MANDALA

Unlocking Australia's R&D potential

SUMMARY FINDINGS

JULY 2025

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BCA
Business Council of Australia

R&D investment is one of the most direct pathways to achieving Australia's productivity objectives, but Australia lags peers

$2.9B decline
in large business R&D over the last decade

Business R&D spend is
half the rate of OECD peers

Large businesses are critical to the R&D ecosystem; anchoring innovation and generating spillover benefits

No OECD country achieves strong R&D performance without strong large business investment

48% of business R&D investment is from the top 5% R&DTI claiming companies

Alumni from top R&DTI companies have gone on to lead **1,800** other companies

However, Australia's R&D settings are not competitive with peers

12% higher costs
for R&D activities

Subsidies 30% lower
for large business R&D

Lower returns
on R&D-related income

Australia can capture the R&D opportunity through six targeted reforms

- Simplify R&DTI rates
- Incentivise R&D commercialisation
- Remove the cap on R&DTI claims
- Streamline R&DTI compliance
- Encourage sector collaboration
- Consolidate R&D grants

These reforms will drive a significant productivity boost for the Australian economy leading to

$7B in additional annual GDP

$5 returns for every $1 of government expenditure

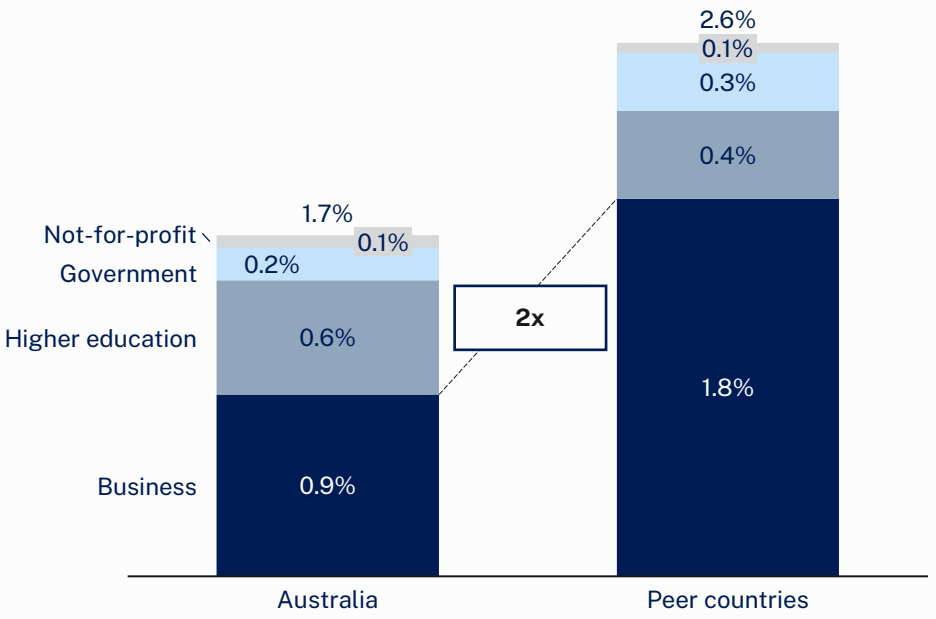
Budget neutral over the next 10 years

Australia's business expenditure on R&D as a share of national output is half that of peer nations

Gross domestic expenditure on R&D, Australia vs. peers

% of GDP, 2021

This gross domestic shortfall is driven by the business sector. While not-profit, government, and higher education R&D spending are on par with peers, business R&D expenditure is half that of comparator counties.



Note: 'Peer countries' includes Canada, Germany, Japan, New Zealand, Singapore, the UK, and the US. 2021 is the latest data available for this metric.
Source: OECD (2024) *Main Science and Technology Indicators* and Mandala analysis.

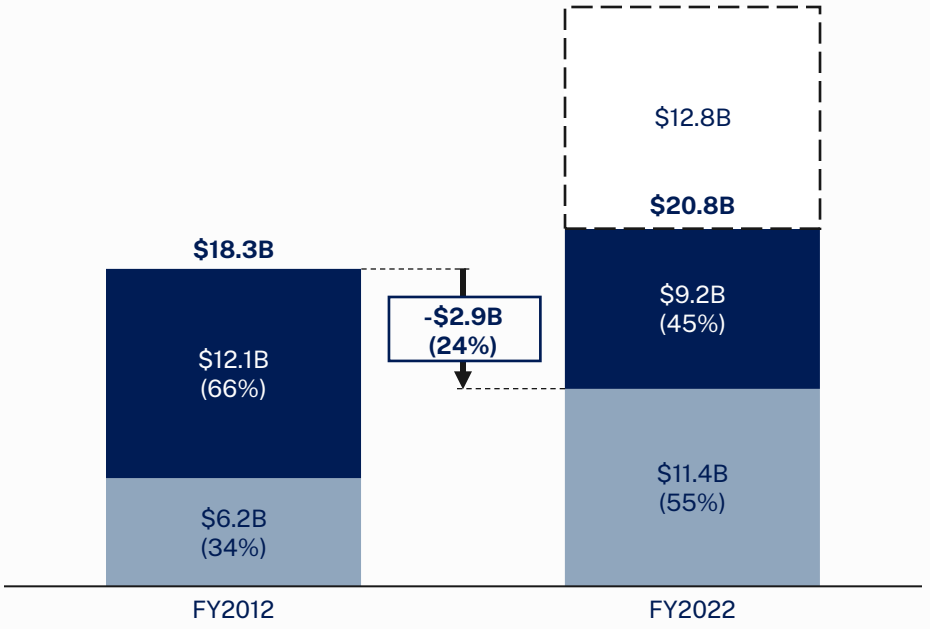
This is driven by low and declining large business R&D, which has fallen by $2.9B

