type: none"> Board of Trustees of BRAND SOUTH AFRICA Member of the Accounting Authority of Services Seta, Board member of Ilitha Labantu and Secretary-General of Disabled People South Africa 	<ul style="list-style-type: none"> Committee member for the DAAD-NRF Joint In-Country Master's and Doctoral Scholarships in 2017 and 2018 	3
Ms M Matikina-Ngwenya	Council member	Sept. 2018	March 2022	BCom Honours (Econometrics)	Female, African	<ul style="list-style-type: none"> Economist Critical role in providing macroeconomic insight to First National Bank and its clients while actively participating in media commentary 	–	Member of the Presidential Economic Advisory Council	2

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr C Mbileni-Morema	Council member	Jan. 2021	–	<ul style="list-style-type: none"> PhD in Chemistry MBA 	Female, African	<ul style="list-style-type: none"> Innovation Technology development Chemistry Renewable energy strategy development Enterprise development 	<ul style="list-style-type: none"> Member of NACI Council Deputy Chairperson of the Central University of Technology (CUT) Chairperson of the Remuneration Committee: CUT Council Member of the Planning, Finance, Resources Committee: CUT Council Board Member of CUTis (Pty) Ltd. 	–	6
Mr D Naidoo	Council member	Sept. 2018	–	MSc	Male, Indian	<ul style="list-style-type: none"> Water and sanitation Policy, strategy, innovation 	<ul style="list-style-type: none"> Human Right 2 Water Water Policy Group 		5
Prof F Nelwamondo	Council members	Aug 2021	–	PhD (Electrical Engineering)	Male, African	<ul style="list-style-type: none"> Electrical Engineering, Artificial Intelligence, Information Security, Mathematical Modelling, Data Science 	<ul style="list-style-type: none"> SALT (Pty) Ltd Other committees or task teams 		3

Name	Designation in terms of Council structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Dr B Phakathi	Council member	Sept. 2018	–	<ul style="list-style-type: none"> • MBChB • FCS (SA) • MMed 	Female, African	Education Research	<ul style="list-style-type: none"> • Governing Board Member: Global Research Council Belmont Forum of Funders Council member: CHE Council Member: South African Institute of Electrical Engineers COHORT 	<ul style="list-style-type: none"> • Chair: NACI Transformation Committee • Foresight Task Team 	4
Dr M Qhobela	Council member	Sept. 2018	Nov. 2020	PhD	Male, African	Plant pathology	<ul style="list-style-type: none"> • SALT Foundation Pty Ltd. • TENET • Mpatloane Investments • Council member of the CHE 	<ul style="list-style-type: none"> • SALT Foundation Pty Ltd. • TENET • Mpatloane Investments • Council on Higher Education (CHE) 	N/A

Name	Designation in terms of Council of structure	Date appointed	Date resigned	Qualifications	Equity	Areas of expertise	Board directorships	Other committees or task teams	Meetings attended (2021/22)
Prof. H Soodyall	Council member	Sept. 2018	–	PhD (Human Genetics)	Female, Indian	<ul style="list-style-type: none"> Human genetics Ethics Human origins and evolution 	YAZI (Centre for Science and Society in Africa)	<ul style="list-style-type: none"> Committee of heads of organisations of research and technology Open Science Advisory Board African Open Science Platform 	5
Prof. C Soudien	Council member	Sept. 2018	Feb. 2021	PhD	Male, Coloured	<ul style="list-style-type: none"> Sociology Education History 	<ul style="list-style-type: none"> Independent Examinations Board Project Literacy: Clanwilliam Trust 		N/A
Mr P Steenkamp	Council member	Sept. 2018	-	<ul style="list-style-type: none"> Executive MBA Honours in Organisational Psychology 	Male, White	Innovation & integration expert	<ul style="list-style-type: none"> I Am Jack Frost Holdings (Pty) Ltd. Creative Leadership Collective (Pty) Ltd. 	<ul style="list-style-type: none"> Mainstreaming of innovation across the public and private sector Technologies emanating from publicly funded research in South Africa Sovereign Innovation Fund 	5

3. EXECUTIVE COMMITTEE

The duty of the NACI Executive Committee is to address of matters determined by the Council. The terms of reference and decision-making power for each matter referred to the Committee are decided by the Council.

Current Executive Committee meeting attendance (2021/22)

Member	Meetings attended			
	21 July 2021	6 October 2021	8 March 2022	Number of meetings attended
Dr S Moephuli (Chairperson from September 2021)	✓	✓	✓	3
Dr M Cele (Acting CEO)	✓	✓	✓	3
Mr I Engelbrecht	✓	✓	✓	3
Ms I Karg	✓	✓	✓	3
Ms M Matikinca-Ngwenya	x Maternity leave	x Maternity leave	x Resigned	0

The background of the slide features a hand reaching out from the right side, with the index finger pointing towards a stylized, black and white robot figure on the left. The robot is depicted in a dynamic, slightly crouched pose. The entire scene is overlaid with large, curved, semi-transparent shapes in yellow and blue. The word 'Part' is written in a white, cursive script at the top right, and a large white outline of the letter 'D' is positioned in the center-right, partially overlapping the hand and the robot.

