Public Support for Science and Innovation

I write to you in response to the draft report on **Public Support for Science and Innovation.** The report contains a wealth of useful information and makes substantial strides in understanding the nature and importance of science and innovation to the Australian economy.

While Ai Group welcomes the Commission's report on current arrangements, we remain unconvinced that it adequately deals with the overall question of whether Australia has the right programs and structures for science and innovation to respond to the global challenges ahead.

Ai Group believes that the Commission needs to take both a global and long term view to the development of government policy in regard to innovation. Our innovation policies need to be reformulated to respond to the challenges of heightened global competition with the emergence of China and India, as well as setting a context for science and innovation for the next decade and beyond.

As you would be aware, both China and India are making enormous strides in developing world class science and innovation facilities, and building a sizeable talent pool of scientists and engineers. This is attracting significant investment from multinational firms, as well as leading to a reassessment of their investments in countries like Australia.

We feel that more needs to be done in the final report to review Australia's overall innovation system within the changing global context. We acknowledge that this has been done in considering research and development funding arrangements, but this approach needs to be extended to the rest of the report in considering the innovation system overall, including an examination of human capital needs, developments in global research collaboration, and the building of industry capabilities.

Further, we are in accord with the Business Council of Australia which has also argued for a major overhaul of Australia's innovation system. The Commission's report seems to imply that all is well, whereas Ai Group is saying it is time to make innovation a national priority, to make our innovation system world class, to boost funding, to strengthen collaborative efforts, and put into place structures and systems for national consistency that will competitively position Australia well into the next decade. This includes support for a national innovation body reporting to COAG.

We offer the following specific comments to the report below.

Importance of science and innovation

As you are aware, there has been an ongoing policy debate about the benefits of governments investing in research and development. This report provides an unequivocal response: expenditure on research and development leads to an improvement in economy-wide productivity and "spillover rates could lie between 35 and 100 per cent".

Ai Group's own research has identified that future industry competitiveness will depend on the capacity of businesses to be innovative and make better use of the skills and attributes of its employees. In **Manufacturing Futures** we identified that around 20% of manufacturing sales were derived from new products (developed over the last three years), and that this percentage was likely to grow significantly over the next few years. Without an innovative culture among industry, we are unlikely to be able to respond positively to the challenges of globalisation and competition from developing nations.

Ai Group believes that the Productivity Commission report can play a vital role in setting the context for realigning innovation policies to meet the future needs of industry and the economy.

Incremental reform

The report highlights that the development of Australia's science and innovation funding allocation mechanism has "accorded a reasonably strong weight to past practices and generally rely on incremental change to improve outcomes", this being partly a product of uncertainty about the relative benefits of spending.

The Commission's report has helped to clarify these benefits, and Ai Group agrees with the Commission's conclusion that there "is no practical alternative to incremental approaches for the vast majority of science and innovation spending". Having said this, and while Ai Group in principle supports a change to the R & D tax concession to an incremental funding arrangement, we are surprised that the Commission is proposing to abolish the 125% basic concession, quite a radical change to the foundations of our R & D support arrangements. Around 4,800 companies, or 80% of companies eligible for a tax concession/offset, would be locked out of funding support if the 12% tax concession (and related 125% tax offset) were abolished.

Ai Group believes that it is possible to maintain both the 125% tax concession, which is widely supported by industry, and build a performancebased funding arrangement into the existing system.

We agree that it would be wrong to simply lift the tax concession for all companies from 125% to say, 150%, as there would be little additional benefits derived from such an increase. However, this is not an argument for abolishing the 125% tax concession and moving all recipients to the current (or modified) 175% premium tax concession, which is both restrictive in its applicability and has a very low take-up rate.

Proposed R & D Step-Up Program

Ai Group in its submission on the **Setting of Policy Directions for Australian Industry** has proposed to the Federal Government that a new performance-based R & D tax concession be introduced that merges the 125% and 175% tax concessions into a new "Step-Up R & D Tax Concession". The proposal provides an incremental improvement to the concession, up to 200%, according to the change in the level of R & D spending by companies. However, under Ai Group's proposal, the basic entitlement to the 125% tax concession is preserved, thereby meeting the Commission's objective of building incremental change into program reform.

