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Dear Sir/Madam

KPMG R&D Submission: Re:think Tax Discussion Paper

Executive Summary

This submission outlines some of KPMG Australia's views and recommendations in response to the Australian Federal Government's Tax Discussion White Paper – *Re:think.* A further submission will follow. Specifically, innovation policy is examined to determine how the tax system can best support and benefit from the performance of research and development (R&D) activities in Australia and abroad.

To this end, *Re:think* contains two questions concerned with innovation, namely:

> *Question 39: Does the R&D tax incentive encourage companies to conduct R&D activities that would otherwise not be conducted in the absence of government support? Would alternative approaches better achieve this objective and, if so, how?*[1]
>
> *Question 40: What other taxation incentives, including changes to existing measures, are appropriate to encourage investment in innovation and entrepreneurship?*

This submission considers both questions and asks more broadly – how can Australia create a knowledge economy that can compete in a global marketplace?

Overall, KPMG believes innovation needs to be supported and promoted in a variety of forms and should not be limited to a tax incentive or government grant. The Australian program is adequate in its current form but, in the context of a highly competitive and mobile R&D environment, any changes to the rate or targeting of the program need to be well informed and precisely executed, with due consideration given to the existing body of research into such tax incentives world-wide.

Current research shows there is a strong, but not linear, correlation between government support for innovation and an increase in a country's GDP. Greater support for the most efficient contributors, such as young companies and entrepreneurs is indicated, but this does not mean

[1] Department of Treasury, *Re:think Tax discussion paper*, 2015, Australian Government, Canberra, p.102

excluding discrete industries or segments of the economy. Instead a range of broad and valuable incentives are required to reward innovation, foster commercialisation and keep those same innovators (and their profits) in Australia.

In broad terms, we recommend that Government continues to support and even expand its support for innovation, both through the R&D Tax Incentive and other measures. For instance, increasing access to the refundable tax offset and accelerated depreciation for R&D assets would encourage greater investment in R&D. Additionally, more Public-Private Partnerships, government funded innovation incubators and support for international collaboration would foster world class innovation; a key component of a globally competitive knowledge economy. Our more detailed recommendations can be found at the end of this submission and we welcome further engagement with Government on this important topic.

Introduction

This submission is organised into several parts: the value of Australia's support for innovation, R&D tax incentive regimes in other jurisdictions and, finally, best practices and how Australia might improve its own R&D tax incentives. Please note that we have assumed a base level of knowledge of the R&D Tax Incentive and its operation.

To address Question 39, it is important to understand the Incentive, including its history and impact on innovation and the Australian economy. This includes some Australian innovation success stories and some examples of how a failure to provide that support can result in the relocation of innovations, innovators (and the revenue they create) and critical investor capital to other countries. These examples illustrate the crucial role Government (including taxation policies) play in shaping our future economy.

Australia is not the only country to offer some form of R&D tax incentive. In fact, while Australia was one of the early adopters (circa 1986), it now lags behind many countries in terms of Government funding for innovation. One advantage of so many R&D tax incentives globally is the wealth of information available regarding different types of tax incentives and what might be considered best practice.

It is important to realise that best practice is not always feasible and that Australia must consider which mechanisms will deliver the best returns. In responding to Question 40, we assess best practice and offer some thoughts as to what would work best. This includes recommendations for further refinement of the R&D Tax Incentive, other forms of support (including tax incentives) for innovation and some closing remarks.

PART I

Australia's R&D Tax Incentive

The R&D Tax Incentive is the latest version of a tax incentive that has existed in various forms since 1986. The current system – the Research and Development Tax Incentive – came into effect from 1 July 2011, replacing the R&D Tax Concession.

The R&D offsets comprising the R&D Tax Incentive ("the Incentive") use the corporate tax system to provide incentives to engage in R&D, and to support companies engaged in R&D whether or not they are making a taxable profit. After reducing the tax liability of an eligible entity, the balance of the refundable offset offered under the Incentive can be paid as a refund, while the non-refundable offset for larger companies can be carried forward to reduce tax in future years.

Most recently, a $100 million cap on R&D expenditure was put in place over which excess amounts are still eligible for a tax offset, but only at the corporate tax rate. Companies affected by this cap fear it will impair their ability to compete internationally and have said they will reconsider where best to undertake their R&D activities.

