Towards 3%: Turbocharging Australia's Innovation Effort—How to Reverse Our Slide

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Australian business investment in R&D collapsed during the Global Financial crisis and has not recovered. This calls for a strong government policy response and a full-bodied commitment from the business sector. This paper advocates a *National Business Research and Development Strategy and Action Plan* as an essential component of the response.

# Five policy initiatives

This paper canvasses five core policy initiatives that would strengthen Australian business R&D commitment and secure a path to knowledge-driven growth. This pathway will involve supporting and stimulating R&D in businesses that constitute *the Industries of the Future* and steer the economy away from reliance on the export of commodity materials.

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| **Five initiatives to reverse the slide in Australian Business R&D**   1. An integrated strategy of targeted public support for business R&D 2. A massive lift in public research investment through public research organisations 3. An active and coordinated foreign direct investment (FDI) program targeted at large global R&D investors. 4. Sustaining the investment commitment to education and skills development to support these industries. 5. Ensure that businesses in the industries of the future are effective partners in the development of innovation districts, precincts, and hubs.   These initiatives would be embedded in a *National Business R&D Action Plan*. |

Addressing and executing these initiatives would go a long way to ensuring that Australia enters the elite group of countries that spend over 3% of GDP on R&D.

## An integrated strategy of targeted public support for business R&D

This strategy would cover—

* A cross-portfolio suite of programs that targets business investment in the industries of the future[[1]](#footnote-1), designed for medium-sized technology-intensive enterprises with the potential to grow and prosper through export.
* A modified R&D Tax Incentive program that targets specific technologies in the industries of the future.
* A direct investment strategy that encourages businesses to invest in R&D that is directed towards exploring and discovering new ideas and technologies that may not have an immediate commercial application.
* A Public-Private Partnership (PPP) program that invests in infrastructure and facilities that encourage collaboration with universities and public research organisations
* A Research Facilities Access Program that supports business access to national and international research facilities and equipment for the purposes of testing, scaleup and prototyping.
* A National Technology and Knowledge Transfer program to support university and public research organisation technology transfer offices (TTOs)[[2]](#footnote-2). Currently, there are no government programs that support TTOs.

Elements of these programs are in play in Australia by the Commonwealth and the States acting individually, but they are disconnected and often lack scale and critical mass. They do not add up to an integrated national R&D strategy. The *Future Made in Australia Act* is potentially an important vehicle to address this.

## A massive lift in public R&D investment

Government investment in public research is essential for building business-government collaborations in areas of applied research and experimental development and providing businesses with access to sophisticated R&D equipment[[3]](#footnote-3). This is fundamental for building the industries of the future.

There is little doubt that Australian public research has been substantially defunded over the last 15 years. This trend must be reversed.

The case for supporting public research is even more compelling when it is realised that in today’s world, the “three horizons” approach to strategy is no longer bounded by time. Public research organisations can be forward-looking, agile, and responsive to technology signals and scenarios to lead the deployment of resources to Horizon Three projects.

This initiative would cover existing public research organisations (CSIRO, ASNSTO, DST, and State Agriculture Departments) and, where required, new national research institutes/laboratories established to focus on the specific technologies required to grow the industries of the future.

## An active and coordinated foreign direct investment (FDI) program

Having regard to the intense competition among countries and regions to attract global business R&D investment, an active and coordinated foreign direct investment (FDI) program is essential. It would involve the following basic elements:

* *A policy framework that provides clarity and stability*—including guidelines on intellectual property rights, taxation incentives and obligations, regulatory requirements, grants, research funding, and principles for customised support services.
* *Target identification*—analysis of global R&D investment trends and target sectors and investors.
* *A compelling value proposition*—highlighting the benefits of investing in Australia, including access to talent, infrastructure, research institutions, and supportive regulatory frameworks and how it would deliver strong investor ROIs.
* *Direct engagement with target investors*—through a comprehensive program of targeted outreach efforts.
* *Promoting knowledge exchange and technology transfer, including collaboration between R&D investors, higher education, public research organisations,* and specialised R&D providers.
* *Support for public-private partnerships*—to co-fund and co-implement initiatives that support the objectives of the FDI program.

The FDI program would be based on a *mindset of collaboration*—between government agencies (Commonwealth and State), industry and professional associations, research institutions, and other stakeholders to leverage complementary strengths and resources.