Australian business expenditure on R&D, by business size

$B expenditure on R&D, 2011-12 and 2021-22

Large businesses
Small businesses
Large businesses with small business growth rate

R&D expenditure by large Australian businesses has declined by $2.9B between FY2012-22. In this same period small business R&D expenditure has grown by 84%. If instead Australia's large business R&D had grown at the same rate as small business R&D expenditure, by FY2022 there would be an additional $12.8B in annual R&D investment from large businesses.

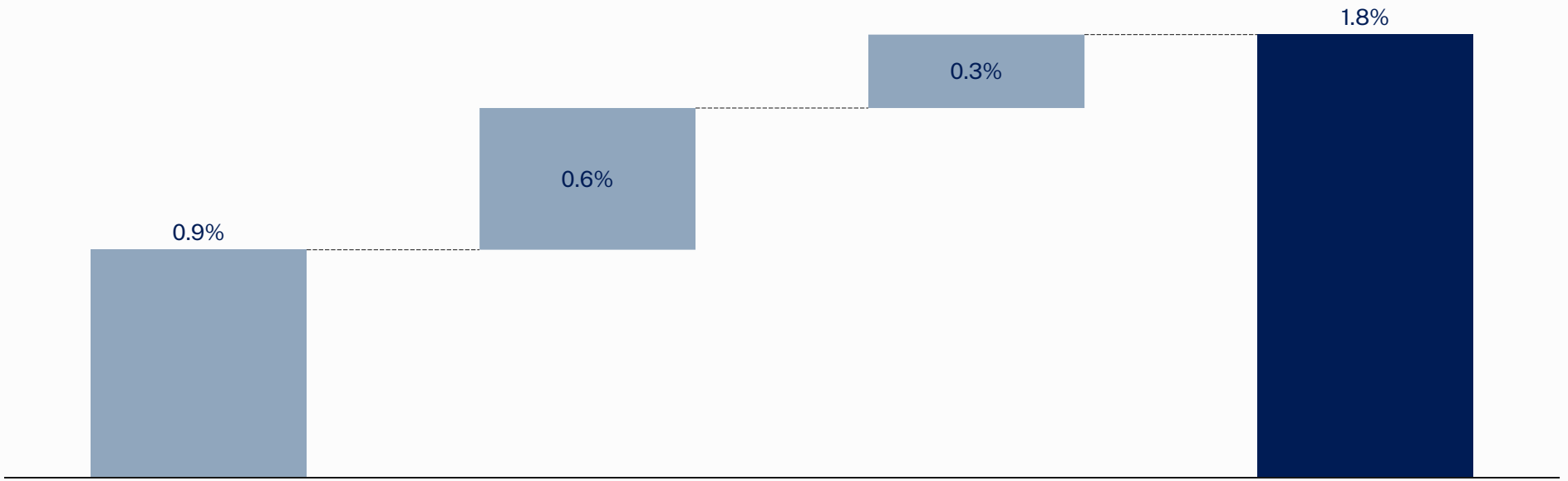


Note: 'Large businesses' are defined as those with 200+ employees, while 'Small businesses' are those with less than 200 employees.
Source: ABS (2023) *Research and Experimental Development, Businesses Australia* and Mandala analysis.

Australia's level of business R&D is low even when accounting for industry composition

Business R&D intensity, Australia vs international peers

Business R&D expenditure as a % of GDP, 2021



Due to the differing R&D intensity of different industries. For example, manufacturing tends to have higher levels of R&D than professional services.