Part

Human Resource Management

1. INTRODUCTION

To implement its advisory work programme, the NACI Council is supported by the NACI Secretariat. As at 31 March 2022, the staff establishment of the Secretariat was 13, with nine positions filled and four vacant – i.e. a 30% vacancy rate. There are four Senior Management Service members and three technical employees at deputy director level. Two people were employed on fixed-term contracts to assist the team with the workload.

The Secretariat complied with the Performance Management and Development System and all employees submitted performance agreements and assessments.

The employment equity profile of the Secretariat is 50/50 male/female representation and 0% for employees living with a disability. The target is to increase female representation to 75% over the next financial years.

2. HUMAN RESOURCE OVERSIGHT STATISTICS

2.1 Performance rewards

Programme/ activity/ objective	Performance rewards				Personnel expenditure (R'000)		% of performance rewards to total personnel cost (R'000)	
	Notch progression		Bonus		Notch progres- sion	Bonus	Notch progres- sion	Bonus
	Number of employees	Bene- ficiaries	Number of employees	Bene- ficiaries				
Top management (L15-16)	0	0	0	0	0	0	0	0
Senior management (L13-14)	4	4	4	0	76 680	0	0,02	0
Professional qualified (L9-12)	3	3	3	0	42 510	0	0,01	0
Skilled (L6-8)	3	3	3	0	10 363	0	0,002	0
Semi-skilled (L3-5)	0	0	0	0	0	0	0	0
Unskilled (L1-2)	0	0	0	0	0	0	0	0
TOTAL	10	10	10	0	129 553	0	0,03	0

2.2 Training costs

Programme/activity/objective	Personnel expenditure (R'000)	Training expenditure (R'000)	Training expenditure as a % of personnel costs	Number of employees trained	Average training cost per employee
NACI training and development	7 243 000	R5 930-00	0,08%	1	R5 930,00

2.3 Employment and vacancies

Programme/activity/objective	2021/22 Number of employees	2021/22 Approved positions	2021/22 Number of employees	2021/22 Vacancies	% of vacancies
Secretariat	9	13	9	4	23%
TOTAL	9	13	9	4	30%

2.4 Employment changes

Salary band	Employment at beginning of period	Appointments	Terminations	Employment at end of the period
Top management	0	0	0	0
Senior management	3	0	0	3
Professionally qualified employees	3	0	0	3
Skilled employees	3	0	0	3
Semi-skilled employees	0	0	0	0
Unskilled employees	0	0	0	0
TOTAL	9	0	0	9

2.5 Reasons for staff leaving

No staff left NACI during the year under review.

2.6 Labour relations: Misconduct and disciplinary action

There was no misconduct or disciplinary action at NACI in the year under review.

2.7 Equity targets and employment equity status

Level	Male							
	African		Coloured		Indian		White	
	Current	Target	Current	Target	Current	Target	Current	Target
Top management	0	0	0	0	0	0	0	0
Senior management	2	0	0	0	0	0	0	0
Professionally qualified employees	1	0	0	0	0	0	0	0
Skilled employees	1							
Semi-skilled employees	0	0	0	0	0	0	0	0
Unskilled employees	0	0	0	0	0	0	0	0
TOTAL	4	0	0	0	0	0	0	0

Level	Female							
	African		Coloured		Indian		White	
	Current	Target	Current	Target	Current	Target	Current	Target
Top management	0	1	0	0	0	0	0	0
Senior management	1	2	0	0	0	0	0	0
Professionally qualified employees	2	0	0	0	0	0	0	0
Skilled employees	2	0	0	0	0	0	0	0
Semi-skilled employees	0	0	0	0	0	0	0	0
Unskilled employees	0	0	0	0	0	0	0	0
TOTAL	5	3	0	0	0	0	0	0

Levels	People living with disabilities			
	Male		Female	
	Current	Target	Current	Target
Top management	0	0	0	0
Senior management	0	0	0	0
Professionally qualified employees	0	0	0	0
Skilled employees	0	0	0	0
Semi-skilled employees	0	0	0	0
Unskilled employees	0	0	0	0
TOTAL	0	0	0	0

Part



Financial Information

1. REPORT OF THE EXTERNAL AUDITOR

The National Advisory Council on Innovation is not subject to external auditing.

2. ANNUAL FINANCIAL STATEMENTS

NACI's allocated budget for 2021/22 was R19 265 million, including the compensation of employees.

The total expenditure on goods and services from the annual budget was R8,992 million, which exceeded the original budget. This was necessary in order to remunerate personnel with fixed-term employment contracts.

Table 13: Financial performance in the 2021/22 financial year

Description	Expenses	Commitments	Allocated budget	Available funds
	(R'000)			
Compensation of employees	8 322	-	10 929	2 607
Goods and services	7 598	1 394	8 336	(656)
Payment of capital assets	-	-	-	-
Transfers and subsidies	-	-	-	-
TOTAL	15 920	1 394	19 265	1 951

A stylized illustration of a blue and yellow curved shape, possibly representing a stylized letter or a decorative element, set against a background of horizontal lines. The shape is composed of a thick blue curve on the left and a yellow curve on the right, meeting at a point. The background consists of a light blue gradient with horizontal lines.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no vertical margin lines or other markings present. The paper appears slightly aged or off-white.



NACI Secretariat | **Tel:** 012 844 0252 | **Email:** naci@dst.gov.za

www.naci.org.za