

**Discussion paper
response
Submission
No 40**

INQUIRY INTO DEFENCE INDUSTRY IN NEW SOUTH WALES

Organisation: Australian Industry Group

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Australian Industry Group

Ai GROUP SUBMISSION

Response to Discussion Paper
from NSW Legislative Council on
Defence Industry in NSW

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About Australian Industry Group

The Australian Industry Group (Ai Group) is a peak industry association in Australia which along with its affiliates represents the interests of more than 60,000 businesses in a range of industrial sectors including manufacturing, engineering, construction, automotive, food, transport, information technology, telecommunications, labour hire, printing, defence, mining equipment/ supplies and airlines and aerospace. The businesses we represent employ more than one million people. Ai Group members operate small, medium and large businesses across a range of industries. Ai Group is closely affiliated with many other industry groups and directly manages a number of those organisations including the Australian Advanced Manufacturing Council (AAMC).

Ai Group's national Defence Council represents members across the whole array of defence business – from systems and platform development, manufacture and through-life support and facilities construction through to providing base services and support for ADF personnel.

Australian Industry Group contact for this submission

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Response to selected questions

We note, support and have adopted in places, the submissions of SADIG and RDA.

Question 1 What additional measures, if any, should the NSW Government implement to improve coordination across government agencies, to support the delivery of the *New South Wales: Strong Smart and Connected, The NSW Government Defence and Industry Strategy*?

Recommendation:

Map and co-ordinate the various government plans that impact on defence capability including the State's proposed advanced manufacturing strategy, the futureproofing work of Jobs for NSW and the Greater Sydney Commission, research and initiatives of the NSW Skills Board, the focus on STEM education, reform of NSW TAFE and initiatives and programs supporting more effective research-industry collaboration, among others.

Ai Group is engaged with many of these initiatives and agencies, both formally and informally. It seems that departments and government agencies are not always aware of related work going on elsewhere within government, particularly below the level of headline policies. To be fair, the relationship or possible impact of one initiative upon another may not always be obvious unless viewed from an industry perspective. For this reason, the mapping might best be done by an external agent with an industry viewpoint.

Question 2 Should the NSW Government establish a whole of government Ministerial Council to provide effective governance of the *New South Wales: Strong Smart and*

Connected, The NSW Government Defence and Industry Strategy implementation? If so, what form should this body take, and who should it be comprised of?

Yes, for a similar reason to that outlined above and to ensure the NSW Defence and Industry Strategy maintains and is seen to maintain momentum.

A commitment to enter the defence supply chain is a major one, and takes significant commitment, resources and time on the part of firms. There are real commercial risks arising from policy instability, implementation failure or lack of will. Perception of these risks have been an active element in discouraging firms from pursuing otherwise attractive defence opportunities.

So it is vital that the NSW Government establish effective mechanisms to deliver on its defence strategy, within the broader national effort, including governance arrangements that will oversee performance against expectations across a wide range of portfolios and stakeholders.

Such a mechanism needs input from the key elements of success, including education and skills, prime and SME engagement and infrastructure. Ideally such a mechanism should also have a strong line of sight into the work of other states and the Commonwealth, to avoid competitive or duplicative inefficiencies in a policy area that best thrives in a national collaborative environment.

A Ministerial Council structure would need to provide the requisite trans-portfolio capability (not just multi-portfolio) to be successful.

Chapter 2: Supporting defence industry growth

Question 3 What more can the NSW Government do to ensure that its commitment to Defence and the defence industry is clear to stakeholders?

The Parliament, and this Committee, as much as the current Government should seek to facilitate opportunities for expressions of bipartisan commitment to NSW defence industry strategy. For the reasons outlined above (Q2), firms are very sensitive to signals that intention is not being, or will not be, matched by delivery and implementation. This can happen during the lifetime of one administration or upon a change of government.

To give focus to this, it would be worth considering an annual statement on state of development of the defence support and export industry in NSW.

