

Submarines and Industry – Short Stories
Commodore P.M.J. Scott, CSC, RANR

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Introduction

Distinguished guests, ladies and gentlemen, good afternoon.

Submarines and Industry. You may have seen an earlier version of the program that said I would speak on the 'psychology of submarine captains.' I'm not doing that. One wag suggested I speak on the 'pathology of submarine captains' – not going there, either!!

What I will speak about, while sharing a few short stories, is people, purpose, priorities, presence and performance; all crucial to the strength of the submarine capability.

Capability Realised

I was Director General Submarines and from 2013 until the end of 2016. It was a remarkable period; certainly for me. At forty months of work, it represented one tenth of my entire full time naval career. More importantly, it was an astonishing period for the Australian Submarine Arm and the Submarine Enterprise.

It was the time when we realised:

- the modernisation and expansion of our industrial capacity; enabling single-stream Full Cycle Dockings;
- a long succession of major docking periods completed on schedule; enabling effective force generation;

- multiple capability insertions across the class; elevating the seaworthiness and battleworthiness of each submarine;
- forty per cent efficiency gains in sustainment; enabling Navy's availability and reliability requirements to be met;
- acquisition of Besant and Stoker; restoring the RAN's status as a regional leader in Escape and Rescue;
- concentration of the Force at their Home Port, to an extent not seen in over twenty five years; enabling the revitalisation of the Arm;
- a three-fold increase in days deployed, substantially enhancing the deterrent effect of the Force;
- renewed Government confidence; enabling decisions and action on capability upgrades and future submarines; and
- a new era in Navy international engagement; marked by flourishing, strategic relationships with not just the United States but also Japan and France.

People

For me personally, the tremendous challenge and satisfaction of those years might not have occurred at all. Have you ever felt that the challenge before you is just too immense to tackle? In early 2013, I had to decide whether to accept promotion to Commodore and become Head of the Submarine Profession; or not. I was seriously reluctant for two reasons. I'll call them '*the people issue*' and '*the trust issue*'.

First, '*the people issue*.' Although I was serving outside the Arm, I could see the state of the uniformed submarine workforce – chronically under-strength; lacking in experience and motivation; stretched in every direction; senior commanders close to exhaustion – a clear downward

spiral! What I could not see, for the life of me, was the way out.

My mistake at the time was to work on the principle that if I was going to take on this level of responsibility, I had to have the answers to the big issues going into the job. What I realized was that I didn't need the answers going in; I needed the solutions coming out!

Encouraged by this little insight, I picked up the Star, and set about discovering the people who could help me create and deliver to Navy a '*Submarine Workforce Growth Strategy.*' In the main, I lay very heavy reliance on others, better placed, to resolve the most immediate personnel and workforce issues we had inherited. Although it felt counter-intuitive, this allowed me to work on solutions for the future; beginning with defining our strategic purpose, command intent and end-state.

Importantly, the numbers, timelines and supporting structures - like the Capability Assurance Payment - all came later. So too did the detailed plans to meet our annual targets and re-structure to match the workforce required both at sea and ashore. The end-state we arrived at was '*a uniformed submarine workforce that can assure the sustainment, operation and exploitation of a potent and enduring submarine capability that serves as the Nation's principal strategic deterrent.*'

Crucially, that end state isn't a number; it is an effect. In submarine *parlance*, it's an 'Aim Point' that can be seen and understood by people at all levels of the Arm. It's an Aim Point that is equally applicable today as thirty years from now!

The result of placing a very deliberate focus on the long-term end-state is that the Strategy, with the direct patronage of two

successive Chiefs, has been driving results on the right trajectory since early 2014. Building on the momentum and confidence of nearly four years of continuous growth, the Navy is on track and making clear headway toward a three-fold expansion of the submarine workforce over the next three decades.

The challenge, of course, is much wider than just qualified submariners. The Submarine Enterprise simply does not, today, have the number of skilled and experienced quality people that we need. Indeed the whole national shipbuilding endeavour faces similar challenges of an even greater magnitude.

