Air Transport Network Conference – International Networking

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Introduction

Thank you distinguished guests, ladies and gentlemen – I am very pleased to be here with you at this Conference.

I am Head of the Manufacturing Division in the Australian Department of Innovation, Industry, Science and Research. My Division has responsibility for a range of industry sectors including: aerospace; marine; defence; automotive; ICT; textile, clothing and footwear; chemicals and the built environment.

Today I would like to talk to you about Australia's aerospace sector and discuss a number of Australian Government initiatives undertaken to assist our industry to compete internationally and win contracts with the major global primes. The key themes arising across all these initiatives are the importance of facilitation by government and collaboration amongst firms.

With the change of Government in Australia in November last year there has been a shift in focus and a greater emphasis has been placed on innovation as a key driver of industry development.

Innovation and its role in driving productivity gains across the Australian economy is one of the Government's major agenda items, and it's certainly a primary focus for this new Department.

However, before I discuss current Government initiatives I would like to introduce the Australian aerospace industry.

Overview of the Australian Aerospace Industry

The Australian aerospace industry is a competitive and technically sophisticated supplier to both domestic and international markets across a range of niche activities.

The industry operates in both the civil and defence aerospace markets and is a mixture of domestic companies, Australian subsidiaries of international companies and supporting industries.

Leading firms include:

- BAE Systems Australia,
- Australian Aerospace, a subsidiary of Eurocopter which is a wholly owned subsidiary of European Aeronautic Defence and Space (EADS),
- Boeing Australia and
- Hawker de Havilland, a wholly owned subsidiary of Boeing.

These four companies generate nearly half of the industry's revenue.

Around these top four are numerous small to medium enterprises operating across a diverse range of specialist and technical areas that form part of the critical supply chain to the prime companies' production and maintenance operations.

The Australian aerospace sector is small, even by Australian standards, employing around 20,000 people with annual industry

revenue of about $3.9 billion. Exports represent approximately 25% of revenue.

Activities include:

- aircraft component manufacturing for civil and military aircraft including helicopters,
- aircraft repair and maintenance,
- light aircraft manufacturing,
- system design and development,
- aviation training
- and air traffic management products.

The presence of BAE Systems and Boeing in Australia is mainly in the areas of systems integration and maintenance, repair and overhaul.

The principal aerostructure component manufacturer, Hawker de Havilland, exports the majority of its production to the prime global civil and military aircraft manufacturers: Boeing; Airbus; Bombardier; Lockheed Martin and BAE Systems.

GKN Aerospace Engineering Australia has designed 13% of the parts for the Joint Strike Fighter and was the third largest engineering design contractor on the project after Lockheed Martin and Northrop Grumman.

There are also a number of successful small aircraft producers such as Gippsland Aeronautics which currently produces up to 25 light aircraft a year.

Australian Innovation System

The Australian aerospace industry is supported by Federal and State government and research organisations that make up the national innovation system. That is, a number of Federal Government agencies and government funded bodies conduct research and development in a variety of fields, collaborating with industry to commercialise cutting edge technologies.

A review of the National Innovation System was announced by the Government in January this year. The review will be undertaken by an Expert Panel, which has been charged with identifying gaps and weaknesses in the innovation system and developing proposals to address them. The Panel is to consult nationally and report to the Federal Government within six months. Innovative intensive industries such as aerospace will particularly benefit from an improved innovation system.

The **Defence Science and Technology Organisation** (DSTO) is the Australian Government's lead agency in science and technology defence related projects and works closely with industry and the science and technology community to support Australia's defence and national security capabilities.

With an annual budget of over $440 million the DSTO employs a number of mechanisms to facilitate interaction and collaboration with industry, including strategic alliances, industry agreements and collaborative research projects. And as will be discussed later collaboration between the DSTO and industry has resulted in the creation of a new government initiative for extending aircraft life.

The **Commonwealth Scientific and Industrial Research Organisation** (CSIRO) is Australia's national science agency and one of the largest and most diverse scientific research organisations in the world.

Established in 1926, CSIRO is the single largest employer of scientists in Australia, with more than 6 500 people conducting and assisting with scientific research at 57 sites in Australia and around the world.

