



DEFENCE AND SECURITY



CHAPTER THIRTEEN

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SUMMARY

- India has an ambitious policy to shift from being the world's largest importer of defence equipment to meeting the majority of its needs through domestic production. This could include joint ventures with foreign firms.
- This policy imperative means that despite India's expanding defence budget, the opportunities for Australian defence exports or joint manufacturing are likely to be limited to some specialist equipment, joint research and development in niche areas and the provision of some services and training in cyber security.
- Accordingly, Defence is not identified as a priority sector in this Strategy.
- This chapter nevertheless sets out an analysis of the opportunities in this sector given the priority defence exports have in the Australian Government's policies.
- Likewise, this chapter also sets out an analysis of the opportunities in cyber security given the rapid change in the sector and its role in underpinning economic growth and business confidence.

1.0 THE MACRO STORY

KEY JUDGEMENT

As regional security partners with a growing strategic convergence, there is value in Australia and India exploring opportunities for enhanced defence industry cooperation. A positive strategic trajectory might also increase the appetite to share technologies over the period of this Strategy.

Both countries are undertaking a significant modernisation of their military. India is one of the world's largest spenders on military equipment and its procurement needs are met primarily through imports. But India's shift towards 'Make in India' in the defence sector and Australia's still nascent export-oriented defence manufacturing sector means export opportunities will be limited. India's currently limited skill sets for high tech defence manufacturing are likely to improve as domestic production ramps up and more joint ventures are concluded. Weak intellectual property laws will need to be addressed to enable joint ventures. Opportunities are most evident in niche manufacturing collaboration, direct sales, joint research and development, and the provision of commercial services and training in cyber security.

1.1 The scale and structural drivers of the sector

INDIAN DEMAND: DEFENCE

India is the fifth largest military spender in the world

- it has the second largest standing army in the world (1.3 million active service personnel)
- since 2011–12, India's defence spending has consistently accounted for 16–17 per cent of the Central Government's budget
 - the highest of any sector.

While India's defence spending has declined as a proportion of GDP, in nominal terms it almost doubled between 2009 and 2016, and is expected to grow at 7–8 per cent per annum over the next five years

- India plans to spend USD250 billion on defence procurement over the next 15 years to modernise its defence arsenal in response to changing geopolitical and regional scenarios.

Unlike most other countries with large defence industries, India's defence procurement requirements have been traditionally met primarily through imports

- more than 60 per cent of India's defence equipment needs are still met through imports
 - compared to the United Kingdom (32 per cent) and the United States (9 per cent)
- Russia, the United States and Israel – in that order – are the top three suppliers to India.

Domestic production has been dominated by large public sector companies, including state owned enterprises

- private companies have only been allowed to compete in the sector since 2001
- domestic production has slowly been increasing over the past 15 years, during which time India has developed indigenous capabilities in some segments, such as combat aircraft, missiles, naval vessels, heavy trucks
 - but these segments have struggled to compete with the performance of imports.

India has relaxed limits on foreign investment in the defence sector, allowing up to 49 per cent FDI automatically and 100 per cent FDI with government approval

- other initiatives to entice foreign capital into the sector include:
 - the abolition of the foreign investment promotion board, which had been required to approve foreign investments in the defence sector
 - tax deductions, state incentives, export incentives and area based incentives for Special Economic Zones
- despite these efforts, only USD180,000 of FDI has flowed to India's defence sector between April 2014 and December 2017, according to India's Junior Defence Minister¹¹⁴
 - in the same timeframe, India has inked contracts worth close to USD20 billion for arms imports.

AUSTRALIAN SUPPLY AND COMPETITIVE ADVANTAGE: DEFENCE

Australia is overwhelmingly a net importer of defence equipment

- much like India, Australia's defence sector is undergoing indigenisation enabled by government backing
- in May 2017, the Australian Government announced it would spend \$200 billion over the next decade to invest in an enhanced defence capability.

The Australian Government's *Defence Export Strategy*, released in January 2018, says the Australian Defence Force (ADF) alone is not enough to sustain Australia's defence industry

- the *Defence Export Strategy* says new markets are required to realise the full potential of Australian industry to support the ADF's future needs.

Most major Australian defence contractors are subsidiaries of global original equipment manufacturers

- in many cases, licences are held by parent entities who may already sell defence equipment to India through other markets
- over 3,000 SMEs operate in the Australian defence industry, mostly as subcontractors to prime companies
- this limits opportunities for export.