Question 4

a) What are the potential benefits of an aerospace precinct at the Western Sydney Airport and how can the NSW Government support this initiative?

An aerospace precinct at the western Sydney airport presents a once in a lifetime opportunity to integrate defence industry strategy with broader capability enhancement and global engagement in advanced manufacturing and related sectors.

It also provides the focus and time to investigate, build or reshape the full collaborative infrastructure that will optimise economic, employment and community outcomes, including:

- broadly based educational and research facilities that promote integration across relevant disciplines as well as primary/secondary, vocational and higher education streams
- the planning and delivery of hard transport, energy, communications and social/community infrastructure
- commercial clusters that foster product, process and business model innovation
- capability in emerging requirements in cybersecurity, employment practices and international engagement.

b) What further steps can the NSW Government take to support New South Wales's strengths in critical defence capability areas?

We agree with the following submission from RDA Western Sydney:

NSW Government has supported the establishment in 2017 of the NSW Defence Innovation Network (DIN), based on a collaborative structure for research and development with six NSW universities. Plans include funding research in programs of the Defence Industry & Innovation - Next Generation Technologies Fund (NGTF). With the majority of the 9 identified NGTF 'Technology Priority Areas' established in research and development activities of these NSW based DIN partner universities, there is significant potential to grow sovereign research capability for defence business.

With the large number of NSW defence bases and dedicated training bases for the ADF in NSW, the potential exists to enhance the testing and field trials for equipment used by army, navy and airforce. A recent proposal to establish an a non-exclusive shared zone for testing unmanned systems in a marine environment off the NSW coast should be fully investigated, and likewise dedicated areas for flight testing of unmanned aerial systems are supported by the NSW research and business community.

Question 5 What steps can the NSW Government take to support the enhancement of Australian sovereign defence capability?

With the formal recognition of domestic industry capability as an arm of defence capability, the NSW Government's most important role is to work with the Commonwealth and the other states to ensure whole of federation support for development of such capability.

Question 6 What further steps can the NSW Government and the defence industry take to optimise its chance of success in securing Future Submarine basing and accompanying sustainment work on the east coast of New South Wales?

We endorse the following submission of RDA Western Sydney:

Ensure that regular communication and advocacy proceeds by Defence NSW with industry specialists to inform and update key decision-makers in the SEA 1000 Program. Regular capability updates should be managed by government on defence ready companies as suppliers to Primes, or in supply chains to international naval industry companies. As stated by Chris Williams, Executive Chair of SADIG and quoted in this Inquiry, "there would be a lot of benefit if defence NSW were to have a relationship with primes to link them easily to the skill set they need", suggesting that a first stop shop type responsibility would be of considerable value. This recommendation also relates to Question 8. The DATA 61+ Expert Connect mentioned in Question 5 above is relevant to skill-set matchings.

Question 7

a) What steps can the NSW Government take to increase understanding of New South Wales defence industry capability with potential for export?

Ensure regular up to date capability listings, and export ready defence companies information are maintained for use with in-bound and out-bound trade missions. .

b) What steps can the NSW Government take to enable New South Wales based defence industry to take full advantage of the supports provided by the Australian Government in this area?

The State should take a non-parochial view and fully integrate the relevant support available from the Commonwealth into the state's defence messaging to industry

c) Should New South Wales seek to identify a state based export target to improve performance in this area? If so, what factors should the NSW Government take into consideration in determining this target?

Collection of data to support such an objective could be slow and problematic but worth pursuing. Anecdotal and example based indicators may be effective in the short term, to build confidence that "companies like us" are succeeding.

d) How best can the NSW Government support and lead a collaborative 'Team Australia' based culture to maximise the economic benefits for all states and territories from Defence expenditure?

Defence industry capability building is an important test of the efficiency of the federation, a point that was made to the Committee by a number of industry leaders. Although clusters and regional capability nodes are important to accelerate innovation and leverage SME capability, supply chains cross state borders and as the largest state, NSW probably has as much to gain from a national approach as any state. NSW should take the lead in that thinking and integrate cross-state collaboration and state-Commonwealth linkages into the structures created at state level.

