

Senate Inquiry on the capability of Defence's physical science and engineering (PSE) workforce

1. I am a Marine Engineer working for the Defence Department in the Maritime Systems Division of the former Defence Materiel Organisation (DMO) – as of July 1, now known as the Capability Acquisition and Sustainment Group (CASG).
2. I commenced my APS employment in Defence coming in under the Materiel Graduate Scheme (MGS) around the mid-2000s. I studied Electrical Engineering at university. The MGS is designed to expose the graduate to 3 six-month rotations around the DMO before they are required to find a permanent role for themselves.
3. For my first six months I was assigned to a very small project team in Canberra which was in the early stages of getting a new electronic system on the RAN fleet to replace what had been done on paper in the Navy for decades. While this system was a militarised version of what commercial shipping had been using for a number of years, this project was considered 'cutting edge' technology then.
4. While my supervisor had an engineering background similar to mine, things became self-evident in the course of my indoctrination into the often bizarre ways of conducting Defence engineering and more specifically the DMO's unique business model. It was quickly apparent to me that DMO was anything but an engineering organisation built by and for a PSE workforce. I would spend hours listening in endless meetings wondering when I would get to learn, see or do anything with the equipment being discussed. The organisation has also become so risk adverse in engineering (often due to a complete lack of deeper level complex technical understanding) that little if anything of initiative is encouraged.
5. The reason I say this is that one of the first and most pronounced differences I found with the way DMO works is that it does little, if any, actual REAL ENGINEERING. This means that it almost always fully contracts out the required engineering services it needs to technical specialists (usually defence industry commercial contractors who by it happens regularly overcharge for their services due to their monopolistic position).
6. Another thing that struck me was that the median age of the DMO Employee was, to put it simply, mature age (often nearing near retirement age). I was not used to feeling like I was the youngest person in the building. Who will fill their shoes when they go – can it only be contractors?
7. I found that talking to those colleagues who had been working for DMO in engineering roles, all had similar backgrounds. It went something like starting their apprenticeship with either the Services (Army, Navy or RAAF) or they started their careers with one of the state government agency (roads, rail, power or the like). This gave them fantastic hands-on skills, some even started their technical training while working at the Post Master General. What was very consistent was that their technical skills were essentially developed by the various state governments. None of this is around today. Now we have what seem like very highly qualified engineers yet they lacking real skills, engineers in air-conditioned offices far away from where the work actually happens and don't want to engage with anyone.
8. When I was at university and pondering my future career options at various job expositions, I never saw much, if any, of these sorts of career opportunities to learn traditional engineering practices in similar ways to that available to the baby-boomer generation.

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9. Today, as I see it, there are several factors threatening the skills shortage in Defence's PSE workforce and the gradual decline in Defence's PSE capability. This is principally due to several factors:
- a. Loss of Corporate Knowledge due to retirement/retrenchment of the classically trained engineers. There are no mentoring or succession plans to train the next generation.
 - b. Lack of clearly defined engineering career paths for properly developing and retaining engineering skills within Defence.
 - c. Failure to recognise Engineering (in the APS) as distinct job family (unlike the medical and legal families). Essentially, all engineers are subsumed within the generalist APS job family and compared with roles like administration, HR, corporate governance etc.
 - d. Distinct failure to understand that the organisation's primary role is to deliver engineering service functions to the ADF. Rather, it appears over the past decade or more, seeing it first hand, it's evolved to being driven towards a purely business services organisation that follows a contract management empire-building model. In my opinion, it has totally lost its focus such a long time due to the distinct lack of a proper engineering importance focus at the upper management key-decision making levels. This has been perpetuated by an ever growing disproportionately high growth in APS 'business generalists' (most with job titles that nobody could sensibly understand and which means little to nothing to real engineers or who are so detached from affecting the desired outcomes wanted by Defence that they clearly fall into the 'dead-wood' category of having nothing worthwhile to contribute).
 - e. Inability to attract and retain engineering workforce expertise due to major deficiencies in salary. Therefore, many APS engineers are acting in higher level roles (mostly at EL1/EL2 levels) which is then misrepresenting the managerial numbers across the organisation leading to the recent voluntary redundancies (VRs) offers to cull them back. This mismatch of roles has not been well understood in Canberra and does not further Defence in retaining personnel.
10. What Defence has been doing over many years is slowly removing or frustrating highly skilled, competent project engineering managers to make them want to leave DMO and therefore replace them with staff lacking all of those skills and competencies, but well-equipped (and resourced) for filling up the bureaucratic machine's fuel tanks with endless policy, PR spin and survey after survey etc. Those engineers who remained were fed misleading aspirational ideologies in the form of the Rizzo Report's response from Defence and also from the First Principles Review, which only briefly revived some hope for those resilient engineers who still remained within. It has now become clear to all that they cared nothing about sustaining the engineering and science functions but rather ensured these reviews created an elaborate entangled 'reform agenda' allowing these generalists to further pretend to justify their existence.
11. The ability to attract and retain a highly skilled PSE workforce in Defence, DMO and DSTO can only be described as poor. Principally, this is due to the factors identified at para 9.b and 9.c. The current Defence Enterprise Collective Agreement (DECA) has expired for well over 12 months and nothing is on the table to vote on – if ever. Further, the previous DECA was also over one year behind and took 3