But Australian companies do have some distinctive capabilities, both products and services, which could be offered to India

- for example, Thales Australia is bidding to provide mine sweeping systems to the Indian Navy and rifles to the Indian Army.

According to the 2016 Defence Industry Policy Statement¹¹⁵, Australia has a number of world-leading success stories in the development of innovative defence capability

- although not all of them may be available to international partners
- the *Defence Export Strategy* sets out a policy framework for considering export support on a case-by-case basis (particularly for sensitive technologies)
 - it identifies close allies (which does not include India) as the highest priority export markets, in part because this is where export of sensitive technologies will be most successful
 - export support for sensitive technologies to other markets may be considered in line with Australia's strategic interests, defence capability considerations, foreign policy, and economic interests but will remain subject to Australia's export control protocols.

According to Australia's *Defence Export Strategy*, India's modernisation demands will outstrip domestic supply, which could present opportunities for Australian defence industry

- sub-sectors where Australian expertise intersects with Indian demand include maritime security, disaster relief and research and development.

Specialist product offerings could include: command and control systems; multi-sensor data fusion; signal processing; underwater systems; navigation and positioning aids; logistics support systems; and self-monitoring propulsion systems.

Specialist services could include: expertise in shipbuilding services (not platforms), engine design (5–10 megawatts), ship shafting and transmission expertise, construction and repair of major weapons, and propulsion system integration.

INDIAN DEMAND: CYBER SECURITY

Cyber security is a rapidly expanding global industry. For India, the pace of digitisation throughout the economy has made cyber security and data security an increasingly important issue.

As in other countries, India's government and private sector are expanding efforts to protect themselves from malicious cyber activities

- a joint report by National Association of Software and Services Companies (NASSCOM) and Data Security Council of India estimated the Indian cyber security industry will be worth USD35 billion by 2025
- India aspires to create a 'Cyber Command' – an integrated cyber security agency responsible for tasks ranging from policy formulation to implementation at the national level
- despite having the largest information technology talent pool in the world, India is unlikely to produce the number of professionals it needs to close the cyber security skills gap
- NASSCOM estimated that India will need one million cybersecurity professionals by 2020 to meet the demands of its rapidly growing economy¹¹⁶
- demand for cyber security professionals in India will continue to increase due to the unprecedented rise in the number of cyber attacks
 - India's rapid digital transformation – by one measure India has surpassed the United States as the second largest smartphone market in the world – means the country is a major target for cyber attacks¹¹⁷

- the Indian Computer Emergency Response Team (CERT) stated that in June 2017 alone, India witnessed more than 27,000 cyber security threats.¹¹⁷

Indian IT companies will therefore need to look abroad, including to Australia, to integrate cyber security solutions into their supply chain.

AUSTRALIAN SUPPLY AND COMPETITIVE ADVANTAGE: CYBER SECURITY

According to the Australian Cyber Security Growth Network, Australia is well placed to become a global cyber security powerhouse

- our strengths lie in core research areas like quantum computation and secure third-generation microkernel, a well-developed services economy and a high quality education system
- in 2016, the Australian Government launched its national *Cyber Security Strategy*, which elevated cyber security as an issue of national importance
 - the *Cyber Security Strategy* made strengthening the local cyber security industry one of five areas of priority action enabling Australia to take advantage of the significant economic opportunities in the global cyber security market.

Australia's competitive advantages in the cyber security domain range across government, academia and business

- Australia is among the top 10 countries in the Global Cyber Security Index developed by the UN's International Telecommunications Union
- Australia's CERT chairs the steering committee of the Asia-Pacific CERT, comprising 28 teams from 20 economies throughout the region – including India
- Australia is at the forefront of developing a safe online environment, enabled by robust legislation, advanced law enforcement capabilities, rigorous policy developments and strong technical defence systems

- voluntary codes of conduct have been laid out for federal government agencies, financial services industry, internet service providers and telecommunications providers to help industry members improve business practices and meet their regulatory obligations
- Australia has a pronounced advantage in hardware and software security services
 - several Australian institutions offer a wide range of cyber security solutions domestically and internationally, led by the Australian Cyber Security Growth Network.

