

South Australian Productivity Commission – Report of the Inquiry into Research and Development in South Australia

Response from the Government of South Australia

April 2021



Government
of South Australia

Foreword

South Australia's future prosperity and the wellbeing of our citizens is strongly dependent on our capacity to create, adopt and innovate.

Investing in research and development (R&D) generates ideas and capabilities that result in new and better ways of doing things. It drives new products and services, which in turn generate income for the state and high-value jobs for South Australians. This Government has an ambition to lift our rate of economic growth to match the national average, and a high-performing R&D sector will be critical to achieving this goal.

For these reasons, I tasked the South Australian Productivity Commission to conduct an inquiry into the State's public and private R&D. The Commission's role was to understand how its current structure and operation contributes to long-term productivity gains and economic growth, and to recommend actions to improve that contribution.

The Commission's findings provide a clear direction to achieve our R&D ambitions, as well as affirming the work we're already doing as a State through our EXCITE Strategy. This strategy aims to put South Australia on the map as the nation's State of Science.

It's clear that we'll need to continue with strong collaboration and engagement across government, industry and research institutions to successfully implement many of the Commission's recommendations and the actions outlined in this response.

The South Australian Government will develop a detailed R&D plan that builds on the EXCITE Strategy's framework, that will set out our objectives, targets and performance measures, and actions to ensure that the State is getting the most value from its R&D investment.

We've already begun work to implement the Commission's recommendations, moving to expand the Chief Scientist's role and scoping the establishment of an independent advisory body that will undertake monitoring and evaluation, and provide advice to the Government.

We have an incredible opportunity here in South Australia to strengthen our focus on research and development, building on a foundation of high-quality local institutions and world-class research expertise.

I thank the Commissioners—
Dr Matthew Butlin, Mr Adrian Tembel, Professor Edwina Cornish AO and Professor Christopher Findlay AM—for the work that went into this comprehensive and insightful report.

I am confident that, as a state, we have the vision, capability and drive to grow our R&D sector for the benefit of all South Australians.



Hon Steven Marshall MP
Premier of South Australia

Introduction

In February 2020, the Premier of South Australia wrote to the South Australian Productivity Commission (the Commission) requesting that an inquiry be undertaken into research and development in South Australia and how it translates into economic performance. This inquiry was undertaken alongside an inquiry into Health and Medical Research (HMR), to evaluate the HMR landscape in South Australia, in terms of its effectiveness and competitiveness in relation to other jurisdictions.

The Commission consulted with universities, research institutions, research funding bodies, State Government departments, professional bodies and industry through 62 consultation meetings, 3 roundtables and 17 written submissions to help inform its final report to the Government.

The Commission found evidence that the State's R&D performance is not keeping pace with what the State requires to drive economic growth and productivity. As examples, business expenditure on R&D as a percentage of the State's Gross State Product is below the Australian average, not helped by our less R&D intensive industry structure and predominance of small firms. And whilst higher education expenditure on R&D has grown over the last decade, the rate of growth in funding has been below the national average and the high dependence on overseas student income to generate surpluses that funded R&D is increasingly tenuous in a post-COVID world.

The Commission's findings highlight the fact that increasing expenditure on R&D should be secondary to increasing the value that the State extracts from existing efforts. Overall, the Commission concludes that "...a more purposeful approach to research policy would lift the return to the state and make R&D a strategic contributor to the state's success."

The State Government has taken steps recently to put a strategic framework in place to guide the State's R&D efforts in the form of the EXCITE Strategy. The Strategy serves as the overarching framework for R&D, developed following extensive consultation with key research and innovation partners to make South Australia the nation's 'State of Science'.

The framework established by EXCITE will guide the development of the South Australian Research and Development Plan (R&D Plan) containing overarching objectives, targets and performance measures across the innovation value chain. This would range from targets for the State's higher education expenditure on R&D, through to business investment in R&D and the translation and commercialisation of new products and services from research.

The R&D Plan will contain specific actions that the Government will take to strengthen our State's R&D performance and link to sector-specific R&D strategies that will be developed for some of the State's priority sectors.