Statistics & Effectiveness

While R&D by large capital intensive sectors such as mining and manufacturing often feature in the media, the fastest growing and largest sector for R&D in Australia is information technology by smaller companies. Not only are these companies more cash-flow sensitive, but they are internationally mobile, which means they can and will relocate to countries with more attractive tax regimes.

As at 30 September 2014, more than 12,000 companies (some of which are part of a consolidated group for tax purposes) had registered to claim the Incentive for the 2012-13 income period, of which more than 3,000 were first time claimants. The total R&D expenditure registered was $20.53 billion.[2]

As at 29 August 2014, the Incentive had a reported cost to the Budget of around $2.5 billion for the 2012-13 income period.[3] This accounts for 26.4% of the total funding provided by the Australian Government in support of science, research and innovation and is spread across all sectors of the economy, including mining, manufacturing, technology, information technology, health, education and life sciences.[4]

In health, for instance, the net benefit on R&D expenditure between 1993 and 2005 is estimated at $29.5 billion. For the average dollar invested in Australian health R&D, $2.17 in health benefits is returned[5].

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[2] Department of Industry and Science's R&D Tax Incentive News, November 2014 Bulletin. Available from <http://www.business.gov.au/grants-and-assistance/innovation-rd/RD-TaxIncentive/Program-Information/November2014/Pages/Programme-statistics-update.aspx>

[3] Ibid, p.102.

[4] Department of Industry and Science, 2014, 014-15 *Science, Research and Innovation Budget Tables*, Australian Government, Canberra, p.2.

[5] Access Economics, 2008, *Exceptional Returns – The Value of Investing in Health R&D in Australia II*, Report for the Australian Society for Medical Research, Canberra, p.i.

Innovation provides substantial benefit to the Australian economy and to society. Examples of Australian innovation include Cochlear's bionic ear, CSIRO's Wi-Fi, David Warren's black box flight recorder, Ian Fraser's cervical cancer vaccine (Gardasil), CSIRO's polymer bank notes, refrigeration, xerography technology, the Relenza anti-flu vaccine, Mortein's insect repellent and Dr Fiona Wood's spray-on-skin.

For example, Mesoblast Limited is an example of Australian success in the biotechnology industry, partly attributable to the Australian Government's incentive and government grants. Mesoblast is now a global leader in regenerative medicine using its proprietary mesenchymal lineage adult stem cells to build what is believed to be the most advanced and diverse regenerative medicine portfolio in the industry. Mesoblast's R&D has resulted in the first industrially manufactured allogeneic stem cell products for regulatory approval in the United States and Japan and its congestive heart failure and chronic low back pain due to degenerative disc disease products are targeting multi-billion dollar markets. Mesoblast has been supported through this meteoric rise by the R&D Tax incentive and previous Commercial Ready programs, particularly for pilot clinical studies, R&D and preclinical studies.

The impact of these incentives in this case is emblematic of circumstances across a range of industries and supports the notion put forward in numerous studies that R&D tax incentives do increase private R&D expenditure, regardless of the size of the claimant or the amount being spent.

PART II

R&D Tax Incentive Regimes Globally

Internationally, governments are increasing indirect support for business R&D, particularly by way of tax incentives. For instance, by 2011, 27 of 34 OECD countries had some form of R&D tax incentive in place.[6] OECD research finds the cost of R&D depends on investee size, location and balance sheet. This is reflected in many regimes targeting SMEs for more generous benefits including Australia, Canada, France, Korea, the Netherlands and Portugal.[7]

R&D tax incentive regimes are widely adopted in advanced economies, including innovation leaders like the United States and Japan. Within the European Union (EU), only Germany and Estonia currently do not have a tax policy aimed directly at stimulating innovation. A recent EU Commission report (the EU Commission report)[8] found that, although tax incentives are common, they are far from homogeneous and differ substantially across the 33 countries surveyed, with most countries offering more than one type of instrument. R&D tax credits are the most popular

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[6] OECD, 2013, *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, p.13. http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

[7] Ibid.