1.2 How the sector will likely evolve out to 2035

DEFENCE

India will focus on indigenisation by aiming to reduce imports of defence equipment – it has set a target to reduce imports to 30 per cent by 2027

- the Government of India has taken several steps to promote its domestic defence sector, specifically with an aim to increase indigenisation and import substitution
 - in January 2018, India announced a simplified 'Make In India' procedure which aims to reduce the approval time for Indian domestic private industry to win defence contracts and to reserve projects for Indian SMEs.

In areas where India is less confident in the capabilities of its domestic industry it will encourage joint development

- India's Defence Procurement Policy 2016 (DPP 16) encourages joint development, design and production with foreign original equipment managers
- DPP 16 introduced a new category for capital acquisition (Buy Indigenously Designed, Developed and Manufactured) as the preferred route of capital acquisition
 - the new category requires purchasing from an Indian vendor products that are either a) indigenously designed, developed and manufactured with at

least 40 per cent indigenous content; or b) not indigenously designed or developed but have at least 60 per cent indigenous content.

Encouraging joint development is also the motive behind Indian Ministry of Defence's 'Strategic Partnership' model for the Indian private sector (announced May 2017)

- the model seeks to identify a few Indian private companies as strategic partners who would initially link with shortlisted foreign original equipment managers to manufacture major military platforms
- these strategic partners would presumably lay a strong foundation for the Indian defence industry by making a long term investment in production and research and development infrastructure, creating a wider vendor base, nurturing a pool of skilled workforce, and committing to indigenisation and technology absorption.

Segments of India's defence industry which are likely to see rapid growth out to 2035, potentially with international participation, include:

- electronic systems (within avionics)
- precision machining
- composite materials.

India will continue to aspire to become an exporter of defence equipment

- its Ministry of Defence has developed a *Defence Exports Strategy* to promote exports, which includes:
 - the creation of an Export Promotion Body
 - engaging Indian diplomatic missions in export promotion
 - export financing through Lines of Credit
 - strategic use of offset policy
 - export of indigenously developed defence systems
 - streamlining of export regulation processes

- progress has been made but India must continue to improve its domestic capabilities, efficiency and productivity in research and development in order to meet its aspirations.

A global shortage of relevant industrial and engineering talent is one of the biggest challenges to 'Make In India' achieving its goals for the defence sector

- in aerospace alone, 100,000 new skilled workers are required in India every year over the next decade for manufacturing, maintenance, repair, overhaul, operations and research and development.

CYBER SECURITY

Cyber security will increase dramatically in coming years as cyber criminals turn to a growing number of electronic devices to target in an ever-more connected world.

As a result, the cyber security industry will become broader and more sophisticated, driven by:

- increased government and business exposure to cyber risk through new digital technologies, greater internet penetration, the uptake of the Internet of Things and cloud computing and the convergence of information and operational technologies
- increased cyber risk awareness and regulation
- the take up of technology is a critical plank of the Indian Government's improved governance and service delivery objectives
- India's Aadhaar card is the world's largest identification project
 - utilising biometric authentication, over one billion people are now enrolled
 - protecting this scale of stored private information will be critical to the platform's integrity.

2.0 OPPORTUNITIES FOR PARTNERSHIP

KEY JUDGEMENT

Opportunities will be limited. Australian defence manufacturers, especially SMEs, can tap into the large and growing Indian defence procurement market through partnerships with Indian SMEs to manufacture components for global companies with offset obligations in India. Australian firms can also provide commercial services and training in cyber security to India. Ongoing defence cooperation will enhance opportunities for partnership.

2.1 Export opportunities

We should primarily pursue export opportunities in the service and advice sectors where there is less risk.

These opportunities will be predominantly in cyber security

- defence exports will likely be limited to joint ventures.

DEFENCE SCIENCE AND TECHNOLOGY

Australia's Defence Science and Technology Group, which resides in the Department of Defence, is seeking to develop an appropriate governance framework with its Indian counterpart, the Defence Research and Development Agency

- this is likely to be in the form of a MoU on defence science and technology
- bilateral cooperation in this area will focus on concepts in non-sensitive technology areas, rather than high-end capability or potentially sovereign technologies.

Topics that both agencies could explore for future collaboration include an operations analysis course, composite structures testing in aircraft, battery technologies, maritime structure corrosion, and blast resistant material modelling.