Implementation of the proposal would reward companies for improvements in R & D expenditure, with the aim of significantly lifting overall expenditure on business R & D and promoting the entry of new companies into the R & D regime.

Ai Group envisages that the Step-Up R & D Tax Concession would operate in the following manner. A company would receive a higher tax concession for the incremental increase in R & D spent in one year relative to the average of the previous three years.

This would be on top of the base rate of 125% for R & D expenditure at or below the average of the previous three years. Companies with an irregular history of expenditure (that is, where there is no or reduced expenditure in one or more of the three years) would only be entitled to the 125% tax concession, as under current arrangements, to ensure they maintain a minimum level of expenditure. The incremental concession would step-up by the level of improvement achieved in that year. The new scheme would build on the present 175% incremental concession by applying to all additional expenditure, and not just the incremental expenditure on labour related R & D expenditure as currently applies under the 175% Premium R & D tax concession.

The incremental rates would be set at:

Increase of current year's eligible expenditure over average of previous three years' eligible expenditure	Rate of concession to apply to the incremental increase in eligible R&D expenditure
0% or less	125%
>0% to 5%	150%
>5% to 15%	175%
>15%	200%

All companies eligible for the current 125% concession would retain their entitlement to this rate of concession, unless they became eligible for a higher rate.

An example of how the proposed tax concession would work is the case of a company with an average expenditure of $1 million that spends an additional $200,000 (or 20%) in the following year. Under the current 125% R & D tax concession, at the company level, the business would receive an after tax benefit of 7.5 cents for the additional R & D expenditure. Under Ai Group's Step-Up tax concession, the company would face an incentive of 30 cents in the dollar for its incremental expenditure (again at the company level). For this company the average benefit would rise from 7.5 cents in the dollar to 11.25 cents under the incremental scheme, an incentive to increase their R&D expenditure of $60,000 compared with the $15,000 incentive provided by the 125% concession.

The improved scheme would require adjustments to the R & D tax offset for companies with a turnover of less than $5 million that undertake up to $1 million in R & D. Some indexation growth factor may also be necessary to deal with companies that are already at the program's threshold levels to facilitate more flexibility in eligibility, so that companies can continue to grow without the risk of losing their entitlement. These changes could be achieved at a relatively small additional cost.

Base for measuring performance

While the Commission has expressed a preference for an incremental scheme based on using the increase in R & D expenditure as a percentage of sales (in order to overcome the effects of price movements), Ai Group would favour a percentage measure of quantum increase in R & D expenditure.

Using R & D expenditure to sales as a base is likely to benefit small companies, who could easily achieve a large increase in R & D intensity, but could disadvantage large companies, who would need substantial increases in spending to lift their R & D intensity. Furthermore, funding measured against sales would be more vulnerable to the business cycle, with R & D intensity likely to rise during periods of weak sales and profits.

Using the percentage change on actual expenditure is fairer on all companies, and under Ai Group's proposal, companies would need to achieve a real increase in spending in order to gain a significant incremental benefit in the R & D tax concession.

Impact of imputation system

To complement the introduction of an incremental R & D tax concession, Ai Group also proposes a further improvement to the present tax concession arrangements. For most companies, the effectiveness of the current R & D tax concession is substantially eroded by the workings of Australia's imputation system. Companies eligible to receive the R&D tax concession pay less company tax. However, they also do not accumulate franking credits in respect of the saving in company tax. The shortfall in franking credits implies a higher level of tax paid by shareholders on dividends received. For many companies, the saving in company tax due to the R&D tax concession is exactly offset by the higher level of tax paid by shareholders on dividends.

Assuming that two-thirds of the R & D tax concession is clawed back at the shareholder level, the real cost to the revenue of the concession in 2004-05 would have been around $153 million compared with the $460 million indicated in the 2005 Tax Expenditures Statement.

