

*Innovation for a better future*

# ANNUAL REPORT 2020/21

FINANCIAL YEAR



**science & innovation**

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA

**NACi**

NATIONAL ADVISORY COUNCIL ON INNOVATION

**NATIONAL ADVISORY COUNCIL ON INNOVATION  
INNOVATION FOR A BETTER FUTURE  
ANNUAL REPORT 2020/21**

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# **PART A**

## **GENERAL INFORMATION**



## 1. GENERAL INFORMATION

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## 2. LIST OF ABBREVIATIONS

<b>4IR</b>	Fourth Industrial Revolution
<b>AI</b>	Artificial intelligence
<b>APP</b>	Annual Performance Plan
<b>ARC</b>	Agricultural Research Council
<b>AU</b>	African Union
<b>AUDA</b>	African Union Development Agency
<b>BERD</b>	Business expenditure on research and development
<b>BRICS</b>	Brazil, Russia, India, China and South Africa
<b>CEO</b>	Chief Executive Officer
<b>CHE</b>	Council on Higher Education
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>CUT</b>	Central University of Technology
<b>DAAD</b>	Deutscher Akademischer Austauschdienst
<b>DG</b>	Director-General
<b>DHET</b>	Department of Higher Education and Training
<b>DSI</b>	Department of Science and Innovation
<b>DSBD</b>	Department of Small Business Development
<b>DTIC</b>	Department of Trade, Industry and Competition
<b>DTPS</b>	Department of Telecommunications and Postal Services
<b>EU</b>	European Union
<b>ExCo</b>	Executive Committee
<b>FISS</b>	Freestanding Innovation and Scarce Skills
<b>FNB</b>	First National Bank
<b>FCS</b>	Food Consulting Services
<b>GERD</b>	gross expenditure on research and development
<b>HSE</b>	Higher School of Economics
<b>HSRC</b>	Human Sciences Research Council
<b>IEB</b>	Independent Examinations Board
<b>IP</b>	Internet Protocol
<b>ISSEK</b>	Institute for Statistics Studies and Economics of Knowledge
<b>MBA</b>	Master of Business Administration
<b>MBL</b>	Master of Business Leadership
<b>MTT</b>	Ministerial Task Team
<b>NACI</b>	National Advisory Council on Innovation
<b>NDP</b>	National Development Plan



<b>NEPAD</b>	New Partnership for Africa's Development
<b>NRF</b>	National Research Foundation
<b>NSI</b>	National system of innovation
<b>NSTIIP</b>	National STI Information Portal
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PPP</b>	Public-Private Partnership
<b>S&amp;T</b>	Science and technology
<b>SAASTA</b>	South African Agency for Science and Technology
<b>SALT</b>	South African Large Telescope
<b>SDGs</b>	Sustainable Development Goals
<b>SEZ</b>	Special Economic Zones
<b>SME</b>	Small and medium-sized enterprises
<b>STEM</b>	Science, technology, engineering and mathematics
<b>STI</b>	Science, technology and innovation
<b>TENET</b>	Tertiary Education and Research Network of South Africa
<b>TIP</b>	Innovation and Technology Policy (OECD)
<b>TVET</b>	Technical and vocational education and training
<b>UDW</b>	University of Durban-Westville
<b>UJ</b>	University of Johannesburg
<b>UKZA</b>	University of Kwa-Zulu Natal
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNISA</b>	University of South Africa
<b>UP</b>	University of Pretoria
<b>WEF</b>	World Economic Forum
<b>WITS</b>	University of the Witwatersrand
<b>WRC</b>	Water Research Commission





### 3. FOREWORD BY THE CHAIRPERSON

**DR SHADRACK MOEPHULI - ACTING CHAIRPERSON**

On behalf of the National Advisory Council on Innovation (NACI), I am delighted to present the 2020/21 Annual Report. This is the second report in the term of the current Council, which began in the third quarter of 2018/19.

In the year under review, the NACI Council and Secretariat have responded to a number of issues at the request of the Minister of Higher Education, Science and Innovation. NACI continued to build on its previous efforts to strengthen planning, monitoring and evaluation capability in the national system of innovation (NSI). We were happy to see the extent to which the Cabinet-approved draft STI decadal plan considered the outcomes of our foresight initiative.

NACI continues 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 foundation of 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, we have developed advice on the establishment of the sovereign innovation fund.

NACI has been performing extensive work towards facilitating international and local networking and partnerships to ensure knowledge sharing and skills transfer, thereby globally deepening the understanding of the latest trends in STI policy. There are several international experts who participate in reference groups and oversee projects. 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. The Annual Report will provide information on the way in which the NSI and ordinary citizens benefited from the work undertaken by NACI in the 2020/21 financial year.