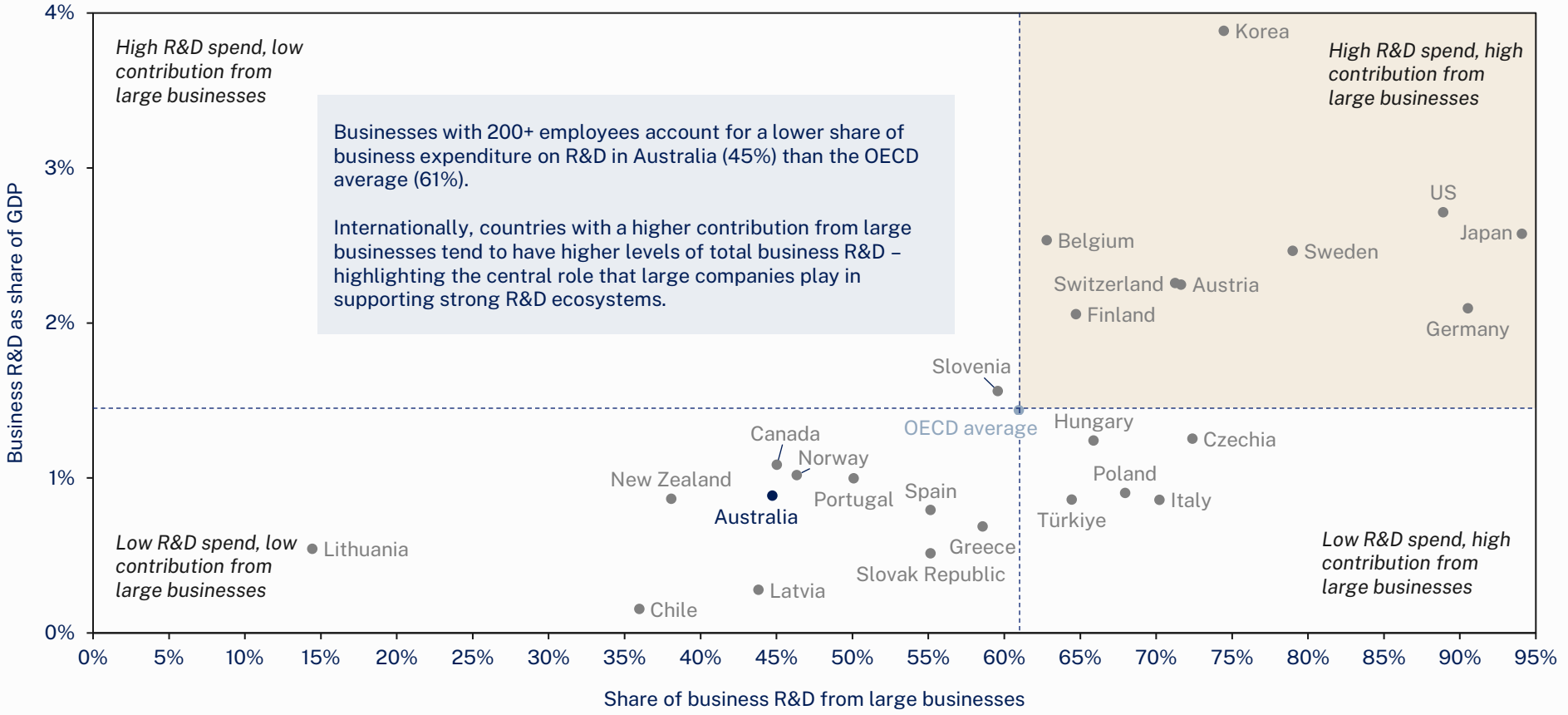
Due to the differing R&D intensity within specific industries. This could be driven by a wide range of factors, including the investment and regulatory environment, influencing business R&D decisions.

Note: Industry composition adjustment made by applying Australian industry R&D intensities to peer average industry composition.
Source: OECD (2025) *STAN value added by economic activity*; Statistics Singapore (2025) *GVA by institutional sector*; OECD (2021) *ANBERD database*; and Mandala analysis.

No OECD country achieves strong R&D performance without substantial R&D investment from large businesses

Large business contribution to business R&D expenditure

x-axis: share of business expenditure on R&D from large businesses, y-axis: business expenditure on R&D as share of GDP, 2021



Note: Includes a sample of 26 OECD countries where there is available data on business R&D expenditure by business size. 'Large businesses' are defined as businesses with 250+ employees, except for Australia where it is defined as businesses with 200+ employees (due to data reporting practices by the Australian Bureau of Statistics).
Source: OECD (2024) *Main Science and Technology Indicators*; ABS (2023) *Research and Experimental Development, Businesses Australia*; and Mandala analysis.

Large businesses support R&D ecosystems by generating spillover benefits, making their underinvestment in Australia particularly concerning

Overview of benefits of large businesses in the R&D ecosystem

Large businesses play a pivotal role in R&D ecosystems and are a key source of capital and knowledge transfer

Act as pillars

Provide stability to the R&D ecosystem by being large employers of R&D staff and deploying large amounts of capital for investment

48%
of R&D investment comes from top R&D claiming companies

10%
of R&D workers are employed by the top 5% of R&D claiming companies

Generate spillovers

Generate additional benefits to the R&D ecosystem through knowledge and talent transfer

Former staff of top R&D claiming companies have gone on to lead[1]...

1,800
companies which have generated...

$77B
in value added, from...