[8] Taxation Paper No 52, 2014, European Commission, *A Study on R&D Tax Incentives: Final report*, written by a consortium led by CPB with CAPP, CASE, CEPII, ETLA, IFO, IFS and HIS (the EU Commission Report).

type of incentive (present in 21 countries), followed by enhanced allowances (16 countries) and accelerated depreciation (13 countries).[9]

The vast majority of tax incentives are based on corporate income taxes, although there is an emerging trend toward incentives that apply to social contributions and/or wage taxes such as Australia's Payroll Tax regime. Tax benefits applying to income from innovation (mostly -*boxes) are also proliferating; 11 EU countries offer corporate tax reduction for income resulting from to intellectual property.[10]

More recently, there has been a shift from tax incentives that apply to increments in a firm's R&D expenditure (incremental schemes) towards incentives that apply to total R&D expenditure (volume-based schemes). Currently, only 7 countries have incremental tax incentives, usually in combination with a volume-based scheme. For two of them - Ireland and United States - this design element is being phased out.[11]

While tax incentives are essentially a generic policy instrument, targeting specific groups of firms such as SMEs and young companies is quite common[12]. Some regimes also differentiate according to entity ownership (e.g. smaller tax benefits for foreign-owned companies such as in Canada) or limit the amount that can be claimed.[13]

Global Competitiveness

In a globally mobile business world, R&D investment is considered to be a key factor to enhance skills, jobs and economic growth. Governments in the ASPAC region have and continue to increasingly recognize the attraction of tax benefits to encourage companies to invest in high-value, knowledge intensive industries and technologies. Indeed, schemes in the ASPAC region are broadly similar but specific to each country's tax system.[14]

Similarly to ASPAC, Governments in the Americas region re-evaluated their R&D tax credits and looked for ways to encourage foreign companies to invest in their countries due to the continued economic downturn and acceleration of globalisation.[15] The Battelle Research Institute in Canada reported that global R&D spending forecast for 2012 estimated that the Americas region would spend USD505.6 billion on R&D, with the United States accounting for USD436 billion of this total amount.[16] Among Latin American economies, Brazil led in R&D investment on account of its broad initiatives, which included creating 101 research institutes and expending

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[9] EU Commission Report, op cit, p.5.

[10] Ibid.

[11] Ibid.

[12] This reflects data in other reports that SMEs and young firms provide a greater contribution to the knowledge economy and economic growth (and jobs).

[13] Ibid, p.7.

[14] KPMG, 2014, *R&D Incentives – Adding value across ASPAC* 2015 edition p.6.

[15] KPMG, 2014, *R&D Incentives – Adding value across Americas* 2014 edition, p.3.

[16] Ibid.

approximately 1 percent of its national GDP. Chile has established the Chilean Economic Development Agency (CORFO), which is expanding its R&D regime and setting up a framework that is more in line with R&D programs within the Americas Region.[17] Previously, many American countries inadvertently discouraged investments in R&D by requiring expenditure to be capitalized. Now, many of these countries permit a current tax deduction for the costs of R&D activities. Many allow enhanced deductions and/or special tax credits for R&D expenditure. Tax incentives are also often granted to businesses that contribute to universities and other research organizations to encourage basic research and investment in assets used in R&D activities.

In Europe, many governments have initiated reviews of their own innovation policy and introduced amendments and/or new programs in order to attract investment in what is fast becoming a fiercely competitive environment. KPMG, for its part, has noted an increased tendency amongst clients to shop around for the best international regime prior to making a decision on where to locate their more mobile long-run investments (clinical trials, placement of testing facilities, etc.). The result is an internationally changing landscape that is still evolving. Europe in particular, has acknowledged its poor performance in the past with regards to innovation in comparison with other parts of the globe such as the US. Acutely aware that innovation is pivotal to the growth of industry and the economy, many countries are increasingly recognising that tax incentives are an important mechanism to support and retain innovation.

A recent supplement to the 2014 edition of '*Competitive Alternatives KPMG's Guide to International Business Location Costs*' provides some useful tax comparisons. It assesses the general tax competitiveness of the 107 cities in 10 countries featured in the main research report; Australia, Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, the United Kingdom, and the United States. The supplemental report notes that R&D operations see the largest variations in tax costs among countries, due to intense competition among many countries to attract R&D businesses by offering generous tax incentives. Moreover, incentive changes are one of the major factors contributing to a country's Total Tax Index (TTI) ranking (Australia ranks 6th in the R&D TTI standings with a TTI at 121.6) [18].