Question 8

a) What steps can the NSW Government take to better understand defence industry capabilities in New South Wales?

NSW should undertake an audit of supplier capabilities and identify regional strengths. Clear defence supplier concentrations exist in Western Sydney, the Hunter and Illawarra/Shoalhaven and Albury. This knowledge would greatly assist Government in marketing the capabilities of the State and be able more accurately to direct inquirers to the most appropriate source(s) for their needs:

ICN (NSW) could be supported to with specific resources to allow it to better understand local defence capability and achieve some of the above. Previous capability exercises have tended to be static analyses, at one point in time. An ongoing mechanism to understand capability as it evolves is important.

b) What role should Defence NSW have in building connections between local industry and primes?

In the Hunter, Defence NSW is already partnering with Ai Group to introduce Primes to SMEs at supplier breakfast meetings and Defence-ready SMEs have gained work very quickly thereafter. Defence NSW will be partnering with Ai Group to hold further breakfast briefings as major projects are announced. Primes will inform SMEs of their needs and the timing and access points for tendering. It is a low-cost way of imparting information directly between potential business partners. Ai Group has recorded supplier information from the 2017 seminars on its website as a regional business resource www.aigroup.com.au/contact/hunter.

c) Is the development of a Defence Capability Directory, such as that developed in the ACT, a useful model for the NSW Government to consider and adopt?

A capability directory for suppliers would certainly assist Primes to source more suppliers and also assist second tier and third tier players to identify potential partners for supply contracts or joint venture partners. The ACT directory is fine if you know the company name you are after but more usually a company will be seeking products or capabilities. An index in the directory or an online facility attaching, which allows searching by capability would be more beneficial. Very useful to have directories readily available and easily accessible.

We endorse the following submission of RDA Western Sydney:

Critical to have up-to-date information on companies and their capabilities, and any data of this nature needs to be readily accessible for users, and relatively easy to update. An on-line platform with suitable resourcing and communications skill sets to manage would address many of the previous failed attempts to get national capability established and working for the ambitious future defence needs.

Need to incorporate activities and data sourced from CDIC and ICN national into any future directories to give integrity to the capability database and use it for ready reference and linking companies to opportunities for tenders. Any supplier capability directory would assist Primes to source more local suppliers and also assist second tier and third tier players to identify potential partners for tenders, contracts and/or joint venture partners.

Question 10

a) What actions are currently being implemented by the NSW Government and other educational providers to promote STEM skills in primary, secondary, and tertiary education institutions?

Any initiatives for improving STEM outcomes in schools and outreach to industry must be driven at ministerial level. Without that level of leadership, drive and accountability, little will change.

There is some community ignorance of the importance of STEM and technology careers. It has now been acknowledged that 70% of future jobs will require STEM skills. Unlike in earlier generations, STEM is not optional, it is mandatory for well-paying and secure employment.

The community expectation here contrasts with, say, Germany where there is still a strong apprenticeship career structure and engineers have a higher social standing than doctors.

Our experience at Ai Group has shown that parent engagement is vital to any change in student's career choices. Parents either make the decisions or significantly influence the student's career choices.

In 2016 Ai Group organised the Greater Hunter Makers Festival to showcase our innovative manufacturers, engineering tech start-ups, technology training, research in engineering and the involvement of several generations of engineers and tradespersons right down to those who are aspiring in high schools. We were showcasing our "Technology Community" and it worked very well in changing pre-conceptions of industry within the community, especially on the parent visitors. The NSW Department of Industry was a major supporter. Plans are being formulated for a second Makers Festival in September 2018.

In summary, the key to success in ensuring better STEM outcomes is to build a community in technology – make it fun, interesting and engaging.