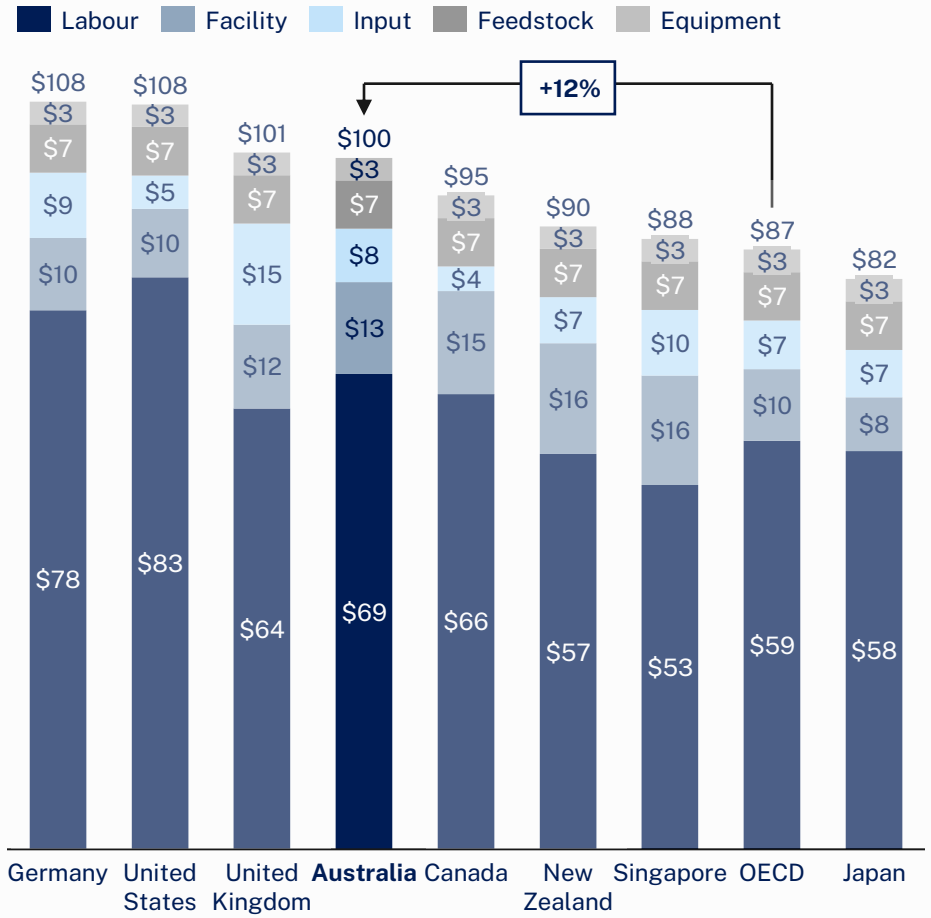
132,000
R&D workers currently employed

1. Figures refer to activities of R&D workers who were employed at one of the top 5% of R&DTI claiming companies between 2014-2025. To 'lead' defined as to found or be the CEO of a company.
Note: GVA contribution obtained using company headcounts and industry average GVA/employee statistics.
Source: ATO (2024) *R&DTI 2021-22*; Revelio labs; and Mandala analysis.

Australia's R&D costs are among the highest of peer nations, disincentivising business R&D investment