This report also reflects on the delivery of NACI during a year in which the outbreak of the COVID-19 pandemic disrupted livelihoods and constrained working conditions. During this period, various institutions within our National System of Innovation responded to the demand for solutions to the pandemic. This includes providing diagnostic services to assist the National Institute for Communicable Diseases; developing systems for data management and analysis; and designing instruments for patient care, to mention a few. Such initiatives have been undertaken by, among others, a number of South African universities, the CSIR, ARC, HSRC, WRC and private laboratories. Various institutions responding to the pandemic indicates the National System of Innovation being capable of providing solutions for the benefit of society and the economy, which points to the need for concerted coordination, including the provision of requisite resources to enable greater impact; particularly during periods of 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.

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

**Dr Shadrack Moephuli**  
**Acting Chairperson**  
**National Advisory Council on Innovation**  
**31 July 2021**



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

To the best of our knowledge and belief, we confirm the following:

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 has been prepared in accordance with the guidelines on annual reports issued by the National Treasury.

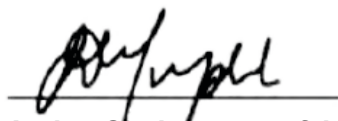
The accounting authority is responsible for the preparation of the annual financial performance and for the judgements made in this information.

The accounting authority is responsible for establishing and implementing a system of internal controls designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the annual financial performance.

In our opinion, 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 that ended on 31 March 2021.