The FDI program would Incorporate mechanisms for monitoring and evaluation, including key performance indicators (KPIs) such as investment inflows, job creation, and innovation outcomes.

## Sustaining the investment commitment to education and skills development to support the industries of the future

Investment in education and skills is fundamental to building and sustaining the industries of the future.

Universities and TAFE/VET institutions still face challenges in keeping pace with the sheer speed of technological advances. They can sometimes be slow to update their curriculums, leading to a skills gap in which graduates may not have the latest knowledge required by employers.

Moreover, there is a growing requirement for interdisciplinary programs that combine technical skills with domain-specific knowledge, preparing students for the complexities of modern R&D projects.

Many universities have made significant strides in integrating digital technologies into their curricula. They partner with industry leaders to ensure that programs remain relevant and that students gain exposure to real-world applications.

The newly established Tech Council acknowledges this problem, but there is a lot of catching up to do.

A *New Industries R&D Skills Development and Talent Retention Program* is required to ensure that Australia’s industries of the future will have the people with the required knowledge, skills and capabilities that will ensure that businesses in these industries will have the capability to grow and prosper.

## Business engagement in innovation districts, precincts, and hubs

At the present time, innovation districts do not receive targeted financial support from the Commonwealth Government, although districts may tap into a range of urban and regional development funding programs.

Moreover, State Government and private sector investments mix the R&D objectives of participating higher education and public research organisations with the business models of property developers, the urban renewal and regeneration objectives of State and local governments, and the rhetorical technology visions of business and financial elites.

In the US, the Biden administration has commenced an initiative to designate selected communities across the country as Regional Innovation and Technology Hubs (Tech Hubs). Tech Hubs are intended to catalyse investment in technologies critical to economic growth, national security, and job creation and help communities become centres of innovation critical to American competitiveness.

The Australian Government must designate and financially support the development of innovation districts and hubs to ensure that they support the development and growth of Australian industries in the future. Tonsley Park in South Australia is often held out as an exemplary case example, but there are other examples of good practice.

# A rigorous approach for adoption and implementation

it almost goes without saying that Australia requires a *National Business Research and Development Strategy and Action Plan*.

This should be orchestrated by the Prime Minister and the Minister for Industry and Science through the Australian National Science and Technology Council. It should not be outsourced to an independent Review.

The development of the Strategy and Action Plan must involve rigorous analysis and testing of propositions not only in terms of their desirability but also in terms of their practicality and feasibility.

Many previous reports on lifting business investment have tended to use the “wisdom of the crowd” through extended consultations and relied less on the knowledge contained in previous reports, understanding why they have not had an impact and the input of national and business development experts.

Very few recent reports have seriously addressed the FDI or global R&D sourcing issues. Recent studies of business R&D investment and industry policy do not mention foreign direct investment at all[[4]](#footnote-4).

A team of officials and key stakeholders should support the formulation of the Strategy and Action Plan rather than outsourcing it to consultants.

1. Although there is no specific definition, the industries of the future are generally identified as clean energy, advanced manufacturing, autonomous systems, quantum technologies, electric vehicle components, battery manufacturing, and biomanufacturing. The issues were discussed more fully in the 2020 UTS Occasional Paper, [Challenges for Australian Research and Innovation](https://www.uts.edu.au/sites/default/files/2020-05/Challenges%20for%20Australian%20Research%20and%20Innovation_web.pdf). [↑](#footnote-ref-1)
2. Would cover CSIRO, DST, ANSTO, Rural RDCs, and Medical Research Institutes. [↑](#footnote-ref-2)
3. It is significant that CSIRO has recently purchased a sophisticated multi-metal 3D printer. See “First multi metal 3D printer in Australia to boost aerospace manufacturing”, <https://www.csiro.au/en/news/All/News/2024/March/First-multi-metal-3D-printer-in-Australia-to-boost-aerospace-manufacturing> [↑](#footnote-ref-3)
4. Office of Industry, Innovation and Science, 2024. *Barriers to Collaboration and*

   *Commercialisation*; Centre for Policy Development, 2024. *Setting Direction: A purposeful approach to modern industry policy*; and Office of Industry, Innovation and Science, 2019. *Policy directions to increase business investment in Innovation.*  [↑](#footnote-ref-4)