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attempts to be voted in – and that was mostly out of sheer frustration. While the DECA affects the Defence APS employment, for engineers (without a distinct job family) it sends the wrong messages to the job market that Defence doesn't value or want to attract highly skilled REAL ENGINEERS or least of all retain any of the existing ones or maintain their skills.

12. Due to the abundant infiltration of the APS generalist/non-engineer person throughout the Defence organisation, core engineering functions have become so commoditised that the outsourcing model has become their only way out to get projects done. The idea or concept that Defence can simply continue in the same way it has, will not work. That is, to replace all the functions with outsourced contractors is an utterly futile and very expensive agenda. For example, I work around many (long term) contractors earning at least 3 times what I do and we are all doing very similar work. However, their loyalties are with their company and not surprisingly DMO but their shareholders, first and foremost.
13. The DMO and Defence more generally, have allowed themselves overtime to become very hollowed out in the Engineering and science workforce areas. This can be easily seen in the numerous poorly performing projects, massive cost blowouts and the gross mismanagement of the organisation in adopting public sector commodity product and service principles – proven to be inappropriate for the acquisition and sustainment of high technology dependent military capabilities.
14. Defence, by divesting itself of its best and finest engineers and project managers, and its failure to invest in their career development and choosing not to attract or retain them, has created a feeding frenzy amongst lucrative contractors keen to exploit this ever expanding outsourcing model for supplanting its vital engineering capabilities and functions. With the increasing loss of internal expertise, the organisation has been slowly turning to become a victim of the 'dumb customer' syndrome. So incapable, so inept, that it can not be sustained for long before it spontaneously decays into utter disarray.
15. Engineering in Defence has become a matter of mostly calling in technical support from the OEM's service department (at great cost). We are often quite incapable of understanding the technology or designing so that we are at a loss when it breaks down or needs upgrading. For example, our in-country expertise is now mostly non-existent that it is only by the sheer heroics of some truly dedicated engineering personnel and others that we can bring in support via FMS channels or similar. Basically complex engineering is now all done overseas and we just simply bolt it onto to the ships. This essentially means we are becoming more and more technically illiterate and thus unable to self-sustain our design skills as they are being gradually diminished thru lack of necessity and maintaining the investment in specific engineering training.
16. Despite me having two degrees, I have never been asked or had to present either to Defence - ever. Until only last year, did my division acknowledge they do not even know who was an engineer and what they did! Try running a business like BHP not knowing these fundamental facts. I spend a large majority of my day (approx 75%) doing just admin work and in practice, a person without an engineering qualification could easily do my work. My skills are largely wasted. This experience is not the exception but the norm.

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17. Given that the organisation does not know who is doing what with what qualification, does that really sit well going forward having my job family listed as 'TBA' for 10 years is hardly inspiring yet not really surprising.
18. If the Rizzo report hasn't materialised into improving Defence's Engineering and Science capability, I don't know what else can. This report reads of a damning indictment of how woefully inadequate the Engineering and Science functions have become. And the result has been essentially just moving the deck chairs around on the Titanic.

End of Submission

Dated 16 October 2015