The report suggests companies carefully consider whether R&D tax credits are refundable, saleable, or transferable. Businesses often suffer losses during the early stages of major R&D projects, with no income tax payable. The report notes that if tax credits only offset income taxes, they will not provide any short-term cash flow assistance to help the company reduce its cash-burn rate and to sustain the R&D project. However, if credits are refundable, they can be sold to other firms, or can be transferred to offset other tax liabilities (such as property tax, sales tax, or employee tax withholdings), then the credits provide an immediate cash benefit for early stage firms.[19]

In 2012, the Canadian Government commissioned a review of the federal support given to R&D as studies found Canadian innovation lagged behind other countries. As a result of this review,

[17] Ibid, p.4.

[18] KPMG, 2014, *Competitive Alternatives Special Report: Focus on Tax* 2014 edition, p.3

[19] Ibid, pp.13-14.

the expert panel recommended that the Government mandate specific changes and initiatives to improve innovation and therefore sustain long economic growth in the country.[20] The recommendations contain similar themes seen throughout the EU Commission report and the OECD report. It recommended a simplified R&D regime, better access to risk capital for innovative and growing firms, more public-private research collaborations and better public sector procurement.[21]

Best Practice Principles

The OECD Science, Technology and Industry Scoreboard 2013 draws on internationally comparable data to explore the continuing challenges to overcome the effects of the recent financial and economic crises. It does so by using indicators traditionally used to monitor developments in science, technology, innovation and industry, and complements them with new and experimental indicators that provide new insights into areas of policy interest. Specifically, there are six key themes[22]: building knowledge, connecting to knowledge, targeting new growth, innovation in firms, knowledge economy and global economy. The key messages from the report are:

- Investment in innovation remains a priority, largely through R&D support measures;
- Young, dynamic firms contribute more to job creation than previously recognised;
- Trade in value added provides a new perspective on trading relationships;
- Foreign consumers sustain jobs;
- Emerging economies increasingly play a role in science and innovation;
- University hotspots are still concentrated in a few locations; and
- Researchers are increasingly mobile.

It is worth noting that R&D intensity in the business sector is significantly correlated with total government support for business R&D. However, the report notes this does not imply a causal relationship and there are notable exceptions. For instance, Germany and Korea have relatively high business R&D intensity compared to their degree of government support, while Canada, the Russian Federation and Turkey have high rates of support relative to countries with similar business R&D-to-GDP ratios. Moreover in 2011, Finland, Germany, Sweden and Switzerland did not offer tax incentives but had very R&D-intensive business sectors.[23]

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[20] Jenkins T et.al. , 2011, *Innovation Canada: A call to action*, Review of Federal Support to Research and Development – Expert Panel Report, Ottawa, p. E-1.

[21] Ibid, p.E-4.

[22] OECD, 2013, *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, p.13. http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

[23] OECD, op.cit., p.53.

This means while government support for R&D through measures such as tax incentives promotes building knowledge and knowledge economies, the relationship is more complex than simple cause and effect.

The EU Commission report[24] found that the impact of R&D tax incentives on R&D expenditure varies. In some countries SMEs respond more strongly to the support for R&D, while the reverse was found in other countries – although it appears the impact for start-up firms can exceed the average impact. Moreover, knowledge spill over of large firms exceeds those of small firms which must be weighed against evidence that targeting SMEs provides more benefit. These seemingly contradictory results make it difficult to draw general conclusions.[25]

The Report considers the impact of R&D tax credits may be highly sensitive to their design and organization, but empirical studies on the effects of design and organizational features are scarce. However both incremental and volume-based schemes result in additional R&D expenditure, but the evidence on which type of scheme is more effective is mixed.