Large business R&D cost-stack cross-country comparison

Index of R&D input costs relative to Australia, represented in AUD, 2021

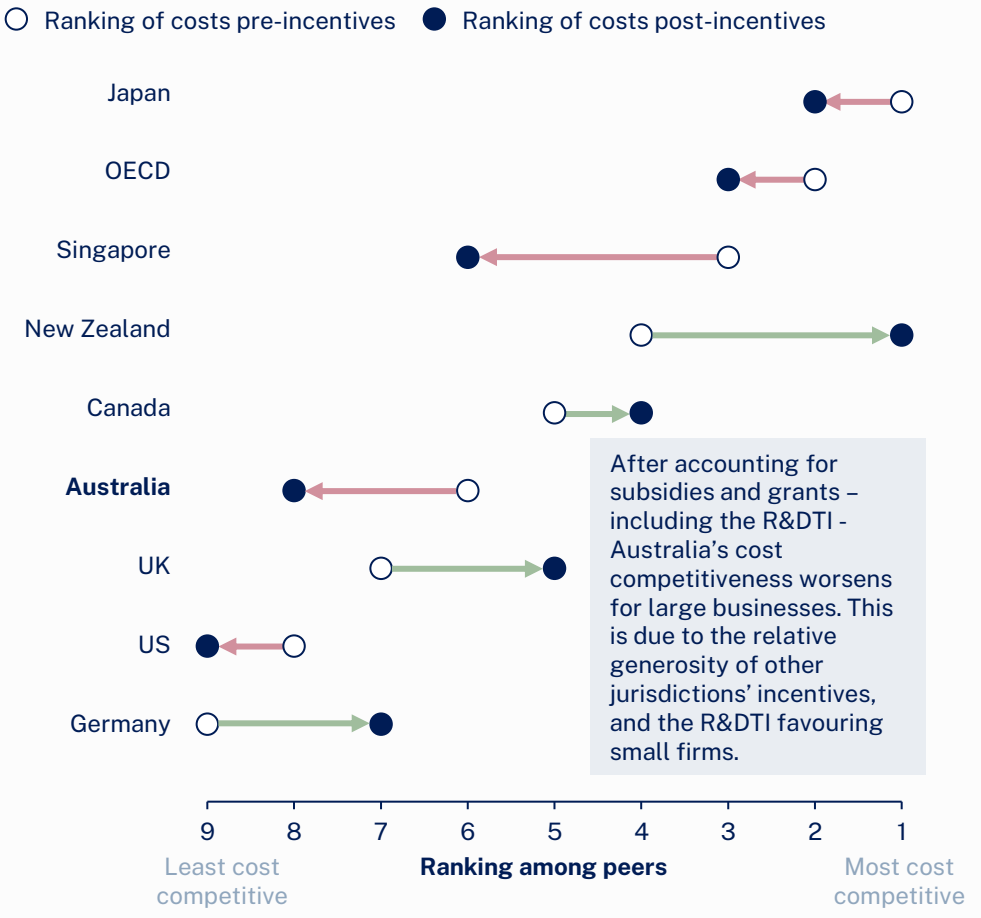


Note: Stacked bar proportions indicate the relative cost of R&D components in different economies. Cost of labour measured by salaries for a representative R&D workforce, built as the weighted average share of R&D roles over industry data. Cost of rent measured by OECD property affordability index, cost of inputs measured by 2018-2025 average business electricity rates. Costs of specialised equipment and feedstock are kept constant across countries.
Source: listed in appendix.

Subsidies, grants and incentives fail to improve Australia's R&D cost competitiveness

Impact of financial incentives on large business R&D costs

Ranking among nine peers



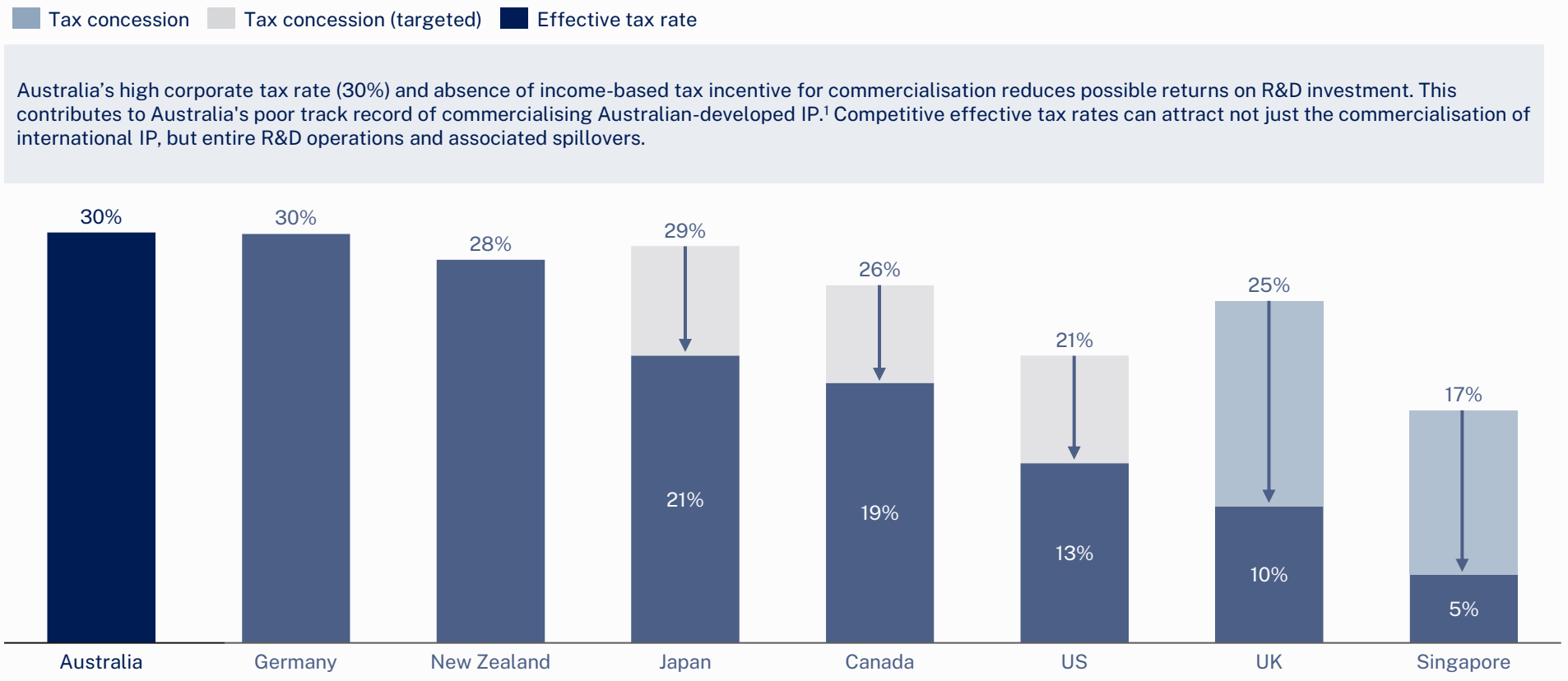
After accounting for subsidies and grants – including the R&DTI - Australia's cost competitiveness worsens for large businesses. This is due to the relative generosity of other jurisdictions' incentives, and the R&DTI favouring small firms.

