QinetiQ

30 September 2008
Our Ref: WP QinetiQ Submission Final.doc
Your Ref: Letter 31 July 2008

The Hon Warren Snowdon MP
Minister for Defence Science and Personnel
Parliament House
CANBERRA ACT 2600

Dear Mr Snowdon

QinetiQ Submission to the Defence White Paper

Thank you for your letter of 31 July 2008 inviting QinetiQ to prepare a submission to the Defence White Paper.

I am pleased to provide the attached submission, which I have copied to the Defence White Paper Team. QinetiQ recommends the development of a Defence Innovation Strategy that would facilitate the development of Defence's business interaction with global primes and SMEs and encourage them to invest in innovation that delivers a technological edge to the ADF. QinetiQ would be pleased to assist in the development of the Defence Innovation Strategy and the supporting policies that are needed for its successful implementation.

I would be pleased to discuss the QinetiQ submission at time convenient to you.

Yours Sincerely

M I Kalms
Chief Executive Officer
QinetiQ Pty Ltd

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

cc. Defence White Paper Team
Defence Establishment Fairbairn
F4-G-015
26-28 Fairbairn Avenue
CANBERRA ACT 2600

Professor Tanya Monro
Chair of Photonics
University of Adelaide
tanya.munro@adelaide.edu.au

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

QinetiQ Submission to the White Paper Consultation Panel

This submission responds to an invitation for QinetiQ to participate in the White Paper Consultation process from the Hon. Warren Snowdon, Minister for Defence Science and Personnel, dated 31 July 2008.

About QinetiQ Pty. Ltd.

QinetiQ is a global defence and security technology company. QinetiQ is publicly listed on the London Stock Exchange with annual revenues of \$A 2.5 billion. The company has 13,500 employees in the UK, USA and Australia. Its heritage is the 2001 commercialisation of the UK Defence R&D organisation. The major focus of QinetiQ globally is defence and security related services and solutions. The company has a long history of innovation, including invention of the LCD, radar and IR imaging.

QinetiQ trades in Australia as QinetiQ Pty. Ltd. We are a trusted provider of technology advice and consultancy services to Defence. The company was established in March 2008 after the acquisition of three strong businesses with specialist expertise in key Defence domains and technologies including:

- Engineering (Weapons/Explosives Ordnance and Aircraft Structures)
- Modeling and Simulation
- Business Systems and Applications
- Capability Management
- Acquisition and Performance Based Contracting

QinetiQ has 300 employees in Australia and annual revenue of \$50m.

QinetiQ's submission seeks to ensure that the White Paper recognizes the ability of Australia's science, engineering and technological capacity to support the defence of our nation. The White Paper provides an opportunity to review how Australia can obtain reliable and on-going access to leading Defence technologies on the most favourable terms.

The Need for a Defence Innovation Strategy

The technologies of importance to Australia are tightly controlled by the governments that pay for their development. By their very nature such controls entail risks to Australia's ability to make sovereign decisions about the use of military capabilities. Once disclosure and export permissions are obtained from those governments, technology transfer is usually managed under commercial arrangements negotiated with the companies that have developed the technology.

These companies have strong global defence market dominance and Australia is a relatively small defence market. Australia's consequential lack of market power reinforces the above sovereign risks. Technological self-sufficiency is beyond Australia's reach, so in order to manage risk Australia needs a framework to guide its technological choices – i.e. whether to develop technology locally or buy it. In assisting these decisions Australia's Defence Industry

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

Policy needs to be informed by a Defence Innovation Strategy. Successful implementation of the strategy will require a supportive suite of technology, competition, contracting and industry policies.

A Defence Innovation Strategy:

- Will assist in prioritising scientific, technological and engineering inputs to support the ADF and plan the most efficient and effective way of developing or acquiring them.
- Is the reference point for a complementary suite of business policies (see attached diagram) to develop or attract the defence technologies that are a priority for Australia and secure them on the most favourable possible terms.
- Needs to be underpinned by a viable model for technology transfer that makes technology transfer via direct investment in Australia, or other business arrangements, attractive for the OEMs.

QinetiQ would be pleased to assist with the development of a Defence Innovation Strategy and the supporting policy framework for its implementation.

<u>How Defence Technology is Developed and Traded Internationally</u>

The development of a Defence Innovation Strategy requires a clear understanding of the international market dynamics in which Defence technologies are developed and traded.

