AIIA Submission

House of Representatives Inquiry into Business Commitment to R&D in Australia

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1 Executive Summary

One of Australian Information Industry Association's (AIIA) key objectives is to influence the creation of a policy and investment environment in Australia that facilitates the growth of an innovative Information and Communications Technology (ICT) industry sector - one that is able to develop and compete effectively in the global market.

The Australian economy in general, and the ICT industry in particular, do exhibit features, which would suggest that we should be a location of choice for investment.

It is clear by any measure, however, that the level of investment in research and development (R&D) in Australia is far too low to enable us to develop the type of industry structure necessary to underpin the development of a globally competitive ICT industry sector.

Failure to raise the level of R&D will commit the ICT industry, and the economy, to playing catch-up in a technological development sense and facing ever-increasing difficulties in attracting the levels of investment needed.

Australia's current low levels of Business Expenditure on R&D (BERD) reflect the decline in the value of Government incentives for BERD at a time when comparable countries were increasing or introducing incentives. According to an OECD study, in 1996 Australia was leader in the R&D incentives it offered. Between 1996 and 1999, while Australia reduced the value of its R&D tax concession from 150 per cent to 125 per cent, Austria and Japan improved their incentives and Ireland, Mexico, Portugal and the United Kingdom offered them for the first time.

It is AIIA's view that industry – both local and international – will commit to R&D investment when attractive and competitive Government policies are in place. Specifically,

- The R&D Tax concession should be restored to 150 per cent; the 175 per cent Premium Concession introduced as part of part of the Government's *Backing Australia's Ability* program should continue; and Cabinet should be given the power to offer a special R&D Tax Concession of up to 200 per cent to major international companies not currently undertaking R&D in Australia. This should only be offered where it is essential to attract substantial, world class investment in R&D.

- The R&D Start program should be re-commenced from January 2003 as announced; funding for 2002-03 and 2003-04 should be increased to reduce the backlog of applications likely to be lodged when the program is re-opened and to avoid discouraging applications because of a reduced chance of success.

- The current limit of a maximum investment of $450,000 of seed funds in any project by a BITS' incubator should be reviewed. The Government should

consider extending the program (for both incubator and investment funds) by a minimum of three years.

- The Government needs to act urgently to restore investor confidence. In particular it should state its long-term commitment to encouraging R&D investment in Australia through a combination of measures including tax incentives. It should also state its commitment to consult widely on future changes to R&D tax arrangements and, where possible, to phase in any changes.

- Government policies designed to attract investment should be at least competitive with offerings from competing economies;

- The new Invest Australia effectively co-ordinates promotion and marketing activities, and takes a strong focus on ICT investment;

- Invest Australia works to establish Joint government-industry action plans to undertake vigorous international and domestic marketing of Australia's ICT industry capabilities, increase ICT investment attraction, and promote Australian ICT exports; and

- State and Territory Governments are working in a coordinated way to promote Australia as a destination for ICT investment.

- Key alliances need to be developed between industry and academia with a focus on achieving successful commercial outcomes. The Government should accept that it has a role in facilitating these linkages.

In AIIA's view, the prevailing uncertain international economic situation and the competitiveness of other countries in trying to attract investment make it all the more important for Government to ensure that its investment attraction policies are world's best practice. We cannot simply rely on what we, as a country, believe are a compelling set of comparative advantages to secure and then grow R&D investment.

2 Introduction

AIIA is the peak national body representing suppliers of information, communication and technology goods and services. AIIA has over 370 member companies that generate combined revenues of more than $40 billion, employ over 100,000 Australians and have exports of over $2 billion. AIIA's members represent a significant proportion of the Australian hardware and software industries.

One of AIIA's key objectives is to influence the creation of a policy and investment environment in Australia that facilitates the growth of an innovative ICT industry sector that is able to compete globally.

A feature of the Australian ICT sector is the significant number of small and medium-sized companies involved. The following chart from the Australian Bureau of Statistics (Catalogue 8126.0) shows the distribution of firms by number of employees – some 87 per cent of all ICT firms have 4 employees or fewer.

It is clear from these figures that the growth of the ICT industry in Australia will be largely dependent on how successful we are as a country in growing these smaller companies into globally competitive enterprises.

ICT Industry by Firm Size

Employees	**0-4**	**5-19**	**20-99**	**>100**	**Total**
Computer Services	16092	1744	458	67	18361
Total ICT	18396	3048	845	187	22475

Source: ABS, Information Technology Australia, 2000-01, Catalogue No. 8126.0

Another characteristic of the Australian market is that virtually all of the major multinational ICT companies have a presence in Australia. This provides local companies real opportunity to leverage off the activities of these large companies as they grow their businesses.

Aside from being a major sector in its own right, the ICT sector plays a key enabling role in improving productivity in other sectors of the economy.

The pivotal nature of ICT was highlighted in a recent *Australian Quarterly* journal: "The special nature of ICT should be understood by all Australians, especially our leaders, as without doubt ICT innovation is our greatest hope for economic prosperity for the century and beyond."[1]

[1] Matt Darling, ICT: the future of Australian success? in Australian Quarterly, Jul-August 2002, p16.

When the Government's Innovation Action Plan "Backing Australia's Ability" was released by the Government in January last year Senator Alston, Minister for Communications, Information Technology and the Arts made the following statement:

"Backing Australia's Ability recognises the important role that information communications technologies (ICT) play in the economic and social fabric of Australia. These technologies are key drivers in the spawning of new businesses, the transforming of established industries and the creation of new jobs."

The Productivity Commission Report "Information Technology and Australia's Productivity Surge" reported that the rapid uptake of ICT contributed to Australia's strong productivity performance in the 1990's. The report highlighted that Australia generated a productivity improvement of 1.1 percentage points from ICT use and other factors.

3 The benefits to the economy of increased R&D

Clearly, R&D investment is a fundamental ingredient for Australia to sustain its position in the global marketplace. However, R&D for R&D's sake, will not in itself improve Australia's position. What is needed is a sustained and committed focus on R&D and importantly, its commercialisation. It is well documented that Australia has had limited success in commercialising the results of R&D, particularly out of the public sector.