CSIRO delivers science and innovative solutions for industry, society and the environment, working on new ways to improve quality of life, as well as the economic and social performance of a number of industry sectors.

CSIRO is involved in over 740 international research activities a year, working with leading scientific organisations around the globe and has worked in more than 80 countries, with a range of partners and clients including foreign governments, small companies, large multi-nationals, and international foundations.

Innovative research and testing is also carried out at universities around the country. The **Centre for Hypersonics** run by the University of Queensland conducts research into all aspects of hypersonic flight, including test facilities, air-breathing engines, rocket flight testing, aerothermodynamics, computational fluid dynamics and optical diagnostics and is funded by several government grants.

Since its inception the Centre's researchers have been involved in collaborative research programs with around 20 universities and research organisations around the world.

As part of its HyShot Flight Program, the Centre launched the world’s first experimental flight of an air-breathing scramjet in 2001. Sponsorship for the HyShot Flight Program has been obtained from a number of organisations including the Defence Evaluation and Research Agency in the UK, National Aeronautics and Space Agency (NASA, USA), the German Aerospace Centre and the National University Korea.

The success of the program has led to the establishment of the **Australian Hypersonics Initiative**, a collaborative project between a number of Australian universities, State governments and the Australian Department of Defence. The parties will jointly market the newly developed hypersonics technology and the initiative is now also sponsored by NASA and has been engaged in testing on the HyCAUSE program with United States’ Defense Advanced Research Projects Agency (DARPA).

Another program aimed at encouraging research and development is the **Cooperative Research Centres** (CRC) Program. An Australian Government funded initiative, the Program is aimed at fostering world-class research, turning Australia's scientific innovations into successful new products and making our industries more efficient and competitive.

The Program emphasises the importance of collaboration between business and researchers to maximise the benefits of research through an enhanced process of utilisation, commercialisation and technology transfer. It also has a strong education component with a focus on producing graduates with skills relevant to industry needs.

The Program currently supports 58 CRCs operating across a wide spectrum of sectors.

The aerospace manufacturing industry is strongly represented in the CRC for Advanced Composites Structures.

Since its inception, the CRC for Advanced Composites Structures has established an international reputation as one of the top centres in the world in the field of composites research. It is experienced in every stage of composites research, design and development and has developed an array of new technologies for its partners and commercial customers.

The CRC for Advanced Composites Structures has a strong history of successfully developing and applying new technologies to a range of programs including the F-111 replacement panels.

In 1997, a joint program was established between the CRC and the DSTO to investigate the viability of using composite structures as substitutes for aluminium aircraft panels.

Supported by the Australian Defence Forces and Hawker de Havilland, the program set out to develop a cost-effective generic methodology for the replacement of metallic aircraft panels with composite panels centred around reducing low volume manufacturing costs.

In June 2004, the CRC for Advanced Composites Structures successfully supported the Boeing Aerospace Support Centre team with the first installation and testing of a composite replacement panel on an F-111.

Subsequently, Hawker de Havilland's efforts to win tier 1 status on the 787 program were significantly enhanced by research outcomes from the CRC for Advanced Composites Structures.

Despite Australia's emerging capacity to develop and produce world class aerospace technologies and products, the aerospace industry continues to face significant challenges in positioning itself in the global market. Of course this industry is adjusting to new global realities.

Changing Global Environment

In virtually every sector of the world economy there is a trend to consolidation and concentration of the leading firms. The number of primes in almost every sector, including aerospace, is reducing.

The implications of global consolidations for Australian subsidiaries of global multinationals and independent Australian companies, big and small, are significant.

Firms are increasingly finding themselves part of a global supply chain, selling to firms one step up the supply chain rather than selling directly to the final consumer, whether that final consumer is private or government.

Fewer larger companies mean fewer larger opportunities and greater reliance on global supply chains. The primes are reducing the number of tier 1 suppliers who are required to provide sub-assemblies and systems for final assembly by the prime. The primes are searching worldwide for new technology and supply partners, and increasingly the primes are asking their tier 1 suppliers to become risk-sharing partners.

Access to international supply chains is relatively difficult for small and medium sized enterprises. If the customer, that is the firm next in the supply chain, is overseas it is difficult and expensive to get information about potential opportunities, to find the best contact person and to arrange meetings with the organisation. For

a smaller company the costs of these acts are prohibitive when compared with the potential contracts they can win.