QinetiQ assumes that for as long as the US plays a leading role in global security, it will continue to invest heavily in the innovative technologies required to sustain its current strategic preponderance. The US is the largest spender on defence in the world. In 2006 the US had a 46% share of global defence spending and accounted for about three-quarters of the world's spending on defence R&D.

In the absence of a fundamental shift in their strategic circumstances, European countries (with the exception of the UK) can be expected to devote a smaller share of their combined GDP to defence than the US. With the exception of some important niches, Europe will lag behind the USA in the development of new defence technologies and the gap will get wider. Since 2000, the US has increased spending on defence-related R&D by 9% annually while the EU's defence R&D expenditure has grown by a meager 1.5% per annum.

As globalization makes the international transmission of commercial technologies faster and more pervasive, we expect that efforts by the US and other countries to maintain control over the diffusion of advanced military technologies, even to close allies such as Australia, will intensify. Exports of leading-edge defence technologies will continue to be controlled through government to government agreements and in the case of the US, the more stringent application of the International Traffic in Arms Regulations, a comprehensive regime of export controls that encompasses the transfer of most defence items, related technologies and services between companies.

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

The US will also retain tight control over its leadership in defence innovation by excluding access to its defence market by strategic competitors and also tightly constraining access by allies and friends alike. In 2005 foreign suppliers accounted for only 2.4% by value of contracts let by the Department of Defence.

This means the market predominance enjoyed by US companies, and some European based companies that have established businesses in the US, will continue and be shored up with an array of protective measures that we expect will enjoy undiluted Congressional support.

QinetiQ's submission also notes the massive restructuring in US defence industry that has occurred as the demand for defence products and services shrank rapidly in the post Cold War 1990s. Mergers, acquisitions, joint ventures and alliances have meant that already powerful US companies extended their market reach and global influence. The consolidation of US defence industry has seen the emergence of five dominant US companies: Boeing, Lockheed Martin, Raytheon, Northrop Grumman, and General Dynamics. The big 5 compete with the European based multinationals (that have invested in the US) to prime the development of advanced military systems, typically under 'cost plus' contracts awarded by the US Government.

US industry and procurement policies have had the effect of attracting direct foreign investment to the US defence sector as a substitute for imports. The US is a very large defence market and many European based companies, including QinetiQ, have come to the conclusion that the only way to build a US presence is to invest in US defence industry. This strategy has led to the emergence of European-headquartered multinationals like BAE Systems, Thales, EADS, and Rolls Royce - some now having a larger investment and business footprint in the US than in Europe.

The overall conclusion is that the business arrangements for obtaining the defence technologies of interest to Australia will often have to be concluded with a handful of large international defence companies. Australia is competing with other countries as a destination for the investment resources, technology and skills that reside in these companies. The attractiveness of Australia as a venue for international investment will be assisted by the development of a Defence Innovation Strategy.

Technology transfer typically occurs by acquiring hardware and negotiating long term support arrangements at the time of acquisition. Where deeper technology transfer is required, such as to integrate complex systems that contain proprietary technology, policies that attract resources in the form of direct investment and skilled people from off shore or within Australia will be required. The mobility and shortage of investment and skills means that any capacity constraints resulting from a failure to attract both leads to questions about Defence's acquisition model and the effectiveness of the way Defence business is done. We note that the Defence Procurement and Sustainment Review headed by Mr David Mortimer recently examined some of these issues that the Government will consider soon.

QinetiQ

Some Specific Examples of Critical technologies

QinetiQ asserts that the US Government will retain case by case control over the release to Australia of sensitive technologies required, for example, for network enabled operations by the Australian Defence Force including, but not limited to, the following illustrative list:

- Stealth-related goods, services and technologies, including those for reduction of electro-magnetic and acoustic signatures and those for countering low observable technologies, (for example electronic scanned arrays, radar processing algorithms);
- Sensor fusion technology, involving the automatic combination of information from two or more sensors for the purpose of target identification, tracking, designation and engagement;
- A broad spectrum of naval technologies including underwater acoustic sensors, maritime target detection and classification systems, autonomous underwater systems and related algorithms;
- Electronic warfare equipment and related counter-measures, including electronic systems and equipment for intelligence and security applications; and
- Satellites and satellite payload technology.

There are many other such technologies of importance to the ADF that could be identified in terms of their relevance to the Australia's Defence Strategy and the Defence Capability Plan.

Innovative Partnerships - A Case Study

A Defence Innovation Strategy would assess the criticality of defence technologies to ensure that sovereign risks are being effectively managed as Australia develops capability. It would also address the most effective way of nurturing and maintaining those technologies through mechanisms that include partnerships between government and industry that can deliver win-win outcomes. An example of one such type of partnership between QinetiQ and DSTO is illustrated in the following case study.