The Government's response to each of the Commission's recommendations is outlined below including indicative timeframes to complete implementation of each of the requisite actions.

Factors affecting R&D performance: infrastructure, funding and access to data

Recommendation 5.1 – Central information register of R&D infrastructure

The Commission recommends that the state government, in cooperation with universities and industry, develops, maintains and promotes a register of key research and development infrastructure (including national infrastructure networks) available for use in South Australia.

SA Government Response

Supported

The State Government understands the value of having access to key R&D infrastructure as evidenced by its investment in nationally significant shared infrastructure that can benefit researchers and industry. Previous efforts to establish infrastructure registers have had mixed success, however, recent discussions with key stakeholders have indicated strong support to deliver an effective solution for the State.

As part of the implementation of the South Australian Government's EXCITE Strategy, the South Australian 2030 Horizon Major Research and Technology Infrastructure Steering Group is in the process of being established and preliminary work has commenced on engaging with research infrastructure facility managers to understand current infrastructure assets as well as key infrastructure needs in the future.

In adopting a whole-of-government approach to R&D, there is greater value in combining information on the State's R&D infrastructure with the research

capabilities that exists within local organisations to be of most use to industry, investors as well as external researchers.

The South Australian 2030 Horizon Major Research and Technology Infrastructure Steering Group will oversight this work to ensure the operating model is sustainable and provides an enduring benefit to the State's researchers, industry and government.

Action

The Government will scope the design of a searchable R&D capability platform on a staged basis that provides readily accessible information to industry, researchers and government, with implementation of the platform to follow thereafter.

Due Date

September 2021 to complete scoping work that will determine the platform's implementation schedule.

Recommendation 5.2 – Access to South Australian Government data

To enable South Australian researchers to benefit from access to South Australian public sector data and from inter-jurisdictional data linkage opportunities whilst ensuring robust privacy protections are guaranteed in statute, the Commission recommends that the South Australian Government develop and enact information privacy legislation that:

- complements the *Public Sector (Data Sharing) Act 2016*;
- streamlines and clarifies the current regulatory environment as it relates to the collection, storage, use and disclosure of public sector data in order to enhance access to it; and
- ensures that robust privacy protections are in place.

SA Government Response

For further investigation

The South Australian Government agrees that more could be done to improve streamlining of approvals and data access by focussing upon establishing strong whole-of-government governance structures. However, South Australia has legislation in place that enables the collection and linking of available data across the public sector.

The *Public Sector Data Sharing Act 2016*, exists to clarify the data sharing environment and contains Trusted Access Principles which provides for a '5 safe framework' for the sharing of data. This framework is well recognised as a best practice ethical framework utilised by such organisation as the Australian Bureau of Statistics and Australian Institute of Health and Welfare.

Action

Enacting privacy legislation is under active consideration by the South Australian Government.

Streamlining the collection, storage, use and disclosure of public sector data may require accompanying agency-level policy and procedures that would support the implementation of any new legislative requirements.

Further consultation will be undertaken with stakeholders to determine existing barriers in data linkage and access opportunities, to identify and consider policy or administrative settings that may also support access to public sector data for researchers.

Due Date

December 2021

Path to Performance

Recommendation 7.1 – Overall framework

To add to the contribution of research and development to growth in South Australia, the Commission recommends that the South Australian Government:

- establishes long term state-wide goals for lifting the volume, productivity and economic impacts of R&D, sets quantitative targets, such as the state share of national grant funding, collaboration with business and rates of commercialisation, to guide progress towards those targets;
- designs, strengthens and implements accountability, budgets, measurement and evaluation to support the delivery of this vision, including through the state's sectoral growth plans. In this respect the activities available to the state government include expenditure directly related to research, procurement (and its elements that have a research component), management of assets relevant to research and management of relationships with others in the state who contribute to research activity, including the Australian government, business and universities;
- strengthens the government's architecture for R&D to pursue these goals and the accountability for their delivery;
- makes a state government strategic plan for research and development addressing all the tools available to it, including: expenditure directly related to research; government procurement and its elements that have a research component; management of assets relevant to research; management of strategic relationships with others in the state who contribute to research activity, including the Australian government; business and universities; and building the capability of the government's own research workforce and encouraging research bodies to act similarly; and
- incorporates in these actions the scope to develop existing partnerships, the role of precincts, policy on use of public data, the scope to apply procurement policies and attention to research leadership.