**Acting Chief Executive Officer**  
**Dr Mlungisi Cele**  
31 July 2021



**Acting Chairperson of the Council**  
**Dr Shadrack Moephuli**  
31 July 2021

## 5. STRATEGIC OVERVIEW

### 5.1 Vision

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

### 5.2 Mission

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

### 5.3 Values

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

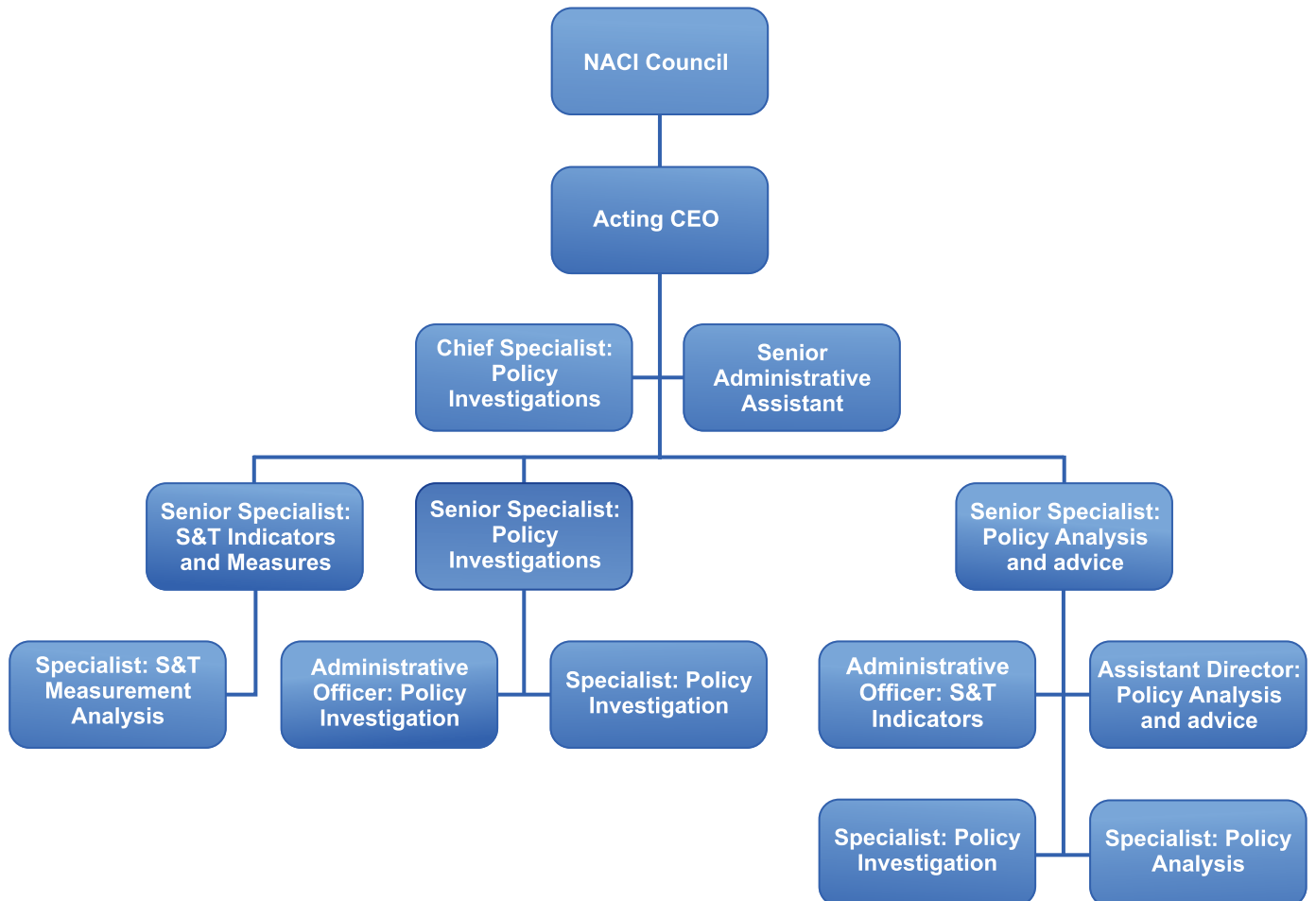
## 6. LEGISLATIVE AND OTHER MANDATES

The National Advisory Council on Innovation 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 – i.e. 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





# **PART B**

## **PERFORMANCE INFORMATION**

This section covers NACI's activities, performance and outputs for the 2020/21 financial year.

NACI achieved most of its objectives for the 2020/21 financial year. It finalised the National Research and Development Strategy and Ten-Year Innovation Plan Review Report and developed a Monitoring and Evaluation Framework. It also finalised the advice requested by the Minister on the establishment and implementation of the proposed sovereign innovation fund and developed a new Annual Performance Plan for the 2021/22 financial year. The Council successfully launched the 2020 Science, Technology and Innovation (STI) Indicators Report at a webinar.

## 1. ADVICE

The 2019 White Paper on Science, Technology and Innovation recognises that substantial funding is required for commercialisation and proposed the establishment of a sovereign innovation fund to leverage private sector investment. The idea of a sovereign innovation fund was initially put forward in 2014, and the Department of Science and Innovation (DSI) began exploring the concept. In 2018, the sovereign innovation fund concept was merged with the Small Business Innovation Fund developed by the Department of Small Business Development (DSBD), which was granted a Medium-Term Expenditure Framework budget of R3,17 billion. In 2019, after discussion with the DSBD and National Treasury, the DSI decided to establish the fund itself as a standalone public-private funding partnership.

The sovereign innovation fund will support the National Development Plan and the White Paper on STI to serve as an investment platform to:

- Develop a strategic portfolio of investment opportunities to foster high-tech and technology-enabled entrepreneurial initiatives.
- Create funding certainty for high-technology developments, particularly those that will serve to modernise the South African economy (and embrace the opportunities of the 4th Industrial Revolution (4IR)).
- Establish policy coherence through the coordination and integration of funding activities across government.

NACI produced a report entitled *The Guidelines and Toolkit for the Design and Implementation of the Sovereign Innovation Fund*, which advises on the structuring and implementation of the fund.



## 2. MONITORING AND EVALUATION

### 2.1 2020 South African Science, Technology and Innovation Indicators Report

The 2019 White Paper on STI advocates the use of STI to address societal challenges and contribute towards creation of an inclusive and sustainable economy. It also clearly expresses the need 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.

The release of this report coincides with the global COVID-19 pandemic, which has caused numerous deaths and exposed the inadequacies of many countries' national systems of innovation, particularly when these intersect with the health sector. The pandemic has exacerbated social and economic inequity. In South Africa, this has meant that the challenges of inequality, unemployment, poverty and ecological degradation require even more urgent attention.

There is global consensus that progress towards the achievement of the Sustainable Development Goals (SDGs) has been affected. Difficulties in transforming energy systems and meeting globally agreed carbon-reduction targets mean that temperatures are likely to be more than two degrees Celsius above pre-industrial levels. Developing countries and emerging economies will be most intensely exposed to water shortages, food insecurity, premature de-industrialisation, as well as failures in health and social care systems.

These challenges make the need for robust and resilient scientific and technological capacities and capabilities even more critical. In an interlinked, but inequitable world, domestic systems of innovation are crucial for transforming science and technology into socially useful products and practices.

The 2020 STI Indicators Report reflects progress in some indicators, while identifying areas of concern. The key observations from the report should be noted by NSI stakeholders.

Although the South African research system – particularly public institutions such as universities and science councils – has shown a steady increase in scientific publications over several years, whereas more recent performance indicates a decline. South Africa's publications per million population declined from 371 in 2017 to 360 in 2018. The world's scientific publications per million population also declined from 471 in 2017 to 464 in 2018. In contrast, upper middle-income countries increased their scientific publications per million population from 317 to 327 during the same period.

Improvements continue to be evident at school level. The Senior Certificate pass rate in physical sciences improved from 58.6% in 2015 to 75.5% in 2019. The mathematics pass rate improved from 49.1% in 2015 to 58% in 2018, before declining to 54.6% in 2019.