As Garry Banks, the chairman of the Productivity Commission, said: "The reductions of barriers to competition and removal of impediments to innovation can be expected to have lasting effects on the dynamism of our economy."[2]

Greater focus on sustained R&D by SMEs with an emphasis on successful commercialisation will unquestionably improve Australia's economic performance. By encouraging innovation, employment opportunities will increase as will the level of employee skills. This improved economic performance will translate to improved living standards. Determining the exact impact of increased and successful R&D by SMEs in terms of commonly used measure of economic performance, such as Gross Domestic Product (GDP), requires a more detailed study. Ireland and Israel are two countries that have benefited greatly in the past decade from their commitment to R&D and related infrastructure and skills, its successful commercialisation by SMEs and large corporations and an emphasis on management skills, employee training and research infrastructure.

The OECD has summarised the argument as follows: "By any number of measures, scientific advances, technological change and innovation have become key drivers of economic performance."[3]

"The ability to harness the potential of new scientific and technical knowledge and to diffuse such knowledge widely has become a major source of competitive advantage, wealth creation and improvements in the quality of life."

"Countries that experience the highest levels of growth are likely to be those that can most rapidly develop new products, processes and services based on these new technologies and apply them most efficiently to other sectors of the economy. Radical innovation by a few organisations, together with incremental technological and organisational innovation by an increasingly large number of firms and working teams, will therefore remain essential to ensuring the *sustainability* of economic growth over the long term."[4]

[2] From a speech entitled "the Role of ICT in Australia's Economic Performance", delivered to the Communications Research Forum, in Canberra, September 26, 2001.
[3] OECD; p51 in Science, Technology and Industry Outlook - Drivers of Growth Information Technology, Innovation and Entrepreneurship, 2001
[4] OECD, p52 in Science, Technology and Industry Outlook – Drivers of Growth Information Technology, Innovation and Entrepreneurship, 2001

Elsewhere the same OECD report says, "Higher levels of R&D intensity are correlated with higher levels of economic performance".[5]

As the Technology Tax Alliance noted in its submission to the Ralph Review of Business Taxation, this economic improvement would be manifested in international competitiveness, increased exports, technology transfer, productivity growth as well as attracting venture and other investment capital.

More recently, a paper by Emily Dunt and Ian Harper[6] finds: "Australia is seen as well-placed to benefit from the Internet and e-commerce. Traditionally isolated from the world's main economic centres and reliant on commodities in international trade, the advent of the Internet is ideal for a country in transition to a service-orientated, knowledge-based economy."

The recent OECD Science, Technology and Industry Scorecard for 2001 found that while Australia scored relatively well in its uptake of Information Technology and Communications (nine out of 28 OECD members), it scored poorly for its R&D effort (15 out of 28) and development of its own technology-based industries (17 out of 28).

[5] OECD, in Science, Technology and Industry Outlook – Drivers of Growth Information Technology, Innovation and Entrepreneurship, 2001, p76
[6] Emily Dunt and Ian Harper, "E-Commerce and the Australian Economy, The Economic Record, September 2002, p340.

4 R&D activity - Australia and the rest of the world

4.1 R&D activity in Australia

The links between the ICT sector and R&D are strong and well documented. Australia is particularly well positioned to influence and contribute to the development of the global ICT economy.

- Our workforce is highly skilled and relatively low cost.
- We have a culture that embraces innovation and the take-up of new technology.
- Global ICT companies have a presence in this country.
- Our research institutions are world class.
- Costs associated with carrying out R&D in this country are low relative to Europe, Japan, and the US.

Rapid technological development, however, continues to be a feature of this global ICT economy and if Australia is to benefit from its competitive advantages in this area, all stakeholders will require a much sharper focus on, and commitment to, R&D.

4.2 R&D – an international comparison

The level of competition between countries as the location for R&D facilities, driven by Government support for R&D is increasing. According to an Organisation for Economic Co-operation and Development (OECD) study, "after the 'lean' period of the early to mid-1990s, tax incentives are back in favour among governments. The number of countries applying tax credits or taxable income allowances has grown from 12 in 1996 to 16 in 1999-2000. Radically more countries are opting for allowances on taxable income as a way of providing tax incentives for R&D. In 1996 only Australia and to a certain extent Belgium and Denmark had implemented such a mechanism. By 1999-2000 these countries were joined by Austria, Ireland and the United Kingdom.

"Targeted support for small firms is also on the rise, as is shown by the fact that the United Kingdom has initiated an R&D tax incentive for small businesses. This leads to the conclusion that competition among countries and regions for knowledge-based investment is – and will continue to be – fierce. National governments will need to carefully monitor international developments in order to be able to respond to changes in incentive packages in other countries."[7]

The OECD study into the value of R&D among member countries rated Australia as providing generous R&D tax incentives for both large and small companies[8]. But it also

[7] Jacek Warda, in Measuring the Value of R&D Tax Treatment in OECD Countries, OECD, 2001
[8] Jacek Warda, in Measuring the Value of R&D Tax Treatment in OECD Countries, OECD, 2001

noted that at the time when Australia "radically scaled down the generosity of its R&D tax incentive system", Austria and Japan "radically improved" their R&D concessions and Ireland, Mexico, Portugal and the United Kingdom introduced them for the first time.

While Australia was winding back its R&D tax concessions the number of comparable countries offering similar concessions rose from 12 of 24 countries examined in 1996, to 16 of 24 countries in 1999. The value of the tax concession in Australia was further reduced as the company tax rate fell from 36 per cent (49 per cent when the concession was introduced) to 30 per cent.

With intense global competition for research investment, played out on a global field, marking time is equivalent to going backwards. Already, Ireland, Singapore and Malaysia have made tax deductibility of up to 200 per cent available to foreign companies. AIIA believes an increase in the R&D tax concession rate to rival those sorts of incentives will help to not only capture a larger slice of international R&D, but also deliver a broad range of economic benefits.