In the absence of comparable evidence on the performance of specific R&D tax incentives, the Report benchmarked more than 80 tax incentives in 31 countries. The benchmarking was based on twenty principles of best practice, divided over three categories: 1) scope of the instrument: how does the tax incentive work, which expenditures are eligible, 2) targeting: does the instrument target specific types of firms, explicitly or implicitly, and 3) organizational practice: how does the application procedure work and is the tax incentive evaluated? The highest rankings went to:

1. The French tax credit for young innovative enterprises (Jeunes Entreprises Innovantes) as it provides generous support to young SMEs for which R&D expenditure represents at least fifteen percent of total costs. Moreover, the novelty requirement of R&D is according to best practice ("new to the world") with an immediate refund option and short response times.
2. The Norwegian SkatteFUNN tax credit comes second and is a largely generic scheme with a preferential rate to SMEs. The application procedure of the R&D tax credit is quite simple: firms can apply online, one-stop agency is available and several guides are available. The introduction of the policy involved a public consultation and it has been evaluated various times.
3. Denmark's Accelerated amortization which has a good organizational practice and does not target specific groups of firms.

From these and other studies, it is possible to draw some conclusions around what might constitute best practice for Australia in its goal of supporting and promoting innovation through both tax incentives and other measures.

[24] EU Commission Report, op. cit.

[25] Ibid, p.8.

PART III

Innovation Policy

Innovation policy played an important role in the discussion contained in the white paper, covering grant programs to assist businesses to collaborate with researchers, build their management skills and undertake early stage commercialisation activities. The Coalition has released a number of R&D policies including industry-specific measures such as a manufacturing policy and an agri-business policy. This reflects the Government's desire to promote economic growth and recognition of the need to move from a resource-based to a knowledge-based economy.

The former Department of Innovation, Industry, Science and Research noted the connection between R&D and increased productivity:

> "*Economic research supports the link between research and development (R&D) and productivity. The Organisation for Economic Co-operation and Development (OECD) has identified that public and private R&D exert significant effects on productivity in Australia. It found that a 1 per cent increase in business R&D led to a long run increase in productivity of 0.11 per cent, with a comparable result of 0.28 per cent for public research. The scale of this is significant against an average annual rate of growth in multi-factor productivity of 0.8 per cent over the last decade*".[26]

There has been a great deal of contention over whether large companies could and would conduct R&D activities in the absence of any government incentive. However, as Telstra has previously argued, regardless of whether or not the R&D Incentive encourages the largest companies to undertake any more R&D than they otherwise would, it certainly encourages them to undertake those R&D activities in Australia (either directly or through contracted R&D with enterprises in Australia including small and medium enterprises).[27] R&D activities create jobs in Australia and result in wages, salaries and profits, all of which are taxable in Australia and contribute to a growing Australian economy.

When large corporates engage external parties to undertake R&D activities on their behalf, the engagement often includes an express requirement that the R&D activities (or at least the majority of the activities) must be conducted in Australia. Part of the rationale for this contractual clause is that the company recognises the spillover benefits that will accrue to it and the local development community by undertaking a substantial portion of the project in Australia even though it may be more expensive to do so. Like other companies undertaking R&D, it regularly considers Government support for R&D as part of its development investment decisions. Any

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[26] Department of Innovation, Industry, Science and Research, 2009, Submission to the House of Representatives Standing Committee on Economics Inquiry into *Raising the Level of Productivity Growth in the Australian Economy*, p.1.

[27] Telstra, 2014, Submission to Senate Standing Committees on Economics in relation to Tax Laws Amendment (Research and Development) Bill 2013 Submission 14, p.2.

decision to take R&D offshore will not only hurt Australia in the short term, but also in the long term.[28]

Large-scale projects produce spill-over effects for the broader economy, including employment and the attraction of foreign investment. As tax revenues for the Government fall, it would be unwise to discourage activities which contribute to long-term growth. The Government has indicated its support for innovation as a key contributor to enhancing Australia's competitiveness and retaining and growing Australian jobs. Given the lessons learned from R&D tax incentives globally and the historical impact of Australia's program, we believe this support is best directed toward the maintenance of the R&D Incentive to encourage more businesses to invest in the commercialisation of innovation and invest in Australia.