Most of the doctoral degrees produced in South Africa are in the field of natural and agricultural sciences, with 1 051 doctorates produced in 2018. Only 7% of the doctoral degrees produced are in the field of engineering. Between 2016/17 and 2017/18, the number of researchers in the business and higher education sectors increased by 14.7% and 15.7%, respectively.



The number of Master's degrees (by research) increased from 6 460 in 2013 to 8 610 in 2018. The number of doctoral graduates increased from 2 051 in 2013 to 3 307 in 2018.

The report suggests that, if the underlying forces in the past period remain intact, the number of doctoral graduates will reach the National Development Plan target of 5 000 per annum by 2030. Partnerships between science councils and universities have contributed to the significant enrolment and graduation of both Master's and doctoral degree candidates.

Unemployment is lower among those with higher levels of education. Among those with Master's and doctoral degrees, unemployment increased from 2.4% in 2018 to 2.8% in 2019.

Financing of the national system of innovation (NSI) remains a challenge. In 2017/18, South Africa's gross domestic expenditure on research and development (GERD), as a percentage of gross domestic product was 0.83%, which remains below the 1.5% target. Business expenditure on research and development (BERD) as a percentage of GERD also declined from 58.6% in 2008/09 to 41.0% in 2017/18, and BERD as a percentage of GDP declined from 0.52% in 2008/09 to 0.34% in 2017/18. There is some anecdotal evidence pointing to reasons for this decline, but a deeper and systematic analysis should be considered to understand the problem better.

In contrast to the business sector, GERD increased from R4,1 billion in 2008/09 to R13 billion in 2017/18, which an increase of 85% in 2010 rand value. Increased funding at universities contributed to an increase in the number of postgraduate students (which is a long-term national objective) and the number of publications produced at universities.

At a system level, the indicators suggest that there are areas of strength and areas of weakness.

- A key area of strength lies in the broad area of science. 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 suggests that this increase is declining.
- In terms of technology, several indicators suggest that the system is not working as well as it should. South Africa's share of patents at the United States Patent and Trademark Office has declined significantly, and the country's share has also declined significantly against the global total. South Africa has also not performed well in terms of composite indices.
- In terms of innovation, several indicators suggest that the system is not highly efficient. Despite the best efforts of policy makers, new policies and additional resources, technology and innovation outputs have stagnated or have risen particularly slowly. This creates an urgent need to ensure that policies and resources are rendered more effectively in respect of technology and innovation. There is considerable scope for efficiency gains within the existing resource constraints.

It is anticipated that these findings will enable a greater understanding of current factors and opportunities for enhancing the NSI's performance and contribution to socio-economic development in South Africa.

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

The review was intended as 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), in order to develop a better understanding of the progress or lack of progress in implementing the two policy instruments. To ensure that the review results could find immediate application in the development of the new decadal plan for STI, the emphasis was on advice on what had worked and what had not, recommending actions to address current policy gaps and informing the development of future strategies or plans. The review started in January 2019 and extensive interactive engagement by the international reference group and the NACI Council enhanced the draft report.

While the review process originated in a largely business-as-usual context, by the time it came to synthesising the research findings and finalising the recommendations, COVID-19 had changed the global situation dramatically. The review report will be received in a world facing even more acute social and economic crises than the ones we have endured to date. This creates a need to consider the different aspects that can be applied in shaping a post-COVID STI system that is responsive and relevant to the post-COVID South African society and the world.

## 2.3 Development of a monitoring and evaluation framework for the NSI

The 2019 White Paper on STI advocates strengthening the monitoring and evaluation (M&E) capability in the NSI to bolster policy performance, assigning NACI the task of developing an M&E framework, in order 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 theoretical and understandable 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, which builds on decades of M&E traditions and best practices in South Africa and elsewhere, has the following five core components: (a) the adaption 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 the way in which it moves forward.





The M&E framework makes a clear distinction between monitoring objectives and evaluation goals. In terms 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 several 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 or ongoing STI policies and (proposed) interventions. The intents and ambitions of the STI policy 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 of the framework puts strong emphasis on the connections between the national and international actors and processes in the system.