Note: Grant impact is measured by BERD financed by government as a % of BERD, assumed uniform across businesses.
Source: OECD (2024) *Main Science and Technology Indicators: BERD financed by Government*; OECD (2023) *Implied tax subsidy rates on R&D expenditure*; and Mandala analysis

Australia's tax settings discourage commercialisation, with peer nations attracting commercialisation activity with lucrative incentives

Effective tax rate on IP profits in Australia and peer countries

% of corporate income, large business



1. Industry Innovation and Science Australia (2023) *Barriers to collaboration and commercialisation*

Note: Tax concessions considered include Canadian Innovative Companies Deduction (available only in Québec), US Foreign-Derived Intangible Income Deduction (available for income related to IP exports), Japanese Innovation Box (available for AI-related IP income up to a cap of 30% of total income), UK Patent box, Singapore IP Development Incentive.

Source: OECD (2024) *Corporate income tax rate*; Centre for International Economics (2016) *R&D Tax Incentive Programme Review*; Finances Québec (2016) *The Québec Economic Plan*; US Department of the Treasury Internal Revenue Service (2021) *SOI Tax stats*; United Kingdom Government HM Revenue and Customs (2020) *Corporation Tax: The patent box*; Singapore Economic Development Board (2025) *IP Development Incentive*; and Mandala analysis.

Australia underperforms peers on each business R&D decision criteria, disincentivising investment with high costs, low productivity, and low returns

R&D decision factors matrix,[1] rankings among peers

Performs better **Performs worse**

Country (overall R&D decision factors ranking)	Cost competitiveness *Lower costs may be more attractive for R&D investment*	Productivity *Higher economy-wide productivity may attract R&D investment*	Return on investment *Higher returns through commercialisation incentives can attract R&D*	Global Innovation Index ranking[2]	Comment
Singapore (1)	5	3	1	4	Singapore demonstrates how a **suite of targeted policies** can encourage innovation despite high costs.
UK (1)	3	4	2	5	The UK's **patent box** and **consolidation of multiple R&D tax schemes** has boosted business R&D investment.
US (3)	8	1	3	2	The scale, quality, and **depth of capital markets** in the US offsets high costs, encouraging investment.
Japan (4)	2	7	5	13	Japan's long-term **industry-government collaboration** drives sustained private R&D leadership.
Canada (4)	4	6	4	14	Canada's **generous R&D tax incentives** and **business-led collaboration infrastructure** encourage innovation.
Germany (6)	6	2	7	9	Germany's R&D tax system **combines incentives with established grant infrastructure**, coordinating support.
New Zealand (6)	1	8	6	25	New Zealand's **generous R&D subsidies** decrease already low R&D costs, attracting investment.
Australia (8)	7	5	7	23	Australia does not rank highly among peers for any R&D decision-making dimension, deterring business R&D.

1. The top three factors that emerged through industry consultations and research, common across businesses when making decisions about R&D expenditure. These factors also supported by economic theory of firms which seek to maximise returns from R&D investments.
2. World Intellectual Property Organisation (2024) *Global Innovation Index*
Source: Centre for International Economics (2016) *R&D Tax Incentive Programme Review*; industry consultation; and Mandala analysis.

To become more competitive and stimulate additional investment, Australia must strengthen the R&DTI, boost commercialisation, and streamline administration

Overview of proposed policy recommendations

Prioritisation principles	Impact-driven	Market-based	Collaboration-focussed	System-wide
	Increase R&D investment and commercialisation to drive economic activity and productivity	Incentivise behaviour within competitive markets, remaining sector agnostic	Promote collaboration in the R&D ecosystem, leveraging complementary strengths	Support the R&D ecosystem and its interaction with foundational elements of competitiveness

Policy lever	Recommendation	Benefits	Cost
Strengthen R&D tax incentive	**1. Simplify the R&DTI rates:** Apply a consistent R&DTI offset rate of 18.5%[1] above the company tax rate, removing intensity and business size distinctions, while maintaining existing rules on refundability. This will provide a stronger financial incentive for large businesses to complete R&D in Australia, and simplify the administration of the program.	**$2.82B**	**$0.37B**
	2. Remove the R&DTI cap: Remove the existing R&DTI cap of $150m. This will create a stronger financial incentive for large innovative companies to invest in R&D in Australia and avoid artificially constraining the benefits of the program.	**$0.22B**	**$0.06B**
	3. Introduce R&DTI collaboration premium: Apply a collaboration premium of 20% on the R&DTI rate for businesses that collaborate with higher education or research institutions. This will help encourage additional 'industry-led' collaboration with a strong focus on commercialisation. Scheme should align with principles of recommendation 5.	**$1.22B**	**$0.21B**
Boost R&D commercial-isation	**4. Introduce R&D commercialisation incentive:** Introduce an income-based tax incentive, applying a concessional taxation rate of 10% for income derived from R&D activities completed in Australia. This will provide a new financial incentive for research commercialisation and help improve Australia's competitiveness in the global R&D market.	**$2.38B**	**$0.77B**
Streamline program administration	**5. Streamline R&DTI compliance requirements:** Simplify the compliance and documentation requirements for the R&DTI. Provide clearer guidance on R&DTI eligible expenditure, aligning with international standards. This could lead to significant time savings for businesses that could be re-invested into valuable R&D activities.	**$1.05B**	-
	6. Simplify R&D grants for business: Consolidate the existing business and multi-sector R&D grants administered by the Australian Government into fewer nationally significant programs. This could lead to cost savings for the Australian Government by streamlining administrative processes and removing duplicative processes.	**$0.03B**	-
Total		**$7.72B**	**$1.41B**