SA Government Response

Supported in principle

The South Australian Government supports the Commission's recommendation to establish an overarching strategic framework for boosting the economic contribution of research and development in South Australia.

Building upon the framework of the EXCITE Strategy, the Government will work to develop a detailed South Australian R&D Plan (R&D Plan) incorporating overarching objectives, short and long-term targets, and performance measures across the innovation value chain. The R&D Plan will be supported by sector-specific R&D strategies aligned with the State's priority sectors, such as the SA Health and Medical Research Strategy to be developed by the Department of Health and Wellbeing.

Action

The Government will develop a South Australian R&D Plan outlining the State's overarching objectives, targets and performance measures linked to sector-specific strategies developed for the State's priority sectors.

Due Date

June 2022

Specific responses to each of the Commission's recommendations 7.2 to 7.7 is outlined below.

Recommendation 7.2 – Accountability

To make operational the vision in which research, development and innovation is accepted as a contributor to long run growth, and building on EXCITE and other relevant policies, the Commission recommends that the South Australian Government establishes a clear, transparent accountability framework in which:

- clear state-wide goals for research and development in the short run and in the long run are adopted;
- the intended purpose and the nature of the benefits in the short and the long term of each of the state's actions in all agencies to support and increase research and development is clear;
- the actual contribution from, and performance of, the state's actions in all agencies to drive that contribution is measured and evaluated systematically and reported transparently;

- principles that support the efficiency of actions related to research and development are shown to have been applied such as:
 - » contestability in deciding the composition of the state's portfolio of support for research and development, including its infrastructure assets; and
 - » systems of gateways and milestones for the assessment of project progress;
- an independently designed set of transparent performance indicators for understanding the overall performance and trends in the state's R&D performance is established, with ongoing compilation, regular publication and commentary on performance in work led by external independent advisors.

These measures include whole-of-government resources committed to research and development, including recurrent expenditure and research and development assets, and the performance of those activities.

SA Government Response

Supported

The South Australian Government supports the recommendation to establish a clear and transparent accountability framework as an integral component in achieving the Government's long-term, state-wide goals for increasing the volume, productivity and economic impacts of R&D and innovation to be developed in the R&D Plan as per Recommendation 7.1.

As well as adopting state-wide goals for R&D, the performance measures will be cognisant of the diverse roles of Government which includes investment in R&D to meet its legislative responsibilities, supporting our health and medical needs, supporting industry innovation and broader societal benefits.

Action

The Government will develop short and long-term goals for R&D linked to performance measures in the R&D Plan that can be evaluated and reported by the independent advisory body to the Government (as per Recommendation 7.3). Sector-specific performance indicators will be embedded within relevant sectoral and discipline-specific strategies, such as the SA HMR Strategy under development, and linked to the Government's R&D Plan.

Date

June 2022

Recommendation 7.3 – Strategic architecture for research and development activity

To implement the accountability regime, the Commission recommends that the South Australian Government establish a strategic architecture for this purpose which, considering the principle of avoiding the introduction of an extra layer of management to existing arrangements, links:

- a Ministerial level responsibility for Research and Development as a key part of the overall Innovation and Skills portfolio linked to the state's innovation and skills strategy;
- a Chief Advisor for Research, Development and Innovation;
- an expert Independent Advisory Body for Research, Development and Innovation; and
- Chief executives of relevant agencies.

(See page 28 of the Final Report for recommended responsibilities of each role).

SA Government Response

Supported in principle

The South Australian Government supports the establishment of a strategic architecture for R&D that provides accountability for the State's performance against our short and long-term goals.