**Table 1: Strategic objectives, performance indicators planned targets and actual achievements**

<b>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</b>						
<b>Strategic objectives</b>	<b>Performance Indicator</b>	<b>Actual Achievement 2019/2020</b>	<b>Planned Target 2020/2021</b>	<b>Actual Achievement 2020/2021</b>	<b>Deviation from planned target to Actual Achievement, 2020/2021</b>	<b>Comment on deviations</b>
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	Three STI advice documents submitted to the Minister of Higher Education, Science and Innovation by 31 March 2020	Three STI advice documents submitted to the Minister of Higher Education, Science and Innovation by 31 March 2021	Three STI advice documents were submitted to the Minister of Higher Education, Science and Innovation by 31 March 2021 on: <ul style="list-style-type: none"> <li>• National Research and Development Strategy and Ten-Year Innovation Plan Review Report</li> <li>• Sovereign Innovation Fund</li> <li>• Water security</li> </ul>	N/A	N/A
<b>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</b>						
To assess the performance of the NSI	Number of state of STI reports produced	STI Indicators Report finalised by 31 March 2020	STI Indicators Report finalised by 31 March 2021	The 2021 South African STI Indicators Interim Report has been developed.	Additional data was required to elaborate on some areas	Additional data has been collected and is being incorporated into the report
	Number of NSI monitoring and evaluation (M&E) reports	Two NSI M&E reports finalised by 31 March 2020	Two NSI M&E reports finalised by 31 March 2021	On 31 March 2021, 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 bio-economy strategy. A draft report was produced on science, technology, engineering and mathematics (STEM) research capacity	Round-table discussions are to be facilitated	Reports are currently undergoing stakeholder engagement in round-table discussions

Strategic objectives	Performance Indicator	Actual Achievement 2019/2020	Planned Target 2020/2021	Actual Achievement 2020/2021	Deviation from planned target to Actual Achievement, 2020/2021	Comment on deviations
STI central data and information portal	Successful operation of the National Science, Technology and Innovation Portal (NSTIIP)	The NSTIIP is intended to be a central repository of all key STI data and information. NACI initiated a process to source a service provider to assist in scaling up the portal by solving challenges experienced with the first version and by developing additional capabilities	Ongoing maintenance and implementation of the NSTIIP by 31 March 2021	NSTIIP was maintained and implemented. Agreements have been 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	N/A	N/A
<b>STRATEGIC OUTCOME-ORIENTED GOAL 3: To contribute towards building a well-coordinated, effective and responsive NSI</b>						
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	The STI decadal plan framework was submitted to the Minister of Higher Education, Science and Innovation by 31 July 2020	Institutional foresight exercise capability model conceptualised, partnerships established and skills development by 31 March 2021	The Department requested a follow-up study on the South African Foresight Exercise for Science, Technology and Innovation, 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. A partnership discussion commenced with the Higher School of Economics in Russia. The next step will be to draft a memorandum of understanding	N/A	N/A

## STRATEGIC OUTCOME-ORIENTED GOAL 4: Transforming NACI into a smart, efficient and learning organisation

Strategic objectives	Performance Indicator	Actual Achievement 2019/2020	Planned Target 2020/2021	Actual Achievement 2020/2021	Deviation from planned target to Actual Achievement, 2020/2021	Comment on deviations
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	The Secretariat worked with the DSI Chief Directorate: Science Communication to produce a communication plan that was approved by the NACI Council	Communication plan updated and implemented by 31 March 2021	The Secretariat is working with the DSI Chief Directorate: Science Communication to enhance the communication of NACI's activities. Current activities are regularly updated on the NACI website. Media interviews were conducted covering the STI Indicators Report	N/A	N/A
	Internal corporate governance system implemented	The new Strategic Plan and Annual Performance Plan were approved by the Minister of Higher Education, Science and Innovation and tabled in Parliament by 31 March 2020	Corporate governance system implemented (2021/22 APP, 2020/21 Annual Report), developed and approved by the Minister and submitted to Parliament by 31 March 2021	Final draft of the 2021/22 Annual Performance Plan submitted to the DSI by 30 January 2021	N/A	N/A
	Knowledge management system implemented	All NACI meetings were recorded and transcripts were filed on Alfresco. To ensure best practice, staff members received training on knowledge management in March 2020	Knowledge management system implemented by 31 March 2021	The appointment of a service provider was delayed	Quotations received from service providers exceeded R500 000–00	The Director-General (DG) approved a tender process for the project. Request to appoint a consultant was submitted to the Director-General for approval. Bid Specification Committee members were appointed

## 3. EVENTS AND STAKEHOLDER ENGAGEMENTS

### 3.1 Launch of the South African STI Indicators Report

On Friday, 28 August 2020, the NACI 2020 South African STI Indicators Report was successfully launched at a webinar. The theme for the event was "The state of innovation in South Africa". 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 on NACI's review of the National Research and Development Strategy and Ten-Year Innovation Plan, as well as presentations on the Agricultural Business Innovation Survey and Survey on Innovation in the Informal Economy by the Human Sciences Research Council. Approximately 200 stakeholders in the national system of innovation attended the event.

### 3.2 Potential impact of STI priorities on the national development goals

In collaboration with the National Research Foundation (NRF) and the South African Agency for Science and Technology Advancement (SAASTA), NACI participated in a webinar on the potential impact of STI priorities on the national development goals, as part of continuing local engagement and communication of the results of the South African Foresight Exercise for Science, Technology and Innovation, 2030.