Australia's investment in all R&D had been steadily falling until recently. In 2000-01 business expenditure on R&D (BERD) increased by 18 per cent and Government expenditure on R&D (GOVERD) increased by 14 per cent. Despite these improvements Australia's R&D performance is relatively poor compared to other OECD countries.

Recent ABS data shows BERD in Australia increased to 0.72 per cent of GDP in 2000-01, from 0.65 per cent in 1999-2000. However it remains well below the 0.87 per cent of GDP achieved in 1995-96. Australia's rate is approximately a quarter of the rate in Finland and one third of that in the US and low in an overall comparison to other OECD countries. Over the last three years BERD in most OECD countries has increased as a percentage of GDP. Conversely, government spending on R&D in Australia is 0.7 per cent of GDP, ahead of the OECD average of 0.65 per cent.

Structural issues also play a role in the low level of BERD in Australia. Most R&D is done for large firms but the reality is that there are relatively few large firms in Australia's high tech sectors. Traditionally Multinational Enterprises (MNEs) have concentrated their R&D activities in their home country, although this is changing as the opportunities for innovation in other locations become more apparent. MNEs can expand the base of their R&D in a number of ways; making use of contractual R&D rather than in house, international subsidiaries; forming strategic alliances for research projects; or careful analysis of patents or publications to ascertain the source of developments.

Australia can benefit from programs that target R&D by MNEs, such as those offered by Singapore, Ireland and Malaysia.

Figure 1 illustrates Australia's low rate of BERD compared to Europe, Japan and North America. This lower rate greatly lessens the opportunity for interactions between public and private sector R&D and reduces the options for commercialisation.

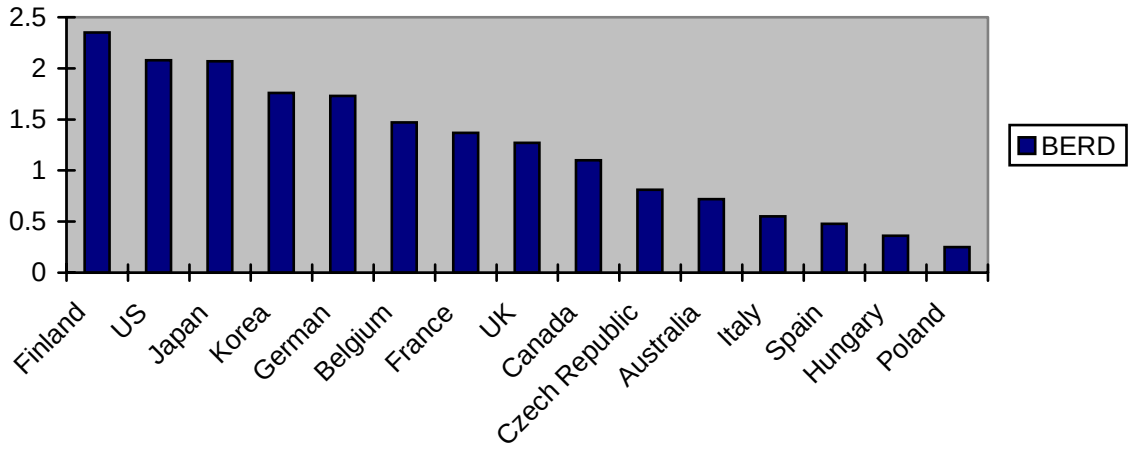


Figure 1: BERD/GDP Ratios of OECD Countries. Source: Australian Bureau of Statistics 8104.0 Research and Experimental Development Business Australia, 2000-2001.

The impact of low business spending on R&D in Australia is compounded by the fact that most government expenditure on R&D is directed towards the public sector. As the following chart shows, Government R&D funding is less than R&D investment by the private sector and most Government R&D funds go to public institutions with only $102 million of $3.484 billion in Government R&D funds going to the private sector in 1996-97. This effectively contributes to a divide between industry and the research community.

Figure 2 Major flows of funding for R&D in Australia 1996 - 97

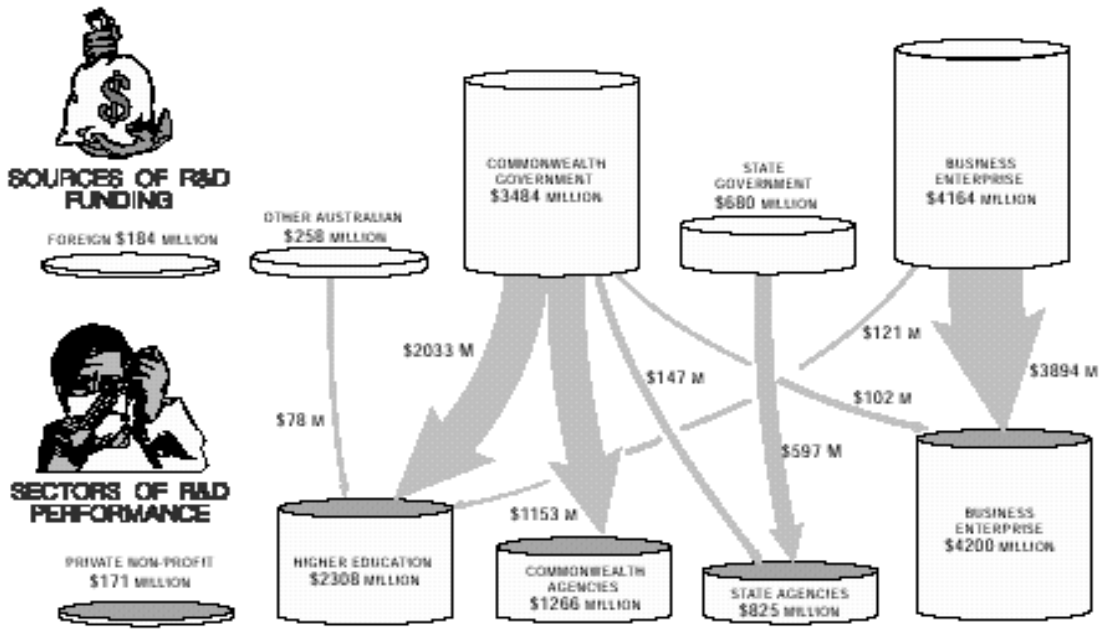
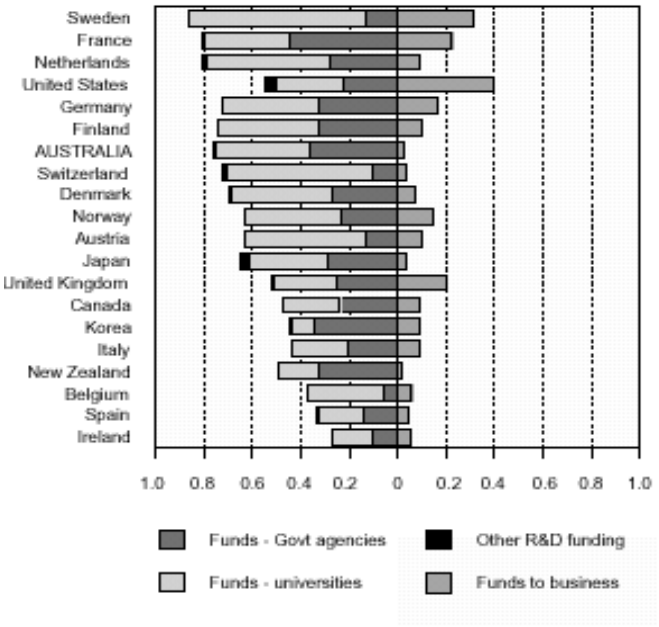