There are quite a number of activities being undertaken to engage students in STEM activities in high schools which will be touched on. However, attention needs to be focused on primary schools as well. The reason is that unless students have a firm grasp of maths in primary school they will struggle in secondary schools and likely avoid a STEM career. It will not be a choice for them. Callaghan College in western Newcastle has an active partnership with the Principals of its feeder primary schools. These partnerships if properly structured with KPIs, can lead to "customer feedback" from the receiving high school so that good practice in primary schools is rewarded and if standards are slipping, the feeder school can take remedial action.

Some activities are happening in primary schools but not enough. Robogals is one such activity. It introduces girls to robotics but unfortunately it is poorly resourced and can only reach a small number of schools. All primary students should be introduced to the world of technology including hard or engineering tech to alert them to a whole world of employment which is hidden from daily view. RDA Hunter has obtained two years of funding in collaboration with Newcastle City Council to deliver in 2018 a program for Years 5-6 students in robotics. It will be delivered by a local space satellite manufacturer.

Training of sufficient maths, science and computing teachers is a major strategic issue. Too many high school teachers are teaching maths without qualifications and that is not good enough. The ATAR for teacher education needs to be raised and further measures put in place to attract STEM applicants. Reward mechanisms should also be available to acknowledge and encourage innovation in teaching STEM subjects. Young Australian of the Year Eddie Woo, maths teacher at Cherrybrook HS, could be consulted on how. Maths teaching in primary schools must also be given greater emphasis for reasons stated above.

We mention that all of the above points are supported by the Chief Scientist as Chair of the STEM Partnerships Forum in an Issues Paper "*Optimizing STEM Industry - School Partnerships: Inspiring Australia's Next Generation*" unpublished, December 2017.

In the Hunter Region the ME Program (or a collection of programs) has been active in high schools for 8 years. It is run by RDA Hunter with funding from a defence arm of the Australian Government. More will be said under Question 12. Importantly programs like the ME Program need to properly resourced and external to the Department of Education so that funds do not become absorbed into general accounts. Non-Government schools also participate in ME activities.

An important initiative, which was developed by Dr Scott Sleaf, recent Director of the ME Program and maths teacher, is the Year 10 iSTEM course – integrated science, technology, engineering and maths. Instead of teaching these subjects separately with little connection to their application to the real world or to each other, the iSTEM curriculum uses problem based learning where students work on projects for the year which need them to draw knowledge from all four disciplines. Very significant learning happens and many projects not only have real world application, but they demonstrate innovation and a potential to make money by selling them. St Phillips Christian College Students in Waratah are an outstanding example and show the talent pipeline for our future engineers and scientists. There are 210 high schools participating in iSTEM in years 9 and 10 in NSW. It is an approved Board of Studies program.

Promotion of defence careers per se may not work as we believe in Australia there is not a strong community and teaching cohort who support combat-related activities. An alternative could be to promote engineering and technology careers that have applications in civil engineering, chemical engineering, electrotechnology and robotics, vehicle design and manufacture, systems for air, land and sea defence etc. That will provide a significant potential uplift to all of industry who will in more cases be suppliers to Defence. Yes an advertising campaign on television could be very influential in changing the perceptions of students, parents and teachers.

The previous practice of dedicated technology high schools should be revisited to provide a focus for experts in teaching in STEM with a focus in encouraging students to pursue careers along those lines, including trade and technician careers. Ideally these schools should be situated near significant technology centres to facilitate work experience, internships and school based apprenticeships. The Trade School initiative of the Federal Government (which is now partly absorbed into the State Education system) should be reviewed. It has a concentration on manual trades and only for Year 11-12 students. STEM needs to be experienced throughout high school life and work placement opportunities be available when individual students are motivated to explore them.

Dedicated Technology High Schools also avoid the persistent problem industry faces with school career advisers who invariably have indifferent or negative attitudes to manufacturing and pursuit of apprenticeships. They and their schools are too often focused on directing students towards university. Industry needs both technician and graduate STEM employees.