### 3.3 NACI's participation in international, virtual events

Event	Attendee	Date
Working Group Meeting of the African Union Development Agency(AUDA)-NEPAD Experts on the new direction of the Afrilook Strategic Initiative	Dr Mlungisi Cele	16 June 2020
High-level Group Africa-Europe Partnership meeting	Dr Mlungisi Cele	23 June 2020
OECD-Korea Workshop on Promoting International Technology Cooperation in the Digital Age and in the light of COVID-19	Dr Mlungisi Cele	21–22 Sept 2020
Internet Protocol (IP) webinar on technology and resilience	Dr Mlungisi Cele	2 Oct 2020
Japan Science and Technology in Society	Dr Mlungisi Cele	3–6 Oct 2020
OECD Working Party on Innovation and Technology Policy (TIP) webinar on scenario thinking on innovation post-COVID	Dr Mlungisi Cele	7 Oct 2020
10th Annual International Academic Conference – "Foresight and STI Policy"	Dr Mlungisi Cele	9–12 Nov 2020
117th Session of the Committee for Scientific and Technological Policy	Dr Mlungisi Cele	24–25 Nov 2020
OECD-TIP virtual conference invitation: "What role for STI in building resilience?"	Dr Mlungisi Cele	9 Dec 2020
HSE ISSEK at the UNESCO Summit on Future Literacy	Dr Ntsane Moleleki	8–12 Dec 2020
OECD Working Party on Biotechnology, Nanotechnology and Converging Technologies	Dr Ntsane Moleleki	14–16 Dec 2020
High-Level Group Africa-Europe Partnership Meeting	Dr Ntsane Moleleki	14 Jan 2021
OECD Global Science Forum – 1st Expert Group meeting on "Mobilising science in response to crises: lessons learned from COVID 19"	Dr Ntsane Moleleki	29 Jan 2021
OECD International Conference on Artificial Intelligence (AI) in Work, Innovation, Productivity and Skills	Dr Mlungisi Cele	1-5 Feb 2021
OECD Global Science Forum – 2nd Expert Group meeting on "Mobilising science in response to crises: lessons learned from COVID 19"	Dr Ntsane Moleleki	8 March 2021

These events provided 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 C**

## **GOVERNANCE**

## 1. THE NACI COUNCIL

The Science and Technology Laws Amendment Act, No. 16 of 2011 requires the NACI Council 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 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 (DTIC) – are appointed in their personal capacity, based on their outstanding achievement in any field of science and technology, or in the context of innovation, special knowledge, experience in and insight into the role and contribution of innovation in promoting and achieving national and provincial objectives.

**Table 2: Composition of the NACI Council**

Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
Dr S Moephuli	Interim Chairperson from July 2019	Sep 2018	-		Male, African				3
Dr M Cele	Acting CEO	Sep 2018	-		Male, African				3
Ms C Busetti	Council Member	Sep 2018	-	BSc in Chemistry Master of Business Administration (MBA)	Female, White		Member of the Special Economic Zones (SEZ) Advisory Board Member of the NRF Member of SiMODiSA Advisory Board Member of Spartan SME Finance (Pty) Ltd. Board Member of Debswana Pension Fund Board Member of Senior Experts Panel of Industrial Development Corporation	Advisor to Ariya Bridge Trust Fund in Namibia	3
Dr T Dlamini	Council Member	Sep 2018		BSc Chemistry: University of the Witwatersrand (WITS) BSs (Hons) Chemistry: WITS PhD Chemistry, Catalysis: WITS Master's in Business Leadership (MBL): University of South Africa (UNISA)	Male, African	Materials science Technology and innovation manage- ment Strategic thinking	Member of CSIR Board Director of Board of Vumelana Trade 120 Director of Board of Kusile Invest 125 Director of Mavela Consulting Services	Presidential Commission on the 4IR	2

Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
Mr I Engelbrecht	Council Member	Sep 2018	-	MBA	Male, Coloured	Innovation Technology Business leadership	NACI ExCo	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)	3
Dr R Gavhi-Molefe	Council Member	Sep 2018	Apr. 2020	PhD in Mathematics Mphil in Science and Technology Studies: focus on Public Science Engagement	Female, African	Mathematics Science Communication / science-society engagement	None	Chairperson of NACI Working Committee: Transformation in the National Systems of Innovation Programme	
Ms I Karg	Officer of the DTIC	Sep 2018	-	BCom Economics School of Government: Presidential Strategic Leadership Development Portfolio: Executive Development Programme	Female, White	4IR and related issues Skills, technologies, advanced manufacturing, strategies, etc. Government plans: National Development Plan (NDP), Medium-Term Strategic Framework, Medium-Term Budget Policy Statements and Industrial Policy Action Plan Strategic planning and thinking Governance and ethics Financing of programmes	Board member and Co-chair for Intsimbi Future Production Technologies Initiative (PPP)	Local Member of Ministerial Task Team (MTT) Department of Higher Education and Training (DHET): Post-School Education and Training System on 4IR Council member: NACI Council and ExCo member MTT DTPS: Presidential Commission on the 4IR Steering Committee member: Industrial Development Think Tank with Centre for Competition Regulation and Economic Development (UJ)	3

Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
						Budget, expenditure and cash flow National budget preparation Feasibility studies: funding models Editing and publishing of financial and economic data Legal: compliance and regulation Public Finance Management Act and Treasury regulations Policy formulation and development Performance management		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 <b>International</b> Chairperson (2018/19) 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 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 Common- wealth Digital Connectivity Working Group	

Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
Ms Funeka Khumalo	Council Member	Jan. 2021	-		Female, African				1
Prof. Tawana Kupe	Council Member	Jan. 2021	-		Male, African				1
Dr T Lephoto	Council Member	Sep 2018	-	BSc BSc (Hons) MSc PhD MBA candidate	Female, African	Microbiology Biotechnology Bioinformatics Genomics Science Innovation	Nematech Bioscience GoMaths Foundation	NACI BioEconomy Audit Project member and 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 (FISS) postdoctoral: call for 2019, 2018 NRF Committee member for the review of applications submitted in the 2018 Free Standing Innovation and Scarce Skills Postdoctoral (FISS): Call for 2018, 2017 NRF Review Committee member for the DAAD-NRF Joint In- Country Master's and Doctoral Scholarships in 2017 & 2018	0
Mr Andrew Madella	Council Member	Jan. 2021	-		Male, Coloured	-	-	-	1



Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
Ms M Matikinca-Ngwenya	Council Member	Sept. 2018	-	Bachelor of Commerce: Honours Degree (Econometrics) Candidate for a Master's in Management Finance and Investment	Female, African	Economist Critical role in providing macroeconomic insight to First National Bank (FNB) and its clients while actively participating in media commentary		Member of the Presidential Economic Advisory Council	1
Dr Charity Mbileni-Morema	Council Member	Jan. 2021	-	PhD in Chemistry: (WITS) MBA: Heriot-Watt University, Scotland	Female, African	Innovation Technology development Chemistry Renewable energy strategy development Enterprise development	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.		1
Ms T Mthethwa	Council Member	Sept. 2018	-		Female, African				
Mr D Naidoo	Council Member	Sept. 2018	-	Msc	Male, Indian	Water and sanitation, policy, strategy, innovation	Human Rights 2 Water Policy Group		1
Dr B Phakathi	Council Member	Sept. 2018	-	MBChB: UKZN FCS (SA) Mmed: UP PhD candidate	Female, African	Education Research		Chair: NACI Transformation Committee Foresight Task Team	1
Dr M Qhobela	Council Member	Sept. 2018	Nov. 2020	PhD	Male, African	Plant pathology	SALT Foundation Pty Ltd. TENET Mpatloane Investments Council member of the CHE	SALT Foundation Pty Ltd. TENET Mpatloane Investments Council on Higher Education (CHE)	1

Name	Designation (in terms of Council structure)	Date appointed	Date resigned	Qualifications	Equity info	Area of Expertise	Board Directorships	Other Committees or Task Teams	Number of meetings attended (2020/21)
Prof. H Soodyall	Council Member	Sept. 2018	-	BSc (Hons): UDW MSc (Biotech): WITS PhD (Human Genetics): WITS	Female, Indian	Human genetics Ethics Human origins and evolution	YAZI (Centre for Science and Society in Africa)	Committee of heads of organisations of research and technology Open Science Advisory Board African Open Science Platform	3
Prof. C Soudien	Council Member	Sept. 2018	Feb. 2021	PhD	Male, Coloured	Sociology Education History	IEB Project Literacy: Clanwilliam Trust		2
Mr P Steenkamp	Council Member	Sept. 2018	-	Executive MBA: Henley Business School Honours in Organisational Psychology: Rhodes University	Male, White	Innovation & integration expert	I Am Jack Frost Holdings (Pty) Ltd. Creative Leadership Collective (Pty) Ltd.	Mainstreaming of innovation across public and private sector Technologies emanating from publicly funded	2



## 2. EXECUTIVE COMMITTEE

The duties of the NACI Executive Committee (ExCo) are to dispose of matters determined by the Council. The ExCo's terms of reference and decision-making power for each matter referred are decided by NACI.