Figure 2 Major flows of funding for R&D in Australia 1996-97. Source: Australian Science & Technology at a Glance – 2000. Department of Industry, Science, and Resources.

Australia's level of Government R&D funding to business is low by OECD standards as the following figure illustrates.

Figure 3 Direct funding of R&D by governments



Countries are ranked by the ratio of total government R&D funding as a proportion of GDP. The direct funding of business R&D by government is proportionally lower in Australia compared with other OECD nations. Government support in New Zealand and Japan is similarly low. In addition, most governments provide funds indirectly, eg, through tax concessions (see Chart 25).

Source: OECD *Basic Science and Technology Statistics, 1997*

While ABS data indicates that Australian R&D levels have risen in 2000-2001, anecdotal evidence from within the ICT industry indicates that investment has been quite depressed during the past 12 months. In the telecommunication sector especially major vendors, Alcatel, Ericsson, Nokia, JD Uniphase, Fujitsu, Lucent and Nortel have all made significant cutbacks in R&D in Australia. AIIA is of the view that this will be reflected when official figures become available for this period. In this environment, the Government needs to ensure that the policies it puts in place to attract what are scarce global investment funds are at least competitive with those on offer in other countries.

5 Role of Government

5.1 Government expenditure on R&D

Recent statistics from the ABS showed that Government expenditure on Research and Development (GOVERD) during 2000-01 was estimated to be $2,368 million at current prices. This represents a 14 per cent increase over the two years since 1998-99. In relation to ICT expenditure it is worth noting that:

- over 25 per cent of total Government expenditure was spent on ICT;
- expenditure on computer software reached $729m (15 per cent of total expenditure) and communication technologies researched $548m (11 per cent of total expenditure); and
- research activity within the ICT field was characterised by pure basic research (2.7 per cent), strategic basic research (12 per cent), applied research (69 per cent) and experimental development (16.3 per cent).

Public funding of basic research is critically important for innovation and long-term economic growth. For the Government to receive maximum impact and leverage from the output from this research however, it needs to ensure that it has policies in place that encourage the transfer of this knowledge to the private sector and facilitates successful commercialisation.

5.2 Government policy settings

Government policy settings relating to business taxation and investment attraction are crucial factors in determining the attractiveness of Australia as a location for investment in R&D activities.

AIIA believes the prevailing low level of business R&D investment largely reflects the low taxation concession rate. It is the Association's view that investment in high risk R&D in high-technology areas needs to be eligible for R&D Tax Concessions of up to 200 per cent under certain circumstances. The R&D Tax concession should be restored to 150 per cent; the 175 per cent Premium Concession introduced as part of part of the Government's *Backing Australia's Ability* program should continue and Cabinet should be given the power to offer a special R&D Tax Concession of up to 200 per cent to major international companies not currently undertaking R&D in Australia. This should only be offered where it is essential to attract substantial, world class investment in R&D.

The Innovation and Incentives Working Group of the National Innovation Summit in 2000 "recommended for further investigation" an R&D tax concession scheme which would offer up to 200 per cent on labour and labour overheads. It also supported "as an

option for a kick-start" a concession of 200 per cent on incremental R&D above the level undertaken in the previous year.

It should be remembered that as a result of the reduction of the company tax rate from 49 per cent when the R&D Tax Concession was introduced to the current 30 per cent rate, the after-tax benefit of the 150 per cent concession now is considerably less – and therefore less of an incentive to undertake R&D than when the rate was reduced to 125 per cent in 1996. An optional rate of up to 200 per cent will enable Australia to compete effectively with international rivals for R&D expenditure, such as Singapore, where a 200 per cent concession is available.

The introduction of the R&D tax concession in 1985, and subsequent changes to it, have clearly had a direct impact on levels of research and development in Australia. From a low of 0.24 per cent of GDP in 1981-2, spending on R&D rose steadily until the concession was wound back from 150 per cent to 125 per cent in 1996. In the years after that decision, the slide in BERD was noticeable, as mentioned earlier.

With market conditions remaining tight as the global economy weathers the economic downturn, investment in R&D will be one vehicle where companies will look to re-position their competitive position. International investors will also be searching to see where they can get the best return on investment. In this environment, Government action to increase the R&D Tax Concession rate to 200 per cent would play a large part in raising the profile of Australia as a smart location for investment encouraging an upsurge in private sector R&D.