Before I left the Branch in Navy Strategic Command, we had commenced development of a Submarine Enterprise Workforce Strategy. Strategies such as this, and those developed to support the Naval Shipbuilding Plan, do need to be developed cognisant of the immediate challenges before us. But what I have learnt is that they need to be driven, first and foremost, by ambition and aspiration, not hindered or shackled by the legacy of past decisions and present shortfalls.

In my humble opinion, when developing and executing any strategy, the most critical factor is not the aim point that you set; it is that you set an aim point! So I encourage those with strategic responsibility for the Submarine Enterprise workforce to look long, look high and set the strategic aim point!

Purpose

Regardless of the quality of the Strategies and Plans we might develop, there exists today a very real risk of strategic failure for lack of workforce; both uniformed and civilian. What we want is human resources. Skilled, educated, qualified, multi-

disciplinary workers. And we want thousands of them. Skill, qualification and numbers; that's a valid lens through which to view workforce issues; but it doesn't get to the heart of the problem we face.

What we need is people. What people need is purpose. So what we're really seeking is communities of people who are inspired by a shared sense of purpose.

Many years ago, I served on exchange with the Royal Navy. I joined the submarine *Unicorn*, fourth of the Upholder class, in build at Cammell-Lairds in Birkenhead. Following a severe miscalculation by the Admiralty, the government of the day announced the build program was to be cut and the class paid off within three years.

The yard, which had been in operation for more than 170 years and delivered thousands of ships, including the battleship *Prince of Wales* and two of the four carriers *Ark Royal*, would be shut when *Unicorn* was delivered. The economy was depressed. The threat of strikes and trade union action to disrupt and delay the build and cling onto jobs was real and expected to eventuate.

In fact, the opposite occurred. The navvies of Cammell-Lairds determined that if *Unicorn* was to be the last ship delivered by that yard, she would also be the finest and she would commission as and when required by the Royal Navy. They defined their sense of purpose around their pride in the history of their forebears and the quality of their trade.

On St Patrick's Day the following year, I was at sea in *Unicorn* several hundred miles West of the coast of Ireland. Snorting overnight in a Force 10 Gale, we suffered an engine run-on, and rapidly filled the submarine with toxic diesel exhaust.

Having gone to Emergency Stations, the Captain decided to surface to ventilate the atmosphere. Within moments of sending the Officer of the Watch to the bridge, the submarine was pooped. Bows down, at speed, with minimal buoyancy, we were effectively diving again; but with a full bore of exceedingly cold Atlantic Ocean flooding through the conning tower.

We managed to shut the lower lid and stop the ingress, but had three people locked outside the pressure hull and 20 ton of seawater in the Control Room. As the submarine was smashed from starboard to port and back again, we lost our sonar, fire control, navigation and internal communications systems. As the free surface made its way below decks, hydraulic pumps and gyroscopes were lost and the main storage batteries were threatened. Fires broke out. Every indicator on the ships alarm panel was lit up. The Mayday call went, but was not acknowledged.

We'd gotten ourselves into that situation, and had to get ourselves out of it too. We made it through the night, but the sea had very nearly pounded us to death. We got alongside late the following day, and were back at sea a fortnight later.

The Ship's Company responded to the challenge, not just because their lives depended on it, but because they had been taught and trained to do so! The submarine held together, not through the will of the crew, but because of the skill and dedication, passion and pride that was poured into *Unicorn* by those who built her. We owed our lives to the men and women of Cammell-Lairds who chose to live with purpose.

As we move forward to build the workforce of the future, we need to do more than add skills, qualification and numbers. We need to invest in an evolution and expansion of the Submarine Enterprise; that community of people who are

inspired by a shared sense of purpose; inspired by their contribution to a potent and enduring submarine capability.

Priorities

The industrial challenge before the Submarine Enterprise is to upkeep, update, upgrade, extend and eventually dispose of the submarines we have now, as well as design, build, test and sustain a multi-class fleet, twice its current number in the not too distant future.

If you think there is more that we might do than what we can do – you are absolutely right. If you think there is a collective risk of lurching from one urgent challenge to the next – you are absolutely right. The key is to achieve what we must, and to achieve it when and where we are best placed to do so.