The Minister for Innovation and Skills will be accountable for the State's overall R&D performance to be outlined in the R&D Plan.

To avoid additional administration and management arrangements, responsibility for the Government's sector-specific R&D strategies will be the responsibility of individual portfolio ministers who will work across government and relevant agency Chief Executives to deliver and report on performance within their sector through to the Minister for Innovation and Skills.

The Chief Scientist, under an expanded role, will work across the various R&D sectors to support achievement of the Government's objectives, with the Independent Advisory Board monitoring the State's performance and reporting through to the Minister responsible for the State's R&D Plan.

Action

The Government will strengthen the portfolio responsibilities of the current Minister for Innovation and Skills, to make the position accountable the State's performance against the R&D Plan.

Due date

June 2021

Action

The Government will expand and strengthen the role of the State's Chief Scientist, to lead the development of the Government's detailed R&D Plan in conjunction with agencies developing sector-specific strategies for R&D.

Due date

September 2021

Action

The Government will establish an Independent Advisory Body to provide oversight of the State's performance against the Government's R&D Plan. The body will be responsible for developing performance indicators, commissioning program evaluations and reporting to the Minister for Innovation and Skills on the State's overall performance including areas requiring attention. The terms of reference and membership of this body will be finalised by the Government, including the consideration of whether its independence and functions should be protected through statute.

Due date

December 2021

Recommendation 7.4 – Strategic relationships, infrastructure and collaboration

As part of the state's approach for increasing the amount, quality and contribution from research and development in South Australia, the Commission recommends the South Australian Government builds enduring strategic partnerships with major Australian Government research agencies to:

- leverage the significant Australian Government investment in intramural research in South Australia, especially DST and CSIRO. With respect to CSIRO, further develop the work program with and reporting process with senior staff responsible for CSIRO's SA operations. With respect to DST, noting the relationships of universities with DST and DST's approach to partnerships (including through the DISP arrangements), support their extension to other research providers and the private sector in SA.
- build nationally/globally significant research scale and impact in areas that attract long term Australian Government intramural support;
- maximise alignment between national research and innovation priorities and the state's economic development goals, including in the alignment of state and Australian Government programs (following a review state policies and programs to identify opportunities for state programs to complement those of the Australian Government that are available to SA business); and
- develop and execute a plan to increase Australian Government investment research infrastructure located in South Australia as part of the EXCITE strategy and the state's strategic plan for research and development proposed in Recommendation 7.1.

SA Government Response

Supported

The South Australian Government supports the recommendation to strengthen strategic partnerships with major national research organisations that help build upon the State's existing and emerging R&D strengths.

The extent and nature of partnerships with national research organisations should be determined by the State's strategic R&D priorities, which in turn are aligned to the State's strategic priorities as represented by the Growth State Plan, EXCITE and other key Government strategies.

The State Government, through various agencies involved in R&D already partner with various research agencies of national significance including

the CSIRO and DST where this complements the State's economic and R&D priorities and welcomes the opportunity to leverage these relationships where there is alignment between the State's economic development goals and national research and innovation priorities.

Action

The Government will implement this recommendation as a key theme within the State's R&D Plan to be developed.

Due Date

Ongoing

Recommendation 7.5 – Maximise the net benefit to the state from research and innovation precincts

To maximise the net benefit to the state from its significant investment in science and innovation precincts, and noting governance structures recently established for them, the Commission recommends that the South Australian Government:

- following the proposal in EXCITE, ensures that each Innovation District/Neighbourhood has a strong governance structure together with a suite of 'metrics of success'.
- emphasizes the promotion of research and development and collaboration among participants in the precinct including universities, businesses and state agencies, including through the application of new governance structures;
- ensures research, development and innovation precincts have clear objectives, ongoing performance measures and regular reviews as part of managing the state's research assets to optimise their value to the state;
- measures the benefits and costs of its investment, particularly in relation to its impact on additional research and development; and
- reviews existing measures which are designed to promote relationships between business and research providers which take account of their complementarity with precinct operations.