The general conclusion from various international studies that have been undertaken into the economic returns on R&D investment indicate that the rate of return to society as a whole from R&D investment is about twice the private rate of return on R&D investment.[9] The OECD notes that R&D expenditure is an acknowledged area of "market failure" which warrants Government intervention. "Research indicates that the social rates of return on R&D are several times higher than the private rates. Thus the private sector tends to under-invest in R&D simply because it has less incentive to produce R&D beyond that portion that is already appropriable as a private good. This leads to so-called "market failure" since the market cannot fully ascertain the accrual of all benefits to the private R&D performer, thus leaving no choice but to allocate less resources to R&D than the socially desirable optimum. This under-production of R&D is the justification for Government intervention in this area."[10]

The Productivity Commission estimates of the social rate of return from R&D put this as high as 90 per cent. Although it can be difficult to quantify the magnitude of the return, Productivity Commission chairman Garry Banks says the econometric evidence "does suggest that private and social rates of return on business R&D are high compared to other investments".[11]

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[9] "Supporting Research and Development to Promote Economic Growth: The Federal Government's Role", A report by the US Council of Economic Advisers October 1995.
[10] Jacek Warda, in Measuring the Value of R&D Tax Treatment in OECD Countries, OECD, 2001
[11] From a speech entitled "Productive R&D Assistance", delivered to the Melbourne Institute Public Economies Forum, November 28, 2000

The gap between the high social rates of return and lower private rates indicates spill over effects in the economy from increased R&D investment as the benefits of private sector R&D are diffused and adapted through the broader national economy. AIIA believes that by increasing the level of the R&D Taxation Concession to 200 per cent, the Government would significantly raise the profile of Australia as a location of choice and that increased R&D investment would follow. From our perspective there would appear to be significant potential for this to be cost neutral for the Government over time.

Consistency in application of Government policy is also a key determinant in attracting private sector investment in R&D. The R&D Start Program, discussed later in this submission, is a case in point in this area. Investors need to be confident that Government policies that impact or encourage what is risky investment in R&D will be consistently applied. The freezing of the R&D Start Program has severely undermined confidence in the sector about the consistency of Government policies and its commitment to R&D. The Government needs to acknowledge this and undertake that future changes will be properly discussed with industry before they are implemented and, where possible, phased in.

In AIIA's view, the prevailing tight international economic situation and the competitiveness of other countries in trying to attract investment make it all the more important for Government to ensure that its policies to attract investment are world's best practice. We cannot simply rely on what we, as a country, believe are a compelling set of comparative advantages to secure and then grow R&D investment.

R&D is just one of the components contributing to innovation. Even if the rate of tax concession is increased to 200 per cent, there exists a clear role for action to make an environment more conducive to R&D by putting in place necessary infrastructure, such as training and facilitating the spread of ICT throughout the broader community, to support innovation and commercialisation.

The OECD suggests "countries with low levels of R&D may find it more effective to pursue a broad range of policy initiatives to bolster public and private R&D expenditures using a mix of incentive programs"[12]. Aside from an increase in the tax concessions, these include:

- Restructuring the design of programs to focus on small business. Such organisations are becoming an increasingly important element of national innovation systems, according to the OECD. However, SMEs are confronted with a particular set of challenges in conducting R&D and tapping into innovative networks of firms.

- Increased flexibility of R&D programs. The OECD suggests "greater use of competitively awarded program funds can improve governments ability to funnel R&D funding to areas of growing social and industrial importance".

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12 OECD, p77, in Science, Technology and Industry Outlook – Drivers of Growth Information Technology, Innovation and Entrepreneurship, 2001

This is in keeping with the conventional analysis that low levels of R&D is a market failure problem and can and should be addressed through government intervention.

- Ensure a better match between financial mechanisms to support business R&D and policy objectives. "Tax incentives can enhance overall business R&D investment while minimising crowding out effects and de facto discrimination of specific firms or industrial sectors. Direct government funding is more effective at expanding technological frontiers in areas where a wide gap exists between social and private returns on R&D. Direct funding should be implemented through competitive mechanisms that involve the sharing of costs and risks between public and private actors, and should include regular evaluation procedures."

When the Federal Government introduced the R&D Premium concession in 2001 at a rate of 175 per cent for additional R&D spending, part of the Backing Australia's Ability program, it was engaging in precisely the sort of policy intervention the OECD outlined.

The R&D Premium took effect for expenditure after June 30, 2001 and while it may be too early to assess its success, competition from other markets means action may be needed before that data is available. Equally, the negative impact of the freeze on R&D Start program applications is yet to show up in available figures.

5.3 R&D Start program

The R&D Start program was designed to assist Australian industry to undertake R&D and its commercialisation through a range of grants and loans. The objectives of R&D Start are to:

- increase the number of R&D projects with high commercial potential that are undertaken by companies;
- foster greater commercialisation of the outcomes from R&D projects;
- foster collaborative R&D and related activities through companies working together, or working with research institutions; and
- increase the level of R&D and its commercialisation that provides benefit to Australia.

The Government announced in April 2002 that it had frozen applications to this program following a budget over-run and this has had a significant impact on companies in the ICT industry. The freezing of this program has led to:

- deferral or cancellation of R&D projects;

- impact on the ability of small technology companies to raise commercial funds for the early stages of R&D projects;

- loss of positioning in the competitive global market where the "slack" made available by the withdrawal of interest by Australian partners opens up opportunities for firms from other countries to come in on the ground floor; and

- cash flow difficulties; applications that have now been frozen have cost the companies involved significant funds and resources to date.

A case study of the experiences of one ICT company impacted by the program application freeze is at Attachment A.

The decision to freeze applications for the R&D Start Program has had a particularly negative impact in the market as to the perception of the commitment of the Government to facilitating R&D investment.

The impact on companies which had already gone to considerable expense in preparing R&D Start applications that they were unable to submit, has increased existing doubts about the cost of preparing submissions for such programs.

If the freeze is not to have a permanent impact on the level of R&D in Australia, the Government must urgently review funding for the program before the freeze is lifted in January 2003 and increase the available funds over the current and next financial year.

5.4 The BITS Program

New and emerging ICT firms face many challenges in developing their ideas through R&D into commercially viable products and services. These challenges include difficulties in accessing capital, the need for sophisticated facilities to develop and test their ideas and a lack of access to professional and technical expertise.