In order to remedy this situation, Ai Group proposes that companies be allowed to credit their franking accounts by the amount of company tax saved as a result of the R & D tax concession.

Funding implications

Ai Group acknowledges that the implementation of its proposals would involve additional funds. But such funds would be well spent, as there would be additional R & D expenditure by business (and spillover benefits) as a direct outcome of the new program.

In this regard, we are concerned about the Commission's assessment that "neither industry nor government research agencies suggested that underfunding was a major problem". Our previous research and consultations with members has consistently pointed to on-going concerns about funding levels and as the Commission even acknowledges in the report, "unsurprisingly the majority submitting that the level of funding should be increased" and "participants also raised concerns regarding the erosion in the value of the [tax] concession over time".

Ai Group holds strongly to the view that the funding for innovation support to business remains inadequate, which previous OECD research has shown that the benefits of private R & D activity diffuse through the economy faster than those of public R & D.

Importance of industry structure

We also note the Commission's reworking of the OCED findings on the impact of industry structure on R & D effort by countries. **Going for Growth 2006** stated that after adjusting for industry structure, the "overall R & D picture does not change substantially in the majority of cases". In the case of Australia, adjusting the R & D intensity to reflect industry structure does nothing to change its ranking as the fifth lowest of 18 OECD countries.

Ai Group understands that the Commission has reworked the OCED findings based on an industry structure of 33 categories (rather than eight categories), which results in a significant jump in Australia's R & D intensity (measured as a percentage of business value added) from around 0.9% in the original OECD "country specific measure" to 1.9%, a surprising change of more than double.

While the Commission's findings suggest that industry structure can have an impact on R & D outcomes across countries (and that different methodologies can elicit divergent outcomes), it nevertheless takes little away from the argument that Australia needs a substantial lift in its R & D effort.

The Commission may argue that Australia is not far off the OCED average, but this is still a poor outcome relative to what Australian industry needs to achieve to remain globally competitive, that is, better than the OCED average. This is the point we should be focused on in reviewing Australia's future science and innovation needs.

Maintenance of ACTS arrangements

The Commission notes that while the automotive manufacturing sector constitutes less than 0.5% of total economy production and employment, it accounts for 13% of total business sector innovation support. The rate of tax support for ACIS is equivalent to 45 cents in the dollar (paid as an import credit) compared to 7.5 cents under the 125% R & D tax concession.

While the report states that it is difficult to separate the impact of the R & D subsidy from other elements of AC IS, we concur with the Commission that the program is first and foremost a structural adjustment program to lower tariffs, and that any R & D benefits must be weighed against the overall benefits to the Australian economy of a lower tariff regime.

Consequently, we see little basis for changing the current ACIS arrangements in regard to research and development which were negotiated during the last review in 2002, and agreed upon by industry and the Federal Government.

Commercial Ready program

Ai Group is unconvinced by the Commission's negative comments in regard to government support for R & D business grants using an assessment of commercial merit. Throughout the report, the Commission seems to favour a return to public support for science and innovation on a more flexible, and non-commercial basis of consideration. It seems to have a preference for social returns over commercial returns. Indeed it states:

> "While the Commission recognises the general shift towards commercialisation objectives across innovation policies both in Australia and overseas, it views the case for public support in this area as having less force than activities which involve benefits not readily amenable to capture by the innovator".

This is specifically highlighted in its consideration of the Commercial Ready program. The commission questions the validity of commercialisation objectives and implies that less risky projects are being supported, and that such projects "do nothing" to support high social returns.

While acknowledging that there should be a balanced mix of social and commercial outcomes from publicly funded activity, Ai Group believes that the Commission's arguments need to be more substantially grounded: it provides no proof of capture; it relies on research that pre-dates the Start program (let alone the new Commercial Ready program); it relies on empirical research untested against specific programs; it makes comparisons with unfunded projects which can be questioned; and it seems somewhat dismissive of the IR & D Board findings of 2005, that in the absence of support results would have been "slower, less well resourced and with reduced outcomes".