1. As that this is the current rate for smaller businesses there will be no change to the rates for this cohort of claimers.
Note: Costs and benefits are given as annual averages over the next 10 years.
Source: Ferris, Finkel and Fraser (2016) *Review of the R&D Tax Incentive*; BCA (2025) *Strategic Examination of R&D – BCA Submission*; European Commission (2014) *A Study on R&D Tax Incentives*; and Mandala analysis.

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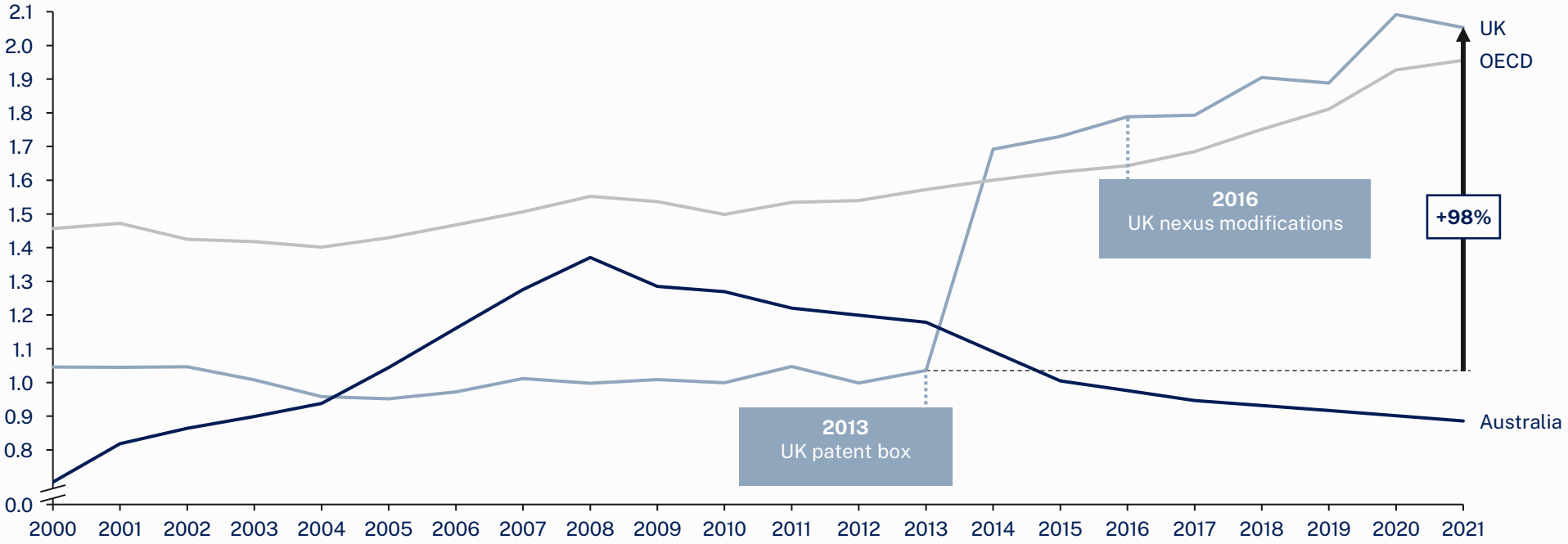
Appendix

Appendix: The UK's patent box has doubled business R&D investment as a share of GDP over the space of eight years

UK business expenditure on R&D over time

% of GDP

Patent box: The UK's patent box has been associated with a 10% increase in investment among firms using the policy.[1] The implementation of nexus requirements has additionally boosted business R&D expenditure.



1. HM Revenue & Customs (2020) *Patent Box Evaluation*
Source: OECD (2024) *Main Science and Technology Indicators* and Mandala analysis.

Appendix: High-level overview of modelling approach and assumptions

Additional business expenditure on R&D

Method

- Calculate the additional business expenditure on R&D that would be achieved by implementing each recommendation

Key assumptions

- Additionality rates (including both intensive and extensive margin):
  - R&DTI: 1.96[1]
  - Patent box: 0.88[2]

% uplift in market-orientated R&D

Method

- Calculate the % uplift in market-orientated R&D that would be achieved by implementing each recommendation

Key assumptions

- Business expenditure on R&D accounts for 65% of all market-orientated R&D[3]

Productivity uplift

Method

- Estimate the % uplift in productivity that is associated with a % increase in market-orientated R&D

Key assumptions

- 1% increase in market-orientated R&D leads to a 0.02% increase in productivity[4]

GDP uplift

Method

- Incorporate these productivity shocks and increase in government expenditure into the G-Cubed CGE model