The Government introduced the Building on IT Strengths (BITS) Program to provide an environment to assist companies, where R&D is generally seen as a critical component, take their ideas to market by providing access to seed funding, whilst assisting them to develop essential business management skills and systems.

The program was designed to provide support for companies still developing their ideas and technologies. It was felt that time spent in the incubator would help position the company to be a more attractive proposition to potential venture capitalists. The rapid wind back in activity in the technology sector however has led to venture capitalists being more risk averse.

Since the BITS program began venture capital companies have retreated from the high-risk, early-stage seed funding that BITS incubator tenants require, to safer later-stage investments. This has revealed a major shortcoming in the current limit of a maximum investment of $450,000 in any project by the BITS' incubator seed funds. Individual projects under the program typically require a $1.5 to $2 million initial seed capital investment. Before the market retreat this could be sourced from the venture capital sector, but that is not the case currently. Consideration should be given to changing the

investment guidelines to take account of this change in the market. The problem with availability of funds for start-ups has been further exacerbated by the freeze on R&D Start Program applications.

The BITS Program is due to be reviewed by the Government shortly. However AIIA is concerned that the funding for the Program was only for four years, until June 2004, after which time the incubators are supposed to become self-sustaining by selling their investments in incubated businesses. However this time frame is much too short, with the venture capital industry standard for a return on (later-stage) investments being between seven and 10 years. The Government should consider extending the program (for both incubator and investment funds) by a minimum of three years.

Private sector incubators funded under the BITS program have found the nominal value of their government funding eroded by tax, which has forced some into investment arrangements that are sub-optimal and driven by tax considerations. The tax status of these incubators should be reviewed.

While it may be too early to determine the effectiveness of the BITS incubator program it does appear that it has enabled small emerging ITC companies to undertake more R&D than would otherwise have been possible. AIIA would encourage the Government to quantify the impact of this program on the level of R&D being undertaken.

5.5 The COMET Program

In November 1999, AusIndustry launched the Commercialising Emerging Technologies (COMET) Program. The COMET Program is a competitive, merit-based grants program delivered by private sector advisers, acting as Case Managers, who support businesses in the process of commercialising innovative products, processes and services. Specifically, the COMET program will fund the development of business plans, market research, establishment of strong management practices, assistance with intellectual property strategies, proving technology and the development of working prototypes.

As with the BITS Incubator Program, the COMET Program helps fill the private capital 'funding gap' described earlier. Although the program is not intended to fund large slabs of R&D, its existence improves the likelihood of success of R&D effort by the SME sector, which, in turn, will have a positive impact on Australia's economic performance. As such, the Federal Government should be encouraged to continue funding the COMET Program.

The 'funding gap' suffered by SMEs undertaking R&D is filled in the US and elsewhere by both government policy and high net worth individuals, the latter often described as 'angels'. Given Australia has a very limited number of angels with a preparedness to invest in the early stage of a business, policy needs to be structured to encourage other potential angels to undertake early stage investment. This is of particular importance in the current environment where VCs have retreated from early stage funding and a number of successful entrepreneurs having 'cashed up' overseas, are returning to our shores.

5.6 The R&D Tax Offset and Tax Concession Programs

The R&D Tax Offset provides an attractive opportunity for many small companies in a tax loss position to recoup a portion of the expenditure they incur on eligible R&D activities. As it currently stands, eligible companies may access cash rebates of up to $375,000, with even higher amounts available if they incur incremental R&D expenditure.

Whilst this initiative has been welcomed by the ICT sector there are two particular issues that, in our opinion, limit the ability of some ICT companies to access the R&D Tax Offset.

These relate to the lack of an appropriate transition mechanism for companies that seek to utilise both the R&D Tax Offset and the R&D Tax Concession; and the relationship applicants may have with tax-exempt entities e.g. a university.

Companies which have previously qualified for the Tax Offsets program but are now ineligible for it because their R&D expenditure is in excess of $1 million (in other words companies which have succeeded in growing as a result of their R&D) face a two-fold disadvantage, with the Offset grant treated as income for tax purposes but a clawback applied to it before they are eligible for the R&D Tax Concession. A fairer mechanism is needed to allow companies that are growing because of their R&D investment assisted by Government incentives programs to move smoothly from one program to another without an unfair removal of benefits.

Companies in which a tax-exempt entity owns as little as 25 per cent equity (and is therefore not usually in a position to exercise control) are ineligible for R&D Tax Offset grants. Tax exempt bodies such as universities typically retain 25 per cent or greater equity in their high-tech spin-offs during their early years. This link has major benefits for the start-up companies and gives universities and other exempt bodies the opportunity to recoup their investment once a critical mass has been reached. However the inability of the start-up to access the Offsets program is a major obstacle to commercialising R&D. A 50 per cent threshold seems more reasonable and commercially based for identifying instances where a party has a genuine ability to control a company and its activities and not penalising companies that may have been spun out of a research or educational institution.

More details on these two issues are at Attachment B.

6 R&D Drivers

6.1 Small-Medium Companies

Issues that determine the level of R&D undertaken by SMEs generally include, but are not limited to:

- market requirements;
- customer requirements;
- expected return on investment;
- capital availability; and
- availability of expertise.

Capital availability is a particular issue for high-tech companies looking to maintain and develop their R&D program. The R&D Start grants did play an important role in this area both directly for the companies involved and in attracting interest from the venture capital market who saw the funding provided under this program diluting the financial risk for them as potential investors. Again, the freezing of the grant has created a perception in the market place that the importance of this early stage financing is not being given sufficient priority by a Government that is arguably striving to grow the level of intellectual capital in Australia.

R&D effort is based on striving to maintain competitiveness in global markets. This requires investment and exploration in relation to new products together with enhancements or extensions to existing product sets to help retain their attractiveness. When signing off on R&D investments, the affordability of the investment against the financial state of the company is, an overriding factor.

Generally, SMEs locate their R&D efforts domestically. As successful SMEs establish a presence overseas, this provides them with the opportunity to explore R&D opportunities in other markets. Usually, however, they tend to maintain their R&D effort at their home base, reflecting the investment they have already made in R&D personnel locally, and the relative costs of carrying out R&D in Australia relative to other countries. Having said this, AIIA acknowledges that there remains pressure on local firms to locate their office and R&D activities offshore.