Indeed, the Commission needs to provide much more convincing evidence to support its assertion that using commercial success as a major objective "can adversely impact on the behaviour of the program administer". This may or may not be the case, but given the high regard the Commission is held within the community and government for its public policy work, the onus must be on the Commission to actually prove its case more substantially.

Public Sector Research Agencies and Higher Education Institutions

Ai Group is currently investigating research linkages between publicly funded research agencies (PFRAs) and universities and businesses. The Draft Report provides an excellent discussion of a wide range of issues in this area.

We have specific comments on a number of issues. First, there may be scope for confusion around the Commission's statement (on page xxv) that "Public sector research agencies and universities should ensure consistency in the management of intellectual property within their organisations to reduce transaction costs for businesses dealing with them."

Our investigations indicate that businesses recognise the importance of being able to adapt the allocation of intellectual property depending on the particular circumstances of different transactions. In our discussions, businesses are more likely to have expressed concerns with a lack of flexibility in negotiations over IP with PFRAs and universities than with a lack of consistency.

While a close reading of Chapter 6 of the Draft Report would appear to accommodate the need for such flexibility, there is a risk that the way the issue is expressed in the Overview may be construed as a call for standardisation - a direction we would regard as unproductive.

Second, on the basis of our research we strongly support the comments suggesting flexibility of arrangements rather than each university developing commercialisation arms. We are encouraged that alternative approaches are emerging such as shared service models and a variety of outsourcing arrangements with the private sector. There may be similar benefits for larger universities and PFRAs in exploring alternative arrangements either in place of commercialisation arms or supplementing them in particular circumstances.

Third, Ai Group sees significant benefit in conducting a stocktake of existing research infrastructure. We similarly view the suggestion of an open access repository for research papers, data and other information. This could be a condition of ARC and NHMRC grants and it could be supplemented by information on research carried out under other programs.

Fourth, we also support the suggestion that greater flexibility be introduced into CRC arrangements. Similarly, introducing alternatives to the CRC structure would have significant benefits.

Finally, the productivity commission addresses the issue of small and medium sized business collaboration with public research organisations. Notwithstanding the arguments put by the Commission, Ai Group believes there is scope to include in a broader capability initiative (outlined in this submission) a program of support to businesses that addresses the information asymmetries across the innovation spectrum. Building the capabilities of businesses provides the opportunity to consider undertaking activities beyond their current levels, whether that be to engage public research agencies through collaborative activities or undertake other forms of activity that address their business objectives.

Support for overseas collaboration

The Commission rejects the case for Australian and foreign-owned entities gaining support for overseas R & D on the grounds that "empirical evidence suggests" that the net social benefits (spillovers) to the Australian community from foreign access outweigh the associated leakages and financing costs.

Yet a simple measure of ensuring a net return to Australia from such investment could provide sufficient flexibility to respond to the changing flows of research and development.

In Manufacturing Futures we identified that more Australian business would be looking to tap into the global talent pool of scientists and world class facilitates in China and India, for example, to undertake research and development. Such activity could enhance competitiveness among Australian industry and this change should be recognised in current funding arrangements. Indeed, the R & D tax concession has a 10% cap on the extent to which funded R & D can be undertaken offshore.

Ai Group believes that there remains a case for more flexibility in supporting global collaborative research where it can be shown to offer a net benefit to Australia.

Skills developments

The Commission correctly identifies the importance of human capital to the innovation system. Well trained scientists and engineers are vital in providing industry with the skills base necessary for developing innovative products and services. In this regard, the current shortages in science and engineering graduates, and in school teachers covering these disciplines, can act as a constraint to innovation.

The recent announcement by the Federal Government in its **Skills for the Future** statement to provide funding for an additional 500 Commonwealth-supported university places for engineering students from 2008 will assist in reducing gaps in appropriate skills. The program also provides funding to support additional training opportunities for existing workers through skills vouchers.