SA Government Response

Supported

The South Australian Government supports the recommendation to establish strong governance structures for the State's science and innovation precincts, along with a suite of 'metrics of success', which is a commitment currently being implemented through the EXCITE Strategy under its 'Powering Innovation Districts and Neighbourhoods' program.

Action

The Government will work collaboratively to define and identify relevant Innovation Districts, and establish governance structures along with suitable KPIs to ensure that the performance, benefits and

costs of R&D investment can be clearly measured, noting that the Government may have limited ability to enforce reporting requirements on organisations where there is no funding or formal agreements in place. This work will also take into consideration the promotion of R&D and collaboration amongst participants within each Innovation District.

Date

December 2021

Recommendation 7.6 – Support associated with government procurement

To encourage research activity associated with the South Australian Government's procurement activities the Commission recommends that the South Australian Government require each relevant agency to:

- facilitate research which is associated with government procurement, including by:
 - » developing information on local research and development capability in universities, other research institutions and businesses;
 - » making public forward procurement needs that require significant different or innovative solutions compared with the past; and
 - » establishing forums in which both items can be discussed.
- set tender terms that ameliorate biases against local research groups, for example, by allowing new groups to compete based on expertise rather than years of experience; and
- in program evaluations in these areas, benchmark local programs against comparable international programs, and check for opportunities to align with and add value in the local operation of Australian Government programs.

SA Government Response

Supported in-part

The South Australian Government supports the principle of the Commission's recommendation to facilitate research associated with government procurement where appropriate.

Developing information on local R&D capability will be addressed as per the Commission's Recommendation 5.1.

The Commission's recommendation regarding tender terms is partly supported. The State Government undertakes open and competitive tendering practices, and the decision whether to bias expertise versus experience is tailored to different procurements depending on the complexity and outcomes sought.

Action

The Government will facilitate where appropriate, the incorporation of research components within government procurements, including communicating forward procurement needs and conducting forums where these needs can be discussed.

Date

December 2021

Action

The Government will evaluate programs aimed at facilitating research associated with government procurement and benchmarking it against comparable international and national programs where possible.

Date

December 2022

Recommendation 7.7 – Research leadership and workforce

To maintain and grow the capability of the state's research workforce to underpin the proposed State's strategy for research, development and innovation, the Chief Advisor:

- advise the Minister on the adequacy of the state's research workforce, including the quality and depth of the research leadership in the areas bearing on the state's research, development and innovation strategy;
- engage with, and advise, relevant Chief Executives about the research workforce in their agencies, with particular attention to the research leadership and its relevance to the strategic plan; and
- engage with universities and research institutions to encourage them to report on their strategies for management on the matters of research leadership and the professional development of their research workforces. This may provide the basis for support from the SA Government to recruit key talent.

SA Government Response

Supported

The Government supports efforts to strengthen the capability of the State's research workforce given its underpinning role in the achievement of the State's long-term, state-wide goals for lifting R&D performance.

The EXCITE Strategy's *Enabled Future Workforce* recognises the importance of attracting, developing and retaining high-calibre STEM talent and will implement a range of actions as outlined below.

Action

The Government will host a South Australian Future Workforce Forum to map demand and supply pressures for the STEM workforce in the Growth State priority industry sectors.

Date

December 2021

Action

The Government will strengthen the role of the Chief Scientist (see response to Recommendation 7.3, including the provision of advice to the Minister on the adequacy of the State's research workforce, and research leadership to deliver on the State's R&D Plan.

Date

December 2021

Action

The Chief Scientist will engage with agency Chief Executives about the research workforce within their agencies to ensure that the State's is well equipped to deliver on the objectives and targets set out in the State's R&D Plan.

Date

June 2022

Action

The Chief Scientist will engage with universities and research institutions to examine strategies to strengthen research leadership and professional development of their research workforce. This will inform State Government efforts to leverage Commonwealth support for emerging research talent and to recruit key global talent to South Australia through implementation of the EXCITE Strategy's Global Innovators initiative.

Date

June 2022



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of South Australia

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