One issue confronting SMEs in trying to access the various R&D programs is the complex and time-consuming process of understanding and completing the necessary paperwork. Management load in most SMEs is generally significant, without needing to complete excessively-onerous processes to access government assistance. Some SMEs feel that government R&D programs are tailored more to larger businesses and are difficult for SMEs to access. Any steps that could be taken to reduce the complexity

would encourage companies to take a closer look at the business benefits of becoming involved in R&D.

6.2 Multinational companies

As a general principle, multinational companies see their business success as being directly linked to technology innovation and R&D. They invest in both base technology research, which will deliver a competitive advantage for their products in the future, and in product R&D, which packages these technology advantages into leading edge IT products tailored to customer needs.

Multinational companies investment in R&D is driven by a number of factors but key considerations include:

- A need to develop and take advantage of emerging market opportunities;
- affordability versus return. i.e. a balance between funds available for investment versus projected return on investment;
- competitive pressures, i.e. the need to retain market leadership and competitive advantage; and
- efficiency and effectiveness of R&D capability i.e. the need to maintain momentum by delivering timely research results, retaining research skill and IP.

It is worth noting at this point that a recent AIIA survey of multinational company members indicated that three-quarters of these undertake R&D activities in Australia. However, Australia currently is not the location of any primary multinational R&D facility. These tend to be located in the companies' home countries. Only half of the respondents that were undertaking R&D were undertaking global development tasks in Australia.

The survey participants were largely of the opinion that in considering locations for R&D facilities outside their home region, companies examined:

- market opportunity;
- hotbeds of consumer activity;
- educated workforces;
- the availability and cost of the research and engineering staff;
- transport costs and supplier proximity;
- tariffs and taxes on imports; and
- the stature of the research programs at local universities and government institutions.

The multinationals surveyed generally believed that they were weathering the economic global downturn and industry restructuring, and strong investment into R&D would be the key to driving the industry out of the downturn.

Multinational companies will only expand or locate their core R&D investment in Australia if :

- the Government incentives are competitive with offerings from other countries; and
- if there is a compelling business case, i.e. the core research base evolved in Australia is in a new technology area that is seen as key to the company's future competitiveness.

7 Alliances between industry and public institutions

Universities and research institutes have an integral role to play in advancement of knowledge through R&D being undertaken by ICT companies.

The OECD has noted, "Extracting sufficient benefits from public investment in science and R&D is a core task for governments. Links between science and industry are not equally developed across OECD countries." It also observed, "Several successful countries, including Denmark, Finland and the United States seem to be characterised by strong links between science and industrial innovation." [13]

To bring new products, technologies, services and solutions to what is increasingly a global market industry, the Australian ICT industry needs to develop sustainable partnerships and collaborations with local universities and other public research institutes.

A number of participants in the recent AIIA survey mentioned above identified a significant disconnect between R&D being conducted by the public institutions, for example universities, and the R&D being undertaken by ICT corporations. Multinationals were of the opinion that fluid interactions and information flows between the industry and public institutions are critical for successful commercial outcomes and economic gains. Many believe there is an urgent challenge in Australia to set the scene for a steady transformation in the industry/ public institution relationship and interaction.

Survey respondents held the view that the absence of robust synergies between the ICT industry and public institutions is inhibiting the attraction of additional investment to Australia. If the Australian ICT industry is to compete more effectively within a world economy, it will need to develop "soft structures" that support knowledge creation and learning and collectively strengthen its capacity for innovation.

There was a strong belief amongst the respondents that these issues can be addressed over both the short and long-term with sufficient industry input and deliberate government action. Some of these issues are already beginning to be addressed – including the creation of the ICT Centre of Excellence. There is also a role for Government in supporting forums and networking which bring together commercialisation managers in universities and public research institutions with members of business and industry bodies.

AIIA's recent paper *Commercialisation of Publicly Funded Research Roadmap* found that there was a lack of coherence in current Government policies affecting commercialisation. It recommended:

[13] OECD Policy Brief, Science, Technology and Innovation in the New Economy, pp9-10, September 2000.

- federal and state government departments need to cooperate in setting R&D programs and priorities;

- programs should be stabilised for at least as long as is required to determine whether they are producing the intended outcomes;

- that funding be set utilising an approach which considers National priorities and that there be greater co-operation between universities and industries in setting these priorities; and

- public institutions and major industry bodies should participate actively in these program and priority settings, and their performance needs to be measured.

It said the success of public institutions in increasing their ICT research and commercialisation prospects is going to depend upon the willingness and capacity of industry participation. It recommended:

- Australia needs to be aware and aggressive in developing strategies to attract ICT investment in Australia and within public institutions;

- there should be a greater focus on building viable businesses out of public institutions either directly or through collaboration with industry through existing channels. Industry and universities must take a longer term strategic view rather than the as hoc approach which seems to prevail on both sides when public and private institutions collaborate;

- a coordinated approach to intellectual property (IP) management is needed if the ICT industry is to invest significant effort in publicly funded bodies, particularly for early stage small-scale investments where the cost of contract negotiation, can at times, exceed the research contract cost. A cooperative Government, Public Institution, and Industry group should develop a practical blueprint for public institutions on their approach and for industry groups to use as a reference point; and

- the Government should consider buffer funding approaches for periods when industry investment is low. This funding could be accessible on a competitive basis to industry R&D undergoing downsizing pressures, and to public institutions that could utilise spare industry capacity during such periods.

The linkages between publicly funded institutions, the private sector, and the capital market should be improved by:

- a greater focus on leveraging off multinational subsidiaries and capitalising on the experience and channels they offer. Government initiatives to encourage joint ventures between such companies, where complementary skills and technologies may allow creation of a new enterprise, should be considered, as should the eligibility of funding schemes; and

- venture Capital consultants should be encouraged, perhaps through a Government program, to work with small companies and public institutions to

develop business plans for targeted technologies, to help focus the directions of these groups, build internal skills, and build awareness in the VC industry of potential market-ready technologies.