Stability

The Westmore study (2013) found the beneficial effects of R&D tax credits in OECD countries were greatly reduced when an instrument was modified frequently.[29] This was demonstrated in Australia when in 1996, cuts to Australia's previous R&D Tax Concession reduced business expenditure on R&D ("BERD") for the next 5 years with a drop of over 9% in the BERD to GDP ratio from 1996 to 2000. It took 7 years for BERD to recover and reach the levels of 1996. From 2003 to 2009, the BERD steadily increased to a high of 1.34% in 2009. When further changes were announced towards the end of 2009, the rate again dropped (1.34% down to 1.24%).[30] While data is not yet available, it is likely that recent changes (i.e. $100 million cap) and further proposed changes (i.e. reduction to the tax offset rate) will see a corresponding drop in the BERD to GDP ratio for 2015 onwards.

Businesses that invest in R&D require stability and certainty in order to plan their R&D investment in the face of global economic volatility. By creating a stable policy and committing to an internationally competitive R&D scheme, Australia will be able to attract investment and retain positive spill-over effects which will promote productivity and economic growth in the long-term. Any proposed changes to the R&D Tax Incentive must be carefully weighed up against the adverse impact of frequent change.[31]

Long term benefits

It is widely agreed that technological change is an important contributor to long-term growth. Innovative ideas and improved processes, products and services will generally increase the

[28] KPMG, 2013, Submission to the Australian Government in relation to Tax Laws Amendment (Research and Development) Bill 2013 which was tabled in the House of Representatives on 14 November 2013, p. 5.

[29] EU Commission Report, op.cit., p.42.

[30] Australian Bureau of Statistics, BERD Reports 2000 to 2012

[31] KPMG is aware of a number of companies that have ceased claiming expenditure on R&D activities due to a perceived lack of stability and consistency in the Government's administration of the Incentive.

welfare of society over time. It is argued in the European Commission's 2014 Report that countries without market intervention are likely to generate less innovation than would be socially desirable.

A culture of innovation and a knowledge-based economy requires an environment in which R&D is encouraged and leveraged. The move from a resource-based to a knowledge-based economy will take time and considerable investment over the short term. The Government is well equipped to support and foster innovation in this way, given the incentives at its disposal and its unique understanding of the broader impact of innovation activities. The capacity of Government to support, protect and direct growth has been demonstrated in the higher education sector over recent decades.

The importance of science to an innovative and thriving economy is pivotal. Professor Ian Chubb, Australia's Chief Scientist, recently released a report which estimates that the direct contribution of the advanced physical and mathematical sciences is equal to 11% of the Australian economy (approximately $145 billion per year). This figure combined with additional flow-on benefits increases the total benefits to just over 22% (approximately $292 billion per year).[32] These figures almost certainly underestimate the true impact of science to the economy as certain impacts are immeasurable. Take for instance the revolutionary Australian invention of wi-fi, not only has it made over $400 million in royalties, it has improved efficiencies and productivity gains and it is also transforming our way of life. Support for science through higher education, research and the commercial sector is critical if we are to allow our innovative and ingenious thinkers to convert their ideas into scientific developments which will ultimately benefit all Australians.

As such, if the Government's goal is to achieve increased productivity and economic growth through an investment in innovation, then the R&D incentive represents stable and effective government investment in the growth of the nation both locally and globally.

Emerging trends

Attracting and keeping innovative businesses, people and the results of their labours in Australia is not a simple task. As research shows, there is no simple causal relationship between funding R&D and reaping its rewards. However, the EU Commission Report does note that the vast majority of studies surveyed conclude that R&D tax credits are effective in stimulating investment in R&D.[33]

The range of R&D tax incentive regimes globally provide a wealth of learning on which measures work and which do not, although the results are not always conclusive and many lack long-term assessment. For instance, Patent Box and other more recent measures have met with mixed success and tend to advantage one jurisdiction over another for only a brief period of time. Indeed, under mounting pressure from the G20/OECD Base Erosion and Profit Shifting (BEPS) project,

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[32] "*The importance of advanced physical and mathematical sciences to the Australian economy*", Australian Academy of Science, Canberra, 2015, p.iii.