There are several reasons why industry needs to find a local high school it can partner with to provide its future diversified workforce. Where school principals embrace industry, great synergies between school and work are possible and also industry knows the employees they will be receiving when they graduate from school. An excellent early example of these outcomes is the P-Tech Program funded by the Federal Department of Education at Hunter River High School. It has a full-time facilitator who works with teachers within the school to develop partnerships with employers outside the school. Several employer partners are Defence Primes. The program had its first results in 2017 and a report on the outcomes is attached. The P-Tech Program has given us new insights into how to make technology career targeting work more efficiently – by engaging the local school community, parents and employers. It will be interesting to see the longitudinal results of this program over 10 years. Ai Group recommends P-Tech as a technology career development model.

e) What further steps can the NSW Government take to promote STEM subjects and associated defence industry careers? Should the NSW Government launch an advertising campaign to promote the study of STEM subjects as well as promote New South Wales as a technology leader?

For reasons stated above, it is not so much defence related industry interaction that is needed but industry interaction in general, with an emphasis on higher technology industry who are the suppliers to Defence. The role of computing in industry definitely needs to be highlighted as computers control a great deal of our manufacturing, testing and controlling processes. Computer programmers are becoming the core workers of manufacturing and technology. Government can help give the community image of manufacturing a significant uplift.

STEM engagement by schools with industry will not be probable nor possible for every high school as industry does not want to be overwhelmed and in rural areas there is little or no industry. Again we recommend that strategies be worked out in the four defence technology regions, concentrating on schools which want to participate. Education providers should however be encouraged to promote twinning by coastal technology high schools with a country high school and include them into industry contact activities. Many employers are open to engagement with students from country areas as their local employment chances are limited and farm children often have familiarity with machinery operation, maintenance and repair.

A major policy obstacle in NSW Department of Education is a widespread blocking of students who wish to undertake a VET subject at TAFE (especially in electrotechnology as school teachers do not have the knowledge) because their time-out could result in a reduction of the payment for their teaching hours. This is a disgrace and a huge disservice to industry and to students and their families. It has been an intractable problem for industry for 2 decades or more. While the official response is that there is no policy, reality in practice is different. A very cheap solution would be for Defence NSW or another arm of Government to provide a fund to pay schools for the "lost" teaching hours of the student and hence remove this artificially caused problem. It would be a win/win/win solution and very easy to do.

Question 12

a) What benefits have been delivered by the ME Program to date? Based on this evidence, what steps should the NSW Government take to support the program and explore its roll out across the state?

Attached is a table which shows the outcomes of the ME Program from 2010-2016 in terms of raising the STEM enrolment rates in the Hunter Region's high schools compared with all NSW high schools. It shows that the Hunter has come from behind in some subjects but is either now on par or exceeds State levels. As educators report the declining rates of STEM take up by students in the nation, the Hunter is going against the trend. Enrolments in Engineering at the UoN and in electrotechnology in TAFE have risen strongly in the latter part of this time as students continue with studies at the tertiary level. We understand that RDA Hunter will be providing a detailed report to this inquiry.

Above we referred to the iSTEM curriculum in high schools which has its origins in RDA Hunter. It already has a significant take-up with 231 high schools across NSW participating.

The ME Program is really a collection of programs. It started out encouraging schools to become engaged with the model racing car contest F1 in Schools which is run by Engineering Australia to

enthusse students about design and manufacturing. It also runs a program called Subs in Schools. Both of these contests are national and international and thus not only raise interest but aspiration in students.

A more recent program called STEMship is aimed at providing some platform technical training at TAFE NSW coupled with work experience for a group for Year 11 students who are in danger of not completing the HSC. The 2017 intake has been successful in having most students with return to school to do their HSC or obtain an apprenticeship from a host company.

The University of Newcastle also offers the Science and Engineering Challenge to engage students as well as school based programs by Engineers Australia.

The other best practice example has also been mentioned – P-Tech program. Given its significant results in a lower socio-economic high school, P-Tech shows early promise in supplying technicians and trades people for the industry.

b) Are there any other best practice examples being implemented in New South Wales that also merit further consideration?

Recommendation: Refer to responses in Question 10 above.