Economies of scale mean small Australian firms must increasingly inhabit niches (often at sub-system or component level) in global markets to achieve the scale required to be global.

The issue of international scale impacts all companies in the Australian aerospace industry, to various degrees, and drives the search and information costs involved in finding business opportunities. Even the largest of Australia's companies are very small when compared with their major global competitors. This can make it very difficult for them to get their skills and technologies recognised when attempting to access the global supply chain.

International civil and defence programs are in place for many years. If companies do not become players in the early development and production phases they can become shut out of this market. On the other hand, early involvement may lead to winning future sustainment work and through-life support.

Role for Government

Two-thirds of world trade is undertaken by multinational companies, and government assistance can help smaller enterprises overcome skill, technology and information barriers to facilitate integrating them into the changing international trading environment.

This means out there in the world there are a relatively small number of large global opportunities.

And Australian industry is made up of a mixture of large and smaller companies.

The Australian Government will work with groups of small to medium enterprises to take them out to those global opportunities.

And will work with a prime and its supply chain to take them to those global opportunities.

The Australian Government's policy is designed to assist Australian industry to adjust to the changing demands of the international economy. Chief amongst these new requirements is the urgency for Australian firms to be integrated into global supply chains.

Contact between Australian companies and global primes often relies heavily on individual contacts and serendipity. Australian companies welcome opportunities or mechanisms through which they can market their capabilities to global primes.

To determine our priority campaigns we take a three stage approach. We conduct a strategic scan to:

1. Identify the global opportunities

2. Identify the Australian industry capabilities, only some of which are relevant to those global, and
3. Identify the role for Australian Government, in opening the door to the global opportunities and creating the industry teams.

The sweet spot is the intersection of these three circles where there are global opportunities for which Aust industry is internationally competitive and there is a role for Government in providing access to the opportunity and developing the industry capability teams.

Because the national Government is a significant defence procurer it can ask a prime to host a visiting group of Australian companies to learn about their capabilities or organise missions for the primes to Australia, during which meetings are set up with appropriate and relevant Australian companies.

Global primes have also indicated their support for opportunities to more efficiently match their requirements to Australian capabilities. This can lower their search costs and demonstrates their commitment to Australian industry involvement.

The defence Department requires primes with contract over $50 million to demonstrate that they have provided commercial opportunities to small to medium sized Australian firms to compete for contracts, including within the global supply chains of the prime.

Australian suppliers offer a number of benefits to global primes such as high quality products and services at lower or very competitive rates. Many smaller Australian companies have experience in working for sophisticated customers such as defence and global primes.

While Australia's distance from major markets can sometimes be a barrier, it can also be utilised to the benefit of global projects with a 'follow the sun' approach. Engineering and design services in Australia can provide output to a customer in the US/Europe prior to the start of their working day and likewise requests can be sent back from the US/Europe at the end of their working day so that work can be continued. In this way a project can be progressed nearly 24 hours a day.

Recent experience has demonstrated that there is a useful role for Government to play in linking Australian capabilities with the requirements of global primes, both in Australian aerospace defence projects and in their global supply chains. This has involved both my Department and the Department of Defence working closely with industry.

The Joint Strike Fighter (JSF) experience is the strongest current example of Government playing a significant role in linking Australian companies with global primes. This project has shown that Government-facilitated business matching can improve the frequency, effectiveness and outcomes of contacts between customers and suppliers. I will talk further on the JSF project a little later.

Government Policy and Funding Mechanisms

Aerospace Industry Action Agenda

One way in which the Australian Government has worked closely with our domestic industries, including aerospace, has been through Action Agendas.

Over the period 1996 to 2007, the Government established 38 Action Agendas whose primary purpose was to foster industry leadership by helping industries to develop strategies for growth, agree on priorities, and commit to change. In this way, action agendas complemented other policies and programs aimed at improving economic growth, productivity, and the competitiveness of Australian industry.

Each action agenda was developed by an industry-led steering group, which was asked to focus on identifying opportunities for, and impediments to, growth. They placed particular emphasis on identifying the actions that industry itself could take to realise its full potential. Accordingly, they encouraged industry to develop solutions to their problems that did not involve the injection of large amounts of government funding.