Partnerships with Industry to Maintain Capability and Improve Facilities Utilisation

DSTO maintains important capabilities that are required by Defence from time to time. These capabilities comprise both facilities (laboratories, equipment etc.) and expertise (skilled and experienced personnel). The facilities require sizeable investment to establish and the expertise can only be developed over time. A defining characteristic of DSTO is its ability to bring these capabilities to bear when Defence needs them.

In some cases, these capabilities are used at less than 100% of capacity. The requirement to maintain the capability may remain in place, however, the need to exercise the capability may arise only on an episodic basis, driven by, for example, platform life cycles or changing strategic threats. This can result in loss of capability as staff skills atrophy when they are not used, or worse still, people depart and rebuilding the expertise means

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

that productivity is reduced when the capability is next exercised. In some cases, underutilised facilities suffer from a lack of investment in maintenance and upgrades as rational decision makers direct funds to the areas that house the problem of the day.

QinetiQ proposes that DSTO work closely with industry partners that are aligned to identified underutilised capabilities. Arrangements can be made for industry partners to use DSTO facilities and expertise for projects that are marketed and won by the industry partner and delivered by industry and DSTO together. The benefit of this approach is that skills are maintained and funds are generated to pay for maintenance and upgrade of facilities. Industry often can not justify the cost of building and maintaining facilities that will not be fully utilised. Working in partnership means that the needs of both parties can be met.

Case Study

An excellent case study of this model is the structural testing capability that exists within DSTO's Air Vehicles Division at Fisherman's Bend. This capability includes two very large test halls and a range of associated test equipment and machinery. The expertise built up within this area is world class and widely recognised as being at the forefront of structural testing for military aircraft. The need for this capability is episodic and may arise at short notice when in service problems are experienced in aircraft. A recent example of the value of this capability was the F/A-18 Centre Barrel structural testing work that was completed in 2008. The results of this testing saved $400M for the Commonwealth and solved a very real availability issue for the fleet.

The facility has at times been underutilised with, on occasion, less than 40% of the facility is in use at one time. This has been addressed in recent times through a partnership with QinetiQ.

In 2005, QinetiQ bid for and won a contract to complete the structural testing for the trailing edge flaps on Boeing's newest airliner, the B787. QinetiQ designed and built the test rigs and contracted with DSTO to provide facilities (the test hall, hydraulic services, control systems) and expertise (structural testing experts).

This project commenced in early 2006 and will run for three years with some possibility of follow on programs. It has provided a steady flow of income for DSTO during that time and kept highly skilled experts engaged in productive, skill building work.

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

The Key Issues for Australia

Australia will continue to rely on best value for money, including MOTS and COTS solutions. This implies a significant overseas content in our weapons systems. Access to the technology to ensure the sovereign operation of defence platforms has to be negotiated as part of the acquisition process.

For Australia there are 2 main sources of imported weapons systems and their associated technologies - the United States and Western Europe. The basic mechanisms for transmitting advanced weapons technologies to Australia are:

- The direct import of US and European materiel (i.e. technologies embedded in imported equipment); and
- Direct foreign investment in the Australian footprint of foreign OEMs (e.g. technologies diffused through in-country subsidiaries of overseas OEMs, including through joint ventures, alliances and teaming with other Australian companies).

So the large international companies can be expected to play a fundamental role in the transfer of defence technology to Australia. They are the source of advanced technology and control the commercial terms for access to it. All the Australian primes with the exception of ASC (which is government owned) are 100% subsidiaries of foreign owned defence companies. This has a number of implications for Australian defence policy. Australia is a relatively small defence market and decisions about what will be done in Australia will be made in overseas board rooms.

Given this industry structure a Defence Innovation Strategy is a key element in managing sovereign risk and guiding judgments about:

- How best to use the limited resources Australia can allocate to indigenous innovation, particularly that related to network enabled operations; and
- How best to marshal Australia's publicly and privately funded R&D assets.

Recommendations

QinetiQ recommends that a Defence Innovation Strategy should be developed to:

- Facilitate Defence's business interaction with the global primes and SMEs and identify those innovative technologies that should be injected into major platforms and networked procurements.
- Allow industry and Defence to promote innovative ideas, as opposed to the rigidity that will result from defining areas of Priority Local Industry Capability.
- Enable the primes to participate early in the capability definition process to grow their ownership of innovative solutions.
- Encourage investment by the global primes and SMEs in innovative services and solutions that will deliver a technological edge to the ADF.