Question 13

a) Should the NSW Government consider a defence industry technical skills development fund as part of its strategy to entice prospective students to undertake defence industry related courses at universities?

This approach should be considered by NSW Government in the context of improving the pathways for VET students to progress their career options through university with merit based scholarships provided through this fund.

b) Are there other approaches the NSW Government can take to promote tertiary pathways for defence industry workers?

It is important to include TAFE NSW in any discussion about skills development. TAFE provides students with technician training in electrotechnology subjects, mechanical engineering and fabrication etc. Whilst these provide trade qualifications, TAFE also provides Advanced Diploma courses for post-trade qualifications. It is not unusual for 4th year apprentices in advanced manufacturing to be undertaking an advanced diploma in their 4th year. In fact, many advanced manufacturing companies prefer employees to advance along a trade pathway before transitioning to a degree because they obtain practical skills that university courses do not impart or impart to craftsman level. The trade pathway produces much more practically oriented engineers. The University of Newcastle and TAFE have developed dual pathway for apprentices and students to provide trade qualifications for electrician and graduate as a Masters of Engineering within a 4 year course with 12 months mandatory industry placement in the third year. The demarcation between TAFE and Universities is unnecessary and wasteful and the UoN/TAFE initiative should be encouraged by the NSW Government.

Defence NSW could introduce Defence scholarships for both university and TAFE students who are pursuing subjects related to Defence operations and support. This will make it more attractive to high school students to pursue a defence engineering/technical career.

Question 14

Should the NSW Government help facilitate increased coordination between government, the defence industry, and universities in the creation of university courses that meet the needs of defence industry businesses? How can the NSW Government achieve this?

It is likely that a comprehensive strategy on the skilling infrastructure to support advanced manufacturing and the emergence of industry 4.0 would also meet the requirements of the defence sector, and have a larger user base.

Question 15

What measures can the NSW Government take to improve access to advanced trade courses in regional areas? For example, should the NSW Government provide financial support to create defence industry traineeships and apprenticeships in regional areas?

The issue of supporting skills development, including higher level skills, in regional areas is not an issue confined to the defence sector. However, in some regions, such as the south coast, the needs of local defence installations may be considerably different to broader industry in that region.

Question 16

What further steps can the NSW Government take to promote collaboration between Defence, industry and academia?

We note the comments by SADIG in support of the NSW Defence Innovation Network (DIN).

Chapter 3: Supporting Small and Medium Enterprises (SMEs)

Question 19

a) What steps can the NSW Government take to further support relationships between Small and Medium Enterprises and key suppliers and procuring entities?

Recommendation: See answered to Q8.

b) What steps can the NSW Government take to ensure that federal support programs and initiatives are comprehensively utilised by New South Wales based industry?

See answer to Q8.

c) Should the NSW Government invest further in supporting Small and Medium Enterprises to access trade shows and exhibitions? Are current efforts sufficient and are there any lessons for improvement?

Current NSW Government efforts in hosting and profiling of SME's in Trade Shows are very useful, and can provide a measure of the outcomes from this investment to enable commercial outcomes. Defence Team Australia, Austrade and other Federal Government agencies should assist NSW in export facilitation, and profiling at international events, trade missions and expositions.

Question 20

a) Is there widespread industry support for the changes to the procurement landscape as identified by the Australian Defence Industry Interest Group?

The AIDN proposal, 'that a strategic and integrated system be put in place to manage all aspects of SME participation', is worth further investigation by the Defence NSW as to the scope, reporting requirements and potential implementation by the Federal Government.

b) What actions should the NSW Government take to enhance the flow of Defence procurement opportunities to New South Wales Small and Medium Enterprises and New South Wales industry more generally?

Recommendation: Refer to Question 8 response.

Question 21

a) What further actions can the NSW Government take to provide additional support to businesses seeking to become 'defence ready'? What form should this support take?

The costs of implementing quality standard ISO 9001, an essential requirement of doing work for Defence primes, appears to be a barrier to entry for SMEs into defence supply chains.

End of Submission