The Aerospace Industry Action Agenda enabled a diverse industry with a wide array of capabilities, to coalesce around a shared interest. It brought industry leaders to the fore, and provided a collective voice for the Australian aerospace industry to communicate with the Government.

The report from the Action Agenda went to Cabinet for approval before the implementation phase. This gives government a better understanding of the industry and enables more effective action by government agencies in addressing impediments to the industry's growth.

The key themes of the recommendations were:

- Establishment of a single industry association
- Positioning for global supply chains
- Investing in skills and research
- Accessing markets
- Certifying for global competitiveness, and
- Mobilising the local supply chains

As a result of the Action Agenda the industry declares itself to be in a much better position to work in the business paradigm required by the primes.

The Action Agenda was a major factor in encouraging industry to see the defence and civil aerospace market as part of an integrated aerospace market instead of as two largely stand-alone markets. It also opened up new ways for the industry to work collaboratively, using clusters and networking in a model we call *Team Australia*.

The success of the Aerospace Industry Action Agenda has informed the policy development process. In particular,

government facilitation of access to global supply chains is the basis of a new program called the Global Opportunities Program. The Department of Defence also drew on the analysis and ideas in the Action Agenda in formulating the recent Defence Industry policy statement to establish a commercial opportunity program for all projects valued at over $50 million.

By fostering a strong sense of unity and a willingness on the part of industry participants to co-operate on common issues, the Aerospace Action Agenda was an important factor in responding to these changes. It stimulated the formulation of a sector-wide perspective on industry competitiveness and growth, and the communication of this perspective to government by industry leaders. As well as improving the dialogue between government and industry, the Action Agenda set out a new strategic direction for the sector based on identifying and capitalising on market opportunities.

Completion of the Action Agenda and its associated successes has led to the establishment of the Australian Aerospace Industry Forum. The Forum is made up of the CEOs of all the significant firms in the aerospace sector including Raytheon, GKN Australian Engineering Services and Hawker de Havilland. Continuing on from where the Action Agenda left off, the Forum addresses issues such as improving global market access, industry promotion and increasing research and development through a series of working groups. The Forum also provides a collective aerospace voice to Government on current issues.

Through the Action Agenda, the Government and the industry together addressed issues and developed strategies to ensure the sustained development of the local industry. A number of positive outcomes have resulted from the Aerospace Industry Action Agenda. These include:

1. the decision to join the System Development and Demonstration phase of the Joint Strike Fighter (JSF) program, enabling Australian firms to bid for work on the project and gain contracts valued at US$160 million to date;

2. a Government grant to Boeing subsidiary, Hawker de Havilland, from the Strategic Investment Fund to enable it to become a tier 1 supplier for the moveable trailing edges for Boeing's new 787 commercial aircraft;

3. the provision of $3.6 million in innovation funding to support the development of techniques for identifying aircraft fatigue before it leads to structural breakdown.

Before discussing these outcomes in more detail it is worth noting that the recent change of Government means that the Action Agenda program has been discontinued to be replaced with industry innovation councils.

It is important to note that the then Labor Opposition did not consider all of the Action agendas were as successful as the one conducted for the Aerospace industry. Labor considers many action agendas were a case of "set and forget". That is, once the

report was tabled and the plan finalised all was forgotten. For this reason the new Labor Government has decided to replace Action Agendas with a markedly different approach. It will establish a number of Industry Innovation Councils which will involve active business, union, Government and research participation to lead sectors into greater innovation and hence greater productivity and competitiveness.

Joint Strike Fighter (JSF) Program

As the largest single customer of the Australian aerospace sector, the Department of Defence is able to stimulate industry investment, research and development and entry into supply chains. The Joint Strike Fighter is a key example of this.

The Australian Government's 'JSF Industry Team' works to maximise Australian industry opportunities in the US$200 billion JSF Program.

A number of Industry Capability Teams and an overarching JSF Industry Advisory Council were established to act as points of contact and referral for industry.

The objectives of government facilitation include:

1. Ensuring fair and equitable access by Australian companies to JSF contracts;
2. Proactive marketing of Australian capabilities to the JSF contractors;

3. Opening necessary paths through US technology export and intellectual property controls;
4. Consolidating critical mass around key Australian capabilities; and
5. Fostering Australian industry capabilities for the support of Australia's JSF fleet.