*Table 3: Current ExCo meeting attendance (2020/21)*

EXCO MEMBER	MEETINGS ATTENDED			
	16/09/2020	22/09/2020	04/02/2020	Number of meetings attended
Dr S Moephuli: Interim Chairperson from July 2019	✓	✓	✓	3
Dr M Cele – Acting CEO	✓	✓	✓	3
Mr I Engelbrecht	x	✓	✓	2
Ms I Karg	✓	✓	✓	3
Ms Matikinca - Ngwenya	x	x	✓	1



# **PART D**

## **HUMAN RESOURCE MANAGEMENT**

# 1. INTRODUCTION

To implement its advisory work programme, the NACI Council is supported by the NACI Secretariat. As at 31 March 2021, 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 their performance agreements and assessments. Seven employees qualified for performance rewards by 31 December 2020.

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

# 2. HUMAN RESOURCE OVERSIGHT STATISTICS

**Table 4: Performance rewards**

Programme/ activity/ objective	Performance rewards				Personnel Expenditure (R'000)		% of performance rewards to total personnel cost (R'000)	
	Notch progression		Bonus		Notch progression	Bonus	Notch progression	Bonus
	No. of employees	Beneficiaries	No. of employees	Beneficiaries				
Top Management (L15-16)	0	0	0	0	0	0	0	0
Senior Management (L13-14)	5	2	5	0	38 754	0	0.00009	0
Professional qualified (L9-12)	3	2	3	0	26 742	0	0.00006	0
Skilled (L6-8)	3	3	3	1	14 235	16 753,30	0.00003	0.00004
Semi-skilled (L3-5)	0	0	0	0	0	0	0	0
Unskilled (L1-2)	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>11</b>	<b>7</b>	<b>11</b>	<b>1</b>	<b>79 731</b>	<b>16 753,30</b>	<b>0.0002</b>	<b>0.00004</b>



**Table 5: Training costs**

Programme/ activity/ objective	Personnel Expenditure (R'000)	Training Expenditure (R'000)	Training Expenditure as a % of Personnel Cost.	No. of employees trained	Average training cost per employee
NACI training and development	7 243 000	R5 930–00	0.08%	1	R5 930.00

**Table 6: Employment and vacancies**

Programme/ activity/ objective	2020/2021 No. of Employees	2020/2021 Approved Posts	2020/2021 No. of Employees	2020/2021 Vacancies	% of vacancies
Secretariat	9	13	9	4	23%
<b>TOTAL</b>	<b>9</b>	<b>13</b>	<b>9</b>	<b>4</b>	<b>23%</b>

**Table 7: 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	4	0	1	3
Professional 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
<b>TOTAL</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>9</b>

**Table 8: Reasons for staff leaving**

Reason	Number	% of total no. of staff leaving
Death	0	0
Resignation	0	0
Dismissal	0	0
Retirement	0	0
Ill health	0	0
Expiry of contract	0	0
Other	0	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>

**Table 9: Labour Relations: Misconduct and disciplinary action**

Nature of disciplinary Action	Number
Verbal Warning	0
Written Warning	0
Final Written warning	0
Dismissal	0

**Table 10: Equity Target and Employment Equity Status**

Levels	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
Professional qualified	1	0	0	0	0	0	0	0
Skilled	1	0	0	0	0	0	0	0
Semi-skilled	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Levels	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
Professional qualified	2	0	0	0	0	0	0	0
Skilled	2	0	0	0	0	0	0	0
Semi-skilled	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Levels	Employees living with disabilities			
	Male		Female	
	Current	Target	Current	Target
Top Management	0	0	0	0
Senior Management	0	0	0	0
Professional qualified	0	0	0	0
Skilled	0	0	0	0
Semi-skilled	0	0	0	0
Unskilled	0	0	0	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



# **PART E**

## **FINANCIAL INFORMATION**

## 1. REPORT OF EXTERNAL AUDITOR

NACI is not subject for external auditing.

## 2. ANNUAL FINANCIAL PERFORMANCE

NACI's allocated budget for 2020/21 was R20,827 million, including compensation of employees. The revised allocated budget for 2020/21 was R11,744 million, including compensation of employees.

The expenditure on goods and services from the annual budget was R5,930 million, which was higher than the original and revised budgets, due to the unadjusted deliverables and the remuneration for the fixed-term contracts.

*Table 11: Financial performance in the 2020/21 financial year*

Description	Expenses	Commitments	Allocated Budget	Revised allocated budget	Available funds
	(R'000)	(R'000)	(R'000)	(R'000)	(R'000)
Compensation of employees	8 057	0	15 425	8 371	314
Goods and Services	5 930	602	5 402	3 302	(3 230)
Payment of Capital Assets	0	0	0	0	0
Transfers and Subsidies	68	0	0	71	3
<b>Total</b>	<b>14 055</b>	<b>602</b>	<b>20 827</b>	<b>11 744</b>	<b>(2 913)</b>







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