While welcoming these initiatives, Ai Group remains concerned that little is being done to address the broader question of providing support to businesses that may need additional help with innovation practices. This is partly touched on by the Commission in its examination of barriers to commercialisation. Many small to medium enterprises (SMEs) often lack the capabilities to explore innovation opportunities, and as **Manufacturing Futures** identified, there remains a gap in industry programs to build capabilities not just in innovation, but business skills more broadly. Unlike the Commission, Ai Group is unconvinced that existing programs (such as the Small Business Entrepreneurship Program highlighted in the report) adequately meet industry needs for capabilities building in a coordinated and systematic manner.

It is for this reason that we have recommended to the Federal Government a new **Business Capability Initiative.** The program would draw upon the successful strategies already adopted through Enterprise Ireland, the United

Kingdom Manufacturing Advisory Service, and the United States Manufacturing Extension Partnership. In addition, it includes the most successful strategies identified by industry for knowledge building and sharing to achieve world class capabilities.

The proposal is to provide industry organisations with the capacity to deliver strategic management advice to manufacturing firms of all size across a range of business capabilities relevant to the needs of the particular firm. A diagnostic process on the whole of the firm will identify capability needs that meet business objectives. Advisors will work with companies to identify solutions to improve the operation of the business, through for example the use of innovation, across the whole value chain.

A detailed proposal for the Business Capability Initiative is provided in the Appendix.

Intellectual property rights

Finally, the protection of intellectual property is an important element of the science and innovation regime recognised by the Commission. Ai Group fully understands the Commission's concerns about ensuring that IP protection does not inhibit the sharing of intellectual ideas, as well as not impede competitive practices.

However, we would like to draw the Commission's attention to concerns raised in **Manufacturing Futures** about the cost to small businesses in obtaining IP protection, and the barrier it may pose to the spread of innovation practices.

For many SMEs, the cost of international protection is out of their reach, preferring to rely on "first to market" advantages rather than formal registration. Moreover, many businesses do not have the skills or the necessary processes in place to record and capture basic information on their intellectual property.

The introduction of innovation patents (in May 2001) has helped to provide a relatively inexpensive path to patent rights. Nevertheless, Ai Group believes that greater use of patents would be facilitated by SMEs if small grants were available to assist companies to meet the cost of identifying and protecting intellectual property, particularly in overseas markets.

Consequently, Ai Group has put to the Federal Government that it should introduce a grants scheme to support SMEs in meeting the professional costs associated with the auditing and management of intellectual property including the costs of legal, commercial or intermediary services. We recommend that the Commission give serious consideration to this issue.

These comments have already been verbally raised recently in Canberra in our public consultation with the Commission.

Ai Group welcomes the opportunity to comment on the Commission's draft report. We would be most happy to meet with you to have any further discussions on the issues in the Ai Group submission if you wished to do so.

Yours sincerely,

Heather Ridout
Chief Executive

APPENDIX DETAILS OF THE BUSINESS CAPABILITY INITIATIVE

Products and services

A vision for the future of Australian manufacturing requires that each business have a strategic plan for growth. Ai Group's research conducted for *Manufacturing Futures* identified that one third of manufacturers had not identified new strategies to deal with intensified international competition in their markets. A large proportion of these were small businesses (those with less than 25 employees).

Ai Group's proposal is for industry organisations to competitively tender for the delivery of a capability advisory service to industry. The advisory network will work directly with an area or region's manufacturers, utilising the membership relationships that already exist with their host industry association.

Industry associations will be contracted to support a network of *Business Capability Advisers,* drawn from industry with expertise across the range of manufacturing business practices associated with world-class firms.

Business Capability Advisers will be experienced management consultants to guide manufacturing firms through strategic planning and implementation from needs assessment, market analysis and strategic planning to organisational commitment, project implementation and management. They will develop business strategies suitable to their clients markets, customers, operations and organisation. Importantly, Advisers will assist manufacturers to apply world class business practices to execute their identified strategies and plans as well as measure the outcomes.

The strategy would be adapted to the particular firm needs. However, *Business Capability Advisers* would assist manufacturers to develop lean enterprise strategies and build capability in the following areas:

- Process improvement; e.g. lean manufacturing
- Tendering;
- Innovation strategies;
- Global sourcing and supply chain management;
- Transport and logistics;
- Marketing development;
- Environmental management; and,
- Skill development strategies.