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

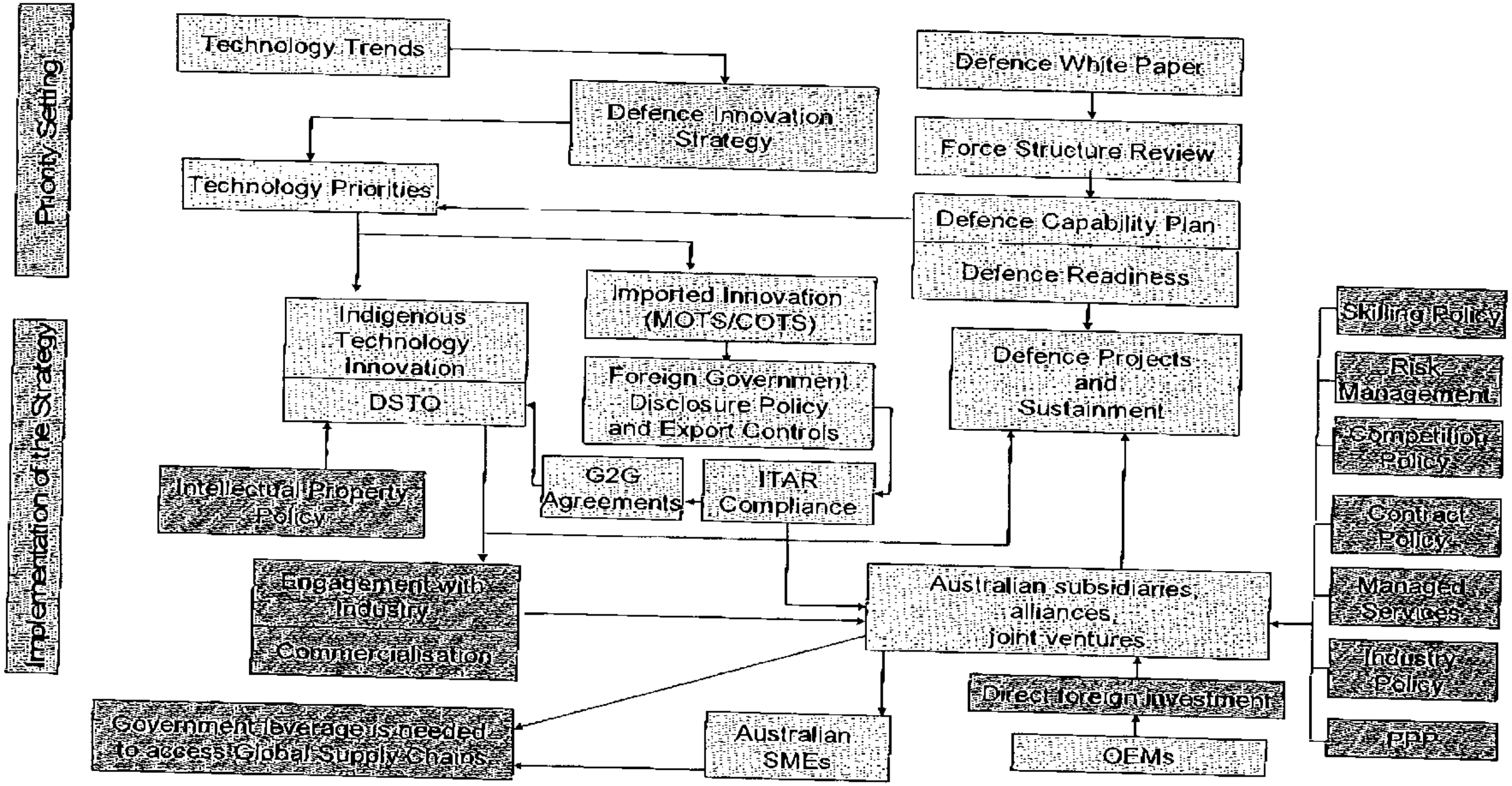
PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au

ABN 68 125 805 647

QinetiQ

• An Innovation Strategy is needed for the delivery of Defence Capability



• Supportive business policies are needed for effective technology transfer

QinetiQ Pty Ltd
80 Northbourne Ave
Braddon, ACT

PO Box 1546
Canberra, ACT 2601
Australia

Tel +61 (0)2 6200 2600
Fax +61 (0)2 6200 2699
mikalms@QinetiQ.com
www.QinetiQ.com.au