Thus far, 24 Australian companies have been awarded contracts worth a total of $160 million, with more expected.

The program to date has been extremely successful. One of the primary lessons learnt has been the importance of collaboration amongst firms, where previously there was only competition.

Firms have created a variety of joint ventures. The Madeleine Group brings together a machining company, a cabling company and a sheet metal company to offer a sub-assemblies capability rather than individual components. Broens and Metaltec, two competing tooling companies in Australia have together created Aerotech to successfully compete for aerospace tooling in international markets by increasing their scale.

As well as seeing the benefits in collaboration, the program also opened up new ways for the Australian aerospace industry to think about opportunities, leveraging across defence and commercial markets. Companies that had previously only worked in the civil field were successful in winning JSF contracts, and using the JSF success to win additional contracts.

Strategic Investment Incentive Grant to Hawker de Havilland

Another significant initiative to come from the Aerospace Industry Action Agenda was the Government provision of a Strategic Investment Incentive grant to Hawker de Havilland to assist it win a contract to supply the moveable trailing edge of the 787 'Dreamliner' passenger jet for Boeing.

The Government awards Strategic Investment Incentive grants to companies for major projects deemed commercially viable and internationally mobile. Applications are considered on a case by case basis and grants are awarded to capture large scale projects for Australia. The majority of grants awarded have been in the resources sector.

Grants are a one-off award and not a permanent subsidy. As a rule of thumb, up to 10% of the capital costs for a project may be awarded. As a proportion of value added on sales over the life of the project the subsidy is very small and well within the World Trade Organisation obligations.

In the case of Hawker de Havilland, the Australian Government provided a grant of $12.5 million which was matched by the Victorian State Government.

The project involved an investment of over $200 million by Hawker de Havilland and will yield $4 billion in export production over the life of the project as well as over 220 high technology jobs in Australia.

The grant has also ensured that a high proportion of the total work package for this project was undertaken in Australia by Australian industry. Hundreds of jobs were indirectly created in Australian tooling, design and R&D sub contractors and the project boosted the skilling and training of the workforce, benefiting small to medium businesses across Australia.

In wining the Boeing contract, Hawker de Havilland demonstrated it was globally competitive and reinforced the ability of Australian industry to participate on one of the most technologically advanced commercial aircraft in history.

The contract positioned Hawker de Havilland on the world stage as a Tier 1 supplier. As one of just ten Tier 1 suppliers to Boeing for the 787, Hawker de Havilland is playing a pivotal role in the development, design, production, certification and ongoing support of the moveable trailing edge for the life of the aircraft.

Hawker de Havilland have collaborated with a number of Australian companies and institutions on this project through the Cooperative Research Centre for Advanced Composites Structures, leading to the development of a new resin infusion process.

To date 156 Australian companies have won contracts with Hawker de Havilland through the project.

Furthermore, many aspects of composite technology used in this project are readily transferable to other projects, including the Joint

Strike Fighter project, creating additional production and maintenance opportunities. This was evidenced early on during a scoping visit by BAE Systems as part of the JSF project. On arrival in Australia they discovered a significant aerospace tooling capability already established in Australia delivering tools for the Hawker de Havilland 787 project.

Extending Aircraft Life (EAL) and the Defence Science and Technology Organisation (DSTO)

Another area of niche capability identified through the Aerospace Industry Action Agenda was in advanced maintenance and the extension of aircraft life.

Whilst maintenance was traditionally carried out by the armed forces there has been a shift over the past decades towards contracting the work out to private companies.

An example of this is the maintenance work on the General Dynamics F-111 which has been contracted out by the Royal Australian Air Force.

To give you a brief understanding of the work involved, Australia is the only country in the world still flying the F-111 and the patches on the wings are older than the pilots. As the sole operator of the F-111 since 1998 and with the fleet of around 30 aircraft expected to fly until early in the next decade, the RAAF had to replicate within Australia the whole support infrastructure previously maintained by the United States Air Force.

To manage the maintenance project, the Defence Science and Technology Organisation (DSTO) collaborated closely with local industry to develop local capability.