[33] Ibid, p.5.

the UK has agreed to close enrolment in its patent box regime in 2016 and largely phase it out by 2021.[34]

Indeed, the EU Commission Report noted that tax incentives for income generated by R&D, such as Patent Boxes, can result in large decreases in tax revenue for all, including those engaging in such a policy. Such measures simply create a greater return (through lower income tax) from innovations already protected by Intellectual Property Rights (IPRs).[35]

Leaders at CSIRO Futures have recently identified an emerging new "megatrend" which they call the "innovation imperative". Megatrends are trajectories that will have a significant effect on government, business and society over the coming years, paradoxically providing economies with both challenges and opportunities. This megatrend suggests that Australia and other advanced economies have found themselves in a predicament, in order to avail themselves they need to take risks, devise new ideas and invest in blue-sky scientific research.[36]

As Australia's natural resources deplete, we need to find other sources of income through new industries in order to drive economic growth. In other words Australia is "*faced with an imperative to innovate like never before*".[37] CSIRO Futures suggests Australia's declining productivity numbers could increase if it improves its innovation system to build new industries and connect to new export markets as the World Economic Forum argues that digital technologies combined with rapid income growth in emerging Asian economies will drive a boom in knowledge and creative industries.[38]

Best Practice

The EU Report puts forward 20 principles of best practice for R&D tax incentives which are grouped into three categories; scope, target and practice. According to the Report[39], Tax incentives should:

- Be volume based rather than incremental as volume based regimes are more readily understood and applied, do not distort investment planning and incentivise R&D expenditure at all levels. Governments must keep in mind that R&D is a strategic investment which requires funding to be diverted from operational expenditure, which thereby places an immediate drain on cash flow and consequently dilutes short term profit at the expense of long term growth. Both start-ups and mature companies have their own challenges in that regard. This sentiment is echoed in the Dyson report which says

[34] Germany-UK Joint Statement, Available from: *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/373135/GERMANY_UK_STATEMENT.pdf*

[35] Ibid.

[36] Hajkowicz op.cit., p.1.

[37] Ibid.

[38] Ibid.

[39] Ibid, pp.24-25.

governments need to support companies investing in R&D and that using the tax system to do so is one way to achieve this. Dyson suggests tax credits can be very effective in supporting companies willing to risk their own capital in R&D. [40]

- Australia's tiered system and recent $100 million cap run contrary to this. However, research suggests that more generous entitlements for SMEs are not unfounded as younger and smaller firms often (but not always) contribute more to a country's economy.
- Reward innovation which contributes to the world-wide realm of knowledge (as rewarding novelty at a firm level can promote imitation rather than innovation). Australia's requirements around uncertain outcome and new knowledge achieve this.
- Target expenditure that has strong knowledge-related flow-on effects. This constitutes a case against excluding firms based on size, as done with Australia's $100 million expenditure cap, since R&D done by large firms significantly impacts those around them (both smaller firms and businesses which supply those larger firms). We note current exclusions (e.g. the internal business administration exclusion for software based R&D) fail to recognise the broader benefit offered by innovation. For instance, internal business administration software that meets the other eligibility requirements provides the same general benefits and will also yield internal benefits in the form of increasing the productivity and global competitiveness of the company undertaking the R&D.
- Provide a carry-over facility to enable firms to receive the benefit even when not yet profitable (e.g. cash refunds). This is particularly relevant to young companies, which are likely to benefit most and make the greatest return on that investment in terms of innovation and the knowledge economy (e.g. jobs, expertise, and agility), but arguable also applies to larger companies. The refundable component of Australia's Tax Incentive serves this function for smaller companies, but not those with an aggregated turnover of $20 million or more. Contrast this with the U.K. where even large companies can cash out R&D tax benefits.
- Conduct systematic evaluations (according to international standards) to ensure the benefit of the regime. It is unclear whether the current tax review by the Australian Government will systematically assess the benefit of the R&D Tax Incentive with respect to its long-term contribution to the economy, rather than focusing on its short-term value to public revenue.

Further Recommendations

In addition to our synopsis of best practice principles, we make the following observations and recommendations for supporting innovation in Australia:

- Reducing the company tax rate will help innovation, both directly (by increasing the permanent tax benefit associated with the R&D Tax Incentive, as long as the Incentive rate is

[40] Dyson J, 2010, *Ingenious Britain Making the UK the leading high tech exporter in Europe: A report by James Dyson March 2010*, p. 5.

unchanged) and indirectly (by stimulating the economy, albeit with a reduction in tax revenue).