Services will be delivered in a number of phases with deliverables required at each phase. These include:

Phase 1: Advisers will offer a free one-day diagnostic consultancy to small and medium sized manufacturers and subsidised diagnostic service to large employers. The deliverable under Phase 1 of the service will be the development of the business plan and a report on capability needs. This may range from process improvements, to workforce skill development strategies and business management practices.

Phase 2: Business Capability Advisers will provide a follow up service to manufacturers and offer solutions to identified capability needs by advising the business of available:

- specialised expertise from outside consultants (see specialist network below);
- government programs (Commonwealth and State; and,
- knowledge sharing activities of existing and newly established regional industry collaboration networks (see proposal below).

The deliverable under Phase 2 will be a report to the business outlining available support. It will also include introduction of the business to an existing or newly established network where this is required.

Phase 3: Phase 1 and 2 will assist Advisers to identify common capability needs of employers within an area or region. Advisers will then organise and deliver workshops to build capability (for example lean manufacturing). In delivering these workshops, Advisers would access the available public support for capability development.

Performance Measures

Evaluation of the *Business Capability Initiative will* be a key part of the program. The outcomes will be used to improve the level of service provided to clients and to identify key regional activities necessary to remove barriers to business capability development.

By measuring short-term and long-term impacts, economic returns on Commonwealth investment in business capability can be assessed. In taking the lead from the UK Manufacturing Advisory Service program, it is recommended that performance is measured by the total "added value" to manufacturers.

Advisory Group

The Business Capability Initiative would establish an Advisory Group to provide guidance and advice on the services delivered under the Business Capability Program. The Group would consist of representatives from the Australian and State Governments, industry and specialists in areas such as manufacturing, academia, and economic development.

The Advisory Group would represent the views and needs of all stakeholders on the strategies and services delivered by the Business Capability Initiative, including an assessment of performance of the program. In this capacity, the Advisory Group will provide feedback to the Australian Government on the value of public investment.

Regional and industry collaboration

Across Australia a number of regional and industry networks or clusters have developed to encourage capability development, identify opportunities for trade or new ventures. The *Business Capability Advisers will* link in with networks developed within their area or region with the aim of sharing the knowledge and benefits of advice to manufacturers locally. The network will provide the opportunity to show case the benefits of the program. It will also identify any barriers to business capability development and seek to establish local processes to overcome these barriers. The networks would seek to draw local expertise from across the range of areas covered under the *Business Capability Initiative* and link them for mutual benefit.

The proposal seeks to take networking to a new level by providing a national forum for networked groups in regions and areas to share knowledge, experience and world class practices.

Network of specialist organisations

The Initiative would establish a network of specialist organisations identifying their various expertise in meeting capability needs. The services of these organisations would be drawn upon to deliver additional services (at the expense of the individual business) to supplement the support from the *Business Capability Advisers.*

Links with other government programs

The *Business Capability Initiative is* intended to work with already established programs offered by Australian and State Governments. For example, Ai Group sees that the initiative would work closely with customer service managers in both the AusIndustry and AusTrade Programs. It is envisaged that the initiative will lead to more successful outcomes for programs within other portfolios by identifying and addressing any capability issues that may inhibit success for the firm in achieving business objectives.

Ai Group does see that over time the program may replace the Small Business Field Officers initiative, part of the Australian Government's Building Entrepreneurship in Small Business Program. This program is restricted to small business in regional, locations covering all business sectors. This is in contrast to the *Business Capability Initiative* which is a targeted program delivering a more indepth approach to business capability within an industry sector. Ai Group does envisage that this targeted approach could be adopted across other industry sectors.

Business Capability Advisers would also work closely with State and Territory regional development agencies providing a forum for advice on industry needs. Where state programs exist to support capability, the advisory network would be able to link businesses to these programs. In this way, the initiative does not duplicate, but rather complements the various programs available at a state and national level.