The collaboration has led to the development of cutting edge technologies in the field of structural testing and aircraft maintenance.

Australian industry has therefore developed strong capability in the area of aircraft maintenance and life extension as a result of their work on a number of defence platforms, including the F-111 program.

Through the work of the Action Agenda it was agreed to bring together companies with life extension skills to discuss whether there were any benefits in working cooperatively together to market their particular skills internationally.

This led to the establishment of the Extending Aircraft Life (EAL) program last year.

The Extending Aircraft Life program is a joint Government and industry activity to promote Australian capabilities in this field to overseas military and civilian markets.

Primary areas of interest are opportunities that involve:

- aircraft maintenance;
- repair and overhaul (military aircraft);
- advanced maintenance and upgrades; and

- condition and health monitoring that can be scheduled or unscheduled and further described as breakdown, preventative, predictive or proactive activities.

Using the model pioneered for the JSF program, an Industry Capability Team (ICT) has been established. The structure of the Extending Aircraft Life ICT is "market opportunity based" and may include special interest groups depending on the opportunities identified.

To date some 45 Australian firms and research agencies are participating in the Extending Aircraft Life program. The group has produced a capability directory and over the last year has exhibited as part of "Team Australia" at the Australian International Airshow, the Pacific 2008 International Maritime Exposition in Sydney and the Singapore International Airshow. The companies involved have seen success in developing leads and building a capacity to market a wider range of capabilities than any one company could on its own.

International Collaboration

As discussed earlier the integration of Australian industries into global supply chains is a key focus of the Government.

By fostering international collaboration the Government is able to promote existing Australian capabilities and leverage off existing relationships.

Defence and Industry Policy

The Australian Government's Defence and Industry policy is aimed at identifying ways to work with industry in developing and sustaining capabilities.

This includes leveraging Defence purchases of foreign equipment to open up export opportunities for Australian companies through global supply chains, assisting local industry to grow skills and capabilities, and encouraging investment in research and development of innovative technologies.

In response to this policy, late last year the Boeing Company opened the **Office of Australian Industry Capability** (OAIC) to work with the Australian Department of Defence and Australian industry to identify opportunities for Australian companies within Boeing's major civil and defence programs, as well as key supplier partners.

This will allow greater opportunity for Australian companies to compete for work based on a best value for money basis.

In February this year Australian Technology Information Pty Ltd became the first Australian company to win a contract through this initiative to develop technology and provide subject matter expertise for tactical data links.

A similar program for Australian industry participation is also being undertaken by the European Aeronautic Defence and Space

(EADS) to encourage participation in the EADS global supply chain.

This week Boeing launched the Australian **Phantom Works Branch,** an advanced research and development centre with sites in Melbourne and Brisbane.

This Phantom Works branch will provide R&D support services for Boeing's Australian business units and act as a focal point for collaboration with local universities, private sector R&D providers, the CSIRO and the DSTO.

The Phantom Works branch will provide innovative technologies to improving the cycle time, cost, quality and performance of current aerospace systems. Of particular benefit to Australian industry and research, the Phantom Works branch will collaborate with top research groups around the world to develop innovative and affordable solutions.

In the field of Unmanned Aerial Vehicles, **BAE Systems** has an UAV Experimentation System project in Australia.

With a technology base in South Australia and a testing site in Victoria, Australia is now the primary global site for BAE Systems' Unmanned Aerial Vehicle development. The site is a world class centre for research and BAE Systems are allowing other companies to use the existing infrastructure for testing.

Conclusion

The changing global environment, in particular the dominance in the market by a few large consolidated trans-national organisations, has required a rethink of the way companies do business. In particular there has been a shift in the manner in which small to medium enterprises can win contracts. This is not only within the aerospace industry, but across all sectors.

This evolving market has also required governments to modify the way in which they assist industry to compete in global markets.

To ensure Australian companies can compete internationally the Australian Government now focuses its initiatives on facilitation, primarily by using its leverage to promote Australian capabilities and ensure fair access to the market.

In order to promote Australian capabilities effectively Government has encouraged companies to join together and collaborate, in a way mimicking the behaviour of the major primes, thus creating a stronger presence off shore and allowing for better integration into international supply chains.

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