Key assumptions

- Reforms are funded by new government expenditure
- 5-year lag between R&D investments and productivity gains[5]

1. Thomson & Skali (2016) *The additionality of R&D Tax Policy in Australia* and Ministry of Trade and Industry Singapore (2021) *Examining The Extensive and Intensive Margins of Private Research and Development (R&D) Expenditure Growth in Singapore*
2. Mohnen (2017) *Evaluating the innovation box tax policy instrument in the Netherlands, 2007–13* and Ministry of Trade and Industry Singapore (2021) *Examining The Extensive and Intensive Margins of Private Research and Development (R&D) Expenditure Growth in Singapore*
3. CIE (2016) *R&D Tax Incentive Programme Review* and PC (2007) *Public Support for Science and Innovation*
4. Productivity Commission (2007) *Public Support for Science and Innovation*
5. CSIRO (2021) *Quantifying Australia's returns to innovation*

Appendix: Detailed overview of modelling assumptions

Recommendation	Key assumptions (costs)	Key assumptions (benefits)

1. Simplify the R&DTI rates	• Scaled the cost estimates of the non-refundable R&DTI program from the *Treasury Tax and Expenditure Insights Statement*
	• Assume that premium rate and program cost are directly proportional
		• **Total additionality rate of 1.96:**
		  • Intensive margin: 1.2 (*Thomson and Skali 2016*)
		  • Extensive Margin: 0.76 (estimated using proportions from *Ministry of Trade and Industry Singapore 2021)*
		• **Productivity uplift:**
		  • Business expenditure on R&D accounts for 65% of all market-orientated R&D *(CIE Evaluation 2016, and PC 2007*)
		  • 1% increase in market-orientated R&D leads to a 0.02% increase in productivity *(CIE Evaluation 2016, and PC 2007*)
		  • 5-year lag between R&D investments and when productivity gains are realised (*CSIRO 2021*)

2. Remove the R&DTI cap	• Top 10 RDTI claiming companies continue to grow their R&D investments claimed in the R&DTI by 7% p.a. (*minimum CAGR of top 5 claiming companies*)	• As above
3. Introduce R&DTI collaboration premium	• Utilises same method as the PBO costing in 2019 • Assumes all business funding for higher education R&D and government R&D is claimed in the collaboration premium • Assume progressively phased in each year: 20%, 40%, 60% and 100%	• As above

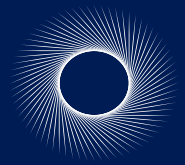
4. Introduce R&D commercialisation incentive	• Based on previous treasury costing in 2021, scaled for more generous rate and broader base (applying to all industries)
	• Assume progressively phased in each year: 20%, 40%, 60% and 100%
		• **Total additionality rate of 0.88:**
		  • Intensive margin: 0.54 (*Mohnen 2017 Evaluating the innovation box tax policy instrument in the Netherlands, 2007–13*)
		  • Extensive Margin: 0.34 (estimated using proportions from *Ministry of Trade and Industry Singapore 2021)*
		• **Productivity uplift (same assumptions as above)**

5. Streamline R&DTI compliance requirements	• No fiscal cost	• Compliance costs account for 9% of the total benefits that businesses receive (*CIE Evaluation 2016)* • 75% reduction in compliance costs may be possible from streamlining (*industry consultation*) • **Additionality and productivity assumptions same as other R&DTI recommendations**
6. Simplify R&D grants for business	• No fiscal cost	• Average administration costs from grants is 3% (*ANAO 2022 operation of grants hub*) • Estimated reduction in admin costs that may be possible is 40% (ANAO 2017 *Efficiency of the Australia Council's Administration of Grants)* • **Modelled as direct fiscal saving to government, not as a shock in the CGE model**

Appendix: Slide 7 sources

R&D cost-stack cross-country comparison

Source: Centre for International Economics (2016) *R&D Tax Incentive Programme Review*; International Labour Organisation (2021) *Average monthly earnings of employees by occupation;* Economic Research Institute (2025) *Average wage for an R&D Scientist*; OECD (2024) *Property affordability*; Global Petrol Prices (2025) *Business electricity rates*; Professional Engineers Australia (2021) *Professional Engineers Employment and Remuneration Report;* Clear Picture (2021) *Atlantic Canada Engineering Salary and Benefits Survey*; Statistics Canada (2025) *Average usual wages;* Verein Deutscher Ingenieure (2021) *German engineer salary;* Ministry of Health, Labour, and Welfare of Japan (2025) *Monthly Labour Survey;* Singapore Ministry of Manpower (2023) *Salary comparison;* Professional Engineers Board Singapore (2025) *Annual report;* Singapore Ministry of Manpower (2025) *Total wage changes;* Figure NZ (2021) *Average wage for managers;* Reserve Bank of New Zealand (2025) *Labour Cost Index;* The Engineer UK *(2021) Annual salary survey;* United States Bureau of Labor Statistics (2023) *Occupational employment and wage statistics*; Social Security America (2025) *National Average Wage Index;* and Mandala analysis.



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