- Preferential treatment for R&D assets. The OECD STI paper suggests that the net-of-tax cost of R&D activities is lower in those countries that allow an immediate or accelerated write-off of expenditures on R&D equipment and facilities. R&D assets could be taxed either up-front or by an accelerated method rather than over their useful life or upon disposal. This would reduce the cost of investing in assets used for R&D activities.
- Credit for franking accounts. The R&D Tax Incentive reduces tax payable by the company undertaking the R&D, but this tax saving reduces the ability of the company to fully frank its dividends. This means that the R&D incentive effectively becomes a timing benefit rather than a permanent benefit (which it was intended to be) because a shareholder who receives a partially franked dividend as a result of tax savings made by the R&D Tax Incentive ultimately reimburses the incentive through their personal tax liability on the dividend. Consequently, to maintain the R&D Tax Incentive as a true permanent incentive, a company should be able to credit its franking account by an amount equivalent to the tax saved by the Incentive.
- More support for start-ups (e.g. through tax incentives, direct funding and infrastructure support) as start-ups exceed the average return of innovation for R&D tax incentives[41]. Australia must do more to support its entrepreneurs or risk losing them to countries which offer a more attractive and supportive environment. For example, Nitro is considered one of Australia's great technology success stories, but it is one of a number of Australian start-ups that have moved offshore over the past decade seeking bigger markets and/or better R&D incentives[42]. The French tax credit regime for young innovative enterprises could be used by Australia as a reference model.
- Greater support for international collaboration. The best practice principles suggest innovation at a global level provides greater local returns. Fostering international collaboration could help Australian innovators access other innovators and create world class innovations.
- The reallocation and continued, long-term funding of Cooperative Research Centres (CRCs). The 2015 Budget indicated a $26.8 million cut to CRC funding and a further $262.5 million cut to university funding. Both universities and CRCs are fundamental to the growth and development of a vibrant knowledge based economy.

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[41] Ibid, p.6.

[42] Fitzsimmons C, 2014, 'Behind Nitro's $17m deal with Battery Ventures and why Sam Chandler took the VC route over the ASX', *BRW*, 5 November 2014. Available from: <http://www.brw.com.au/p/business/mid-market/behind_nitro_deal_with_battery_ventures_m5nXY8S0GwTKDwJxMLzdoM>

- Better promotion of Public-Private Partnerships (PPPs) such as those between CSIRO and industry. Research shows that creating PPPs and centres of excellence provide significant spill-over effects and promote better innovation in both the public and private sectors.
- Government innovation incubator funding and promotion. Mazzucato (2014)[43] suggests that some innovators benefit from support through infrastructure and that providing a supportive environment can generate long-term and sustainable innovation that surpasses what the private sector can achieve.

These are just some recommendations that the Government may wish to consider. Internationally, R&D tax incentives are still evolving as each country seeks to find the best approach. Given Australia's R&D Tax Incentive is not yet mature, we believe the it should remain in place, but we recommend Government initiate dialogue with relevant stakeholders to discuss some of the complex and contentious issues around its operation (e.g. internal business administration, feedstock, clawback, etc., and the interactions between such issues).

Overall we note governments are increasingly aware that tax incentives play an important role in supporting innovation, establishing new industries and growing knowledge-based economies. Australia cannot afford to fall behind, particularly as a knowledge economy becomes somewhat self-sustaining at a certain point[44] and unfortunately Australia has not yet reached that point. This is an extremely important and complex area which is central to Australia's future economy.

It is therefore critical that careful and well informed consideration is given to appropriate R&D incentives; not just the Tax Incentive, but to a holistic approach that will foster a thriving entrepreneurial community and entice R&D investment from offshore. However, the R&D Tax Incentive is the primary measure and the Government must carefully consider the long-term impact of any changes.

Yours faithfully

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[43] Mazzucato M, 2014, 'Startup myths and obsessions', *The Economist*, 3 Feb 2014, Available from: <http://www.economist.com/node/21595798/print>

[44] See OECD Report which shows researchers gravitate to high research jurisdictions. The stronger a knowledge economy becomes, the more researchers and innovative thinkers it draws to it.