CYBER SECURITY

Government collaboration on cyber security could build on existing channels between the two nations, such as the annual Australia-India Cyber Policy Dialogue.

Australian agencies and companies can tap into the cyber security segment in India in three categories: software, services and training

- provide software solutions for security operations and protection stack (basic infrastructure that protects an organisation's IT networks), specifically in data analytics and cryptography
 - developments in artificial intelligence and advanced machine learning are likely to see cyber security efforts shift towards software over services
- provide services in the protection stack segment of security needs
 - specific segments include network security architecture, firewall configuration and management, penetration testing, vulnerability assessment and patch and configuration management
 - while more challenging to export than software, services for protection stack do not always require in-country technical teams
- Australian companies and institutions could also enter the training domain, using their expertise and experience for capability building in India
 - this could happen through the delivery of formal cyber security education programmes, especially Master's programs in Australia or through train-the-trainer modules in India.

2.2 Partnerships (Joint Ventures)

Australian and Indian defence manufacturers and researchers could collaborate on joint research and development in areas of mutual interest: cyber security; space technologies; integrated intelligence; surveillance and reconnaissance; marine warfare and armed unmanned aerial vehicles

- joint ventures in manufacturing are less likely except in niche areas where India's low cost structure may make joint production attractive.

The Indian Defence Research and Development Organisation is keen to work on new generation technology areas such as surveillance systems, detection sonar, information and communication technologies, directed energy systems, and detectors

- there is an opportunity for India and Australia to collaborate and work on joint projects in some of these areas, with the involvement of academia, industry and the startup community forming an ecosystem for enhanced engagement
- collaboration on research and development can benefit from the strengthening of defence ties between Australia and India, boosted by the signing of a bilateral Framework for Security Cooperation in 2014 and more frequent bilateral and multilateral training exercises.

Australian industry can tap into the growing Indian market through partnerships with Indian SMEs looking to enter the defence manufacturing space

- such partnerships can also help global defence companies fulfil their offset obligations in India.

Australian manufacturers can provide licenses and technology to Indian partners which have local manufacturing capabilities

- relationships developed by Australian partners with global defence companies can help earn credibility for the partnership in India
- segments could include electronics, precision machining and composite materials.

3.0 CONSTRAINTS AND CHALLENGES

KEY JUDGEMENT

Australian defence firms operating in India report the usual challenges to doing business in India: skills shortages, getting bills paid and signed contracts not honoured. The more significant constraint is India's indigenisation push in the defence sector and the lack of a sizeable Australian defence export industry to operate in India at volume.

3.1 The policy and regulatory environment

DEFENCE

Foreign companies have expressed concerns on transfer of intellectual property rights to Indian partners as part of Transfer-of-Technology agreements under India's DPP.

Realising any opportunities – export, manufacturing or research and development partnerships – will require factoring in various Australian export control considerations, which reflect Australia's international obligations and commitment to global security and counter-proliferation efforts

- all exports of 'Defence and Strategic Goods' require an export permit applications for export permits are considered on a case by case basis.

The army consumes the bulk of India's defence spending manpower and is a massive drain on India's defence budget, leaving fewer resources for equipment modernisation.

As India seeks to increase its defence manufacturing capabilities – with an eye to eventual exports of sensitive defence technologies – it will increasingly seek only imports of high-end defence technologies (often with an expectation

of full technology transfer) to meet its 'Make In India' indigenisation push

- Australia, like other close security partners of India, may not be prepared to transfer high end defence technology.

Australia's defence manufacturing sector currently lacks the scale to meet the volume of India's procurement needs.

CYBER SECURITY

Australia's cyber security businesses face a number of constraints

- scattered funding and limited collaboration between the research community and the private sector hinders commercialisation of Australian research
- lack of scale and business acumen can impede the ability of Australian cyber companies to win large industry or government customers – both in Australia and overseas
- a skills shortage of job-ready cyber security professionals
 - according to the Australian Cyber Security Growth Network's *Cyber Security Sector Competitiveness Plan*, the domestic cyber security industry will need to employ at least 11,000 additional workers over the next decade.

4.0 WHERE TO FOCUS

Australian efforts should focus on the Central Government in New Delhi, which is responsible for policy and procurement. Should proposals for collaboration proceed beyond feasibility studies

to tangible areas of co-production, consideration should be given to locating in cities/states which already host defence industry clusters, such as Bengaluru and Hyderabad.