To improve the connection between universities and businesses likely to commercialise their research:

- there should be more proactive programs of management staff interchange for useful periods of time (eg 2-3 years) between public and private institutions to help build better engagement capability. Current secondment programs of 3-6 months are not sufficient for managers to become actively involved in critical parts of either type of organisation's business, and so are not financially viable for industry;

- publicly funded institutions should increase the level of industry awareness and experience in their senior management teams, in order to be able to set effective strategies and provide internal role models for the next generation of managers;

- publicly funded institutions should improve the recognition and reward differential to high achievers who take risks and are prepared to build the relevant management skills and experience to achieve effective commercialisation, and

- Universities should extend their industry experience training to a broader range of sandwich and placement schemes, to build earlier industry awareness and experience. Universities and public institutions should introduce or extend training in developing business plans for the ICT market.

ATTACHMENT A

AusIndustry R&D Start Grant Case Study

A small software development business with a blue chip federal government client base was one of the 115 companies affected by the suspension of the scheme.

They had taken three months working with AusIndustry making sure their application had every chance of success, including contracting a software research scientist to write the technical specifications and their accountant to ensure the financials were correct. The application went through the February assessment stage and in April they were informed that the grant scheme was suspended and requested to withdraw their application.

The application process had cost the company many thousands of dollars in consultancy fees and many hours of company time.

The R&D project was based on rectifying known deficiencies in the ability of intelligence agencies to share information and other associated problems known to the company. These deficiencies had been identified as being in part responsible for the intelligence breakdown in the lead up to the terrorist events of September 11 and were therefore of vital interest to the Australian Government in its support of the "War Against Terrorism".

The software research scientist engaged to write the technical specifications for the application is an internationally recognised expert in the field of law enforcement, defence and national security applications and part of the funding required was to be able to contract him to lead the project.

Meanwhile - research and development to solve problems that are of worldwide concern, subject to Australian Government policy and would have put an Australian company at the leading edge of providing solutions internationally have been put on hold, whilst international competitors get a free kick.

Ironically, within weeks of the suspension of the grant, the company had been asked by two potential clients one in India and the other in Hong Kong for functionality that was part of the R&D project.

This SME has to rely more heavily on the D of R&D to ensure cash flow. The R can only be achieved satisfactorily with funding and, as research is inherently risky as well as innovative, there are few avenues for funding outside of government.

ATTACHMENT B

Issues with the R&D Tax Offset program

1. Lack of transition between the Offset and R&D Tax Concession

An issue relating to the R&D expenditure cap of $1m is the lack of effective transition between the R&D Tax Offset and the R&D Tax Concession that is commercially realistic (administratively it is simply made by election at the time of lodging a claim). For those ICT companies spending more than $1 million on eligible R&D expenditure and therefore ineligible for the R&D Tax Offset, the R&D Tax Concession is their only option. However, given that many of these companies carry forward tax losses, there is little if any short-term financial benefit to be derived from claiming an additional tax deduction via the R&D Tax Concession.

2. Relationships with exempt entities

Section 73J(2) of the *Income Tax Assessment Act 1936* ('the Act') precludes a company from accessing the Offset where:

"an exempt entity, the affiliates of an exempt entity, an exempt entity together with its affiliates, or 2 or more exempt entities, at any time during the tax offset year, legally or beneficially own, or have the right to acquire, the legal or beneficial ownership of:

(a) interests in the company that carry between them the right to exercise, or control the exercise of, at least 25per cent of the voting power in the company; or

(b) interests in the company that carry between them the right to receive at least 25per cent of any distribution of income or capital by the company."

It is apparent that section 73J of the Act presents particular difficulties for some ICT companies due to:

- some having been spun out from tax-exempt entities such as universities where typically the founders have equity at more than 25 per cent and which is typically only slowly diluted by other investors (eg. VCs or others) as time goes by; and

- the existence of companies that have complex equity share holdings which includes private equity (eg. VC investment), but where a fraction of this equity might be traced back to Commonwealth funds in the form of equity via, for example, the IIF program.

In the first case, these tax-exempt entities or their affiliates commonly retain equity in excess of 25 per cent in the newly formed companies at least during the first few years of the start-up. For example, in a typical arrangement a commercialisation arm of a university, an affiliate of a tax-exempt entity and itself an incorporated entity, will retain over 25 per cent of the ownership or voting rights in an ICT start-up.

In most cases, the commercialisation arm has a hands-off approach to its investment in the start-up and therefore will not exert control in the company if it has less than 50 per

cent equity or voting rights. However, as per the current legislation, the start-up in question will not qualify for the R&D Tax Offset.

In the case of investment via the likes of the IIF, the application of section 73J(2) of the Act is unclear when the relationship between the investor (the IIF licence holder) and the Commonwealth is taken into account. However, if we assume the IIF licence holder is considered to be an affiliate of the Commonwealth and thus subject to the exempt entity provisions, it seems unreasonable that the company is prevented from accessing the R&D Tax Offset if the 25 per cent interest level is deemed to have been breached.

Furthermore, the less than 25 per cent ownership requirement regarding tax-exempt entities is inconsistent with, for example, section 73L of the Act that requires a 50 per cent interest to identify entities within a group for R&D Tax Offset purposes (see, for example, sections 73L(3), (5) and (6)). In addition, under section 73M of the Act, a company may be considered to be grouped with an affiliate company, if it:

"… acts, or could reasonably be expected to act, in accordance with the other company's directions or wishes, or in concert with the other company, in relation to the affairs of the company's business or research and development expenditure".

Overall, a 50 per cent threshold seems more reasonable and commercially based for identifying instances where a party has a genuine ability to control a company and its activities and not penalising companies that may have been spun out of a research or educational institution.

In summary, the impact of the 25 per cent limit is that, whilst the Commonwealth is encouraging new start-ups (particularly with the commercialisation of public sector R&D) via programs such COMET, the Pre-Seed Fund and others, such investments are put at risk if the R&D Tax Offset in unavailable to such companies at the next step of their growth cycle.