To enable this, in a world of finite resources and emerging threats, strategic priorities need to be set and honoured across and throughout the Submarine Program.

Every Australian submariner is familiar with three classic priorities of maintaining safety of the submarine, avoiding counter-detection, and achieving the aim. These priorities appear to cascade in importance. But, in truth, and certainly *in extremis*, no one priority can be usefully met without concurrently achieving the other two. At sea, those priorities drive the daily efforts of our people and shape every piece of advice offered or recommendation made to the command. Similarly, the Ship's Company views every command decision through this same lens.

One of the most important functions of the Submarine Enterprise Board over the past several years has been to set and agree the priorities for the Program.

In early 2014, HMAS *Waller* had emerged from a major scheduled docking and was about to commence a two-year running period. During the first days of her sea training program she suffered a severe engine room fire and was incapacitated. In a stroke, the Fleet lost one third of projected submarine availability. There was an immediate temptation, and strong arguments from some quarters, to divert resources and enable the rapid restoration of *Waller*.

The Submarine Enterprise Board chose a different, longer-term approach. The decision was made to re-shape the Program priorities to:

- assure two-boat availability, but
- preserve the remainder of the Integrated Maintenance Schedule, and
- make best efforts to restore *Waller* to service as and when able.

These revised priorities then shaped a thousand decisions on resource allocation at the Program Review Board, Program Delivery Board, and so on throughout the governance structure.

In the end it took more than two years before *Waller* returned to the Fleet. But in that time, the Enterprise successfully established single stream Full Cycle Dockings, and concluded every other scheduled maintenance period and docking, as well as a number of unscheduled dockings; all within allocated budget.

As I departed the fix as DG Submarines, the Program priorities read something like this:

- Enable Submarine Force continuity;
- Promote Submarine Program efficiency;
- Assure Regional Superiority;
- Manage the transition to a multi-class submarine fleet;
- Manage the Collins Class to withdrawal; and

- Expand the Submarine Enterprise Workforce.

No doubt they will change over time, if they have not already, to meet the evolving requirements of the Chief of Navy. What I have learnt though is that, whether they are set for use in a submarine at sea or for application throughout an Enterprise, the intrinsic value of clear, simple and unequivocal priorities to align people's efforts, and their judgements, is universal and enduring.

Moving forward, I would encourage every member of the Submarine Enterprise to know, understand and honour the strategic priorities being set for the Submarine Program.

Presence

The Australian submarine industry has suffered an identity crisis for much of its recent history. For too many years after the Collins were constructed, our submarine industry imagined itself as a '*submarine builder*'; even though it lacked design authority and was no longer building submarines.

No Navy needs a submarine industry that idles along, self-satisfied with a low-volume construction effort, spending its days campaigning for future build work, when there is real work to be done keeping operational submarines operational. What the Navy needed from the early 2000's was an industry focussed on supporting the submarines that had entered the Fleet; turning the lessons of construction into more efficient and effective sustainment.

When I was in command of HMAS *Dechaineux* in early 2003, we suffered a major flood at deep diving depth while making final preparations for a series of regional deployments. Getting to the roof, we were looking for every breath of air to blow, every turn of the screw, every pump that could draw suction. Staying there, and later getting

alongside, took every level of redundancy the submarine could offer.

However, to fully recover from that flood took a lot more than I had at my disposal. It took the combined efforts of the Ship's Company, Squadron staff, Fleet staff, Navy's senior leadership, accident investigators, design engineers and, critically, the skilled tradesmen who repaired and strengthened the submarine. Once we understood the problem, it took a docking, material modifications, the introduction of new operating limits and changes to procedure.

It did come together and we deployed on schedule, but it was an immense struggle. Getting *Dechaineux* away came at the expense of every other line of operation across the capability; because we were drawing on a support system that was inappropriately dispersed across the country and lacked any depth or reserve.

The concept of 'Presence' – which I might reduce to '*having the right forces in the right place at the right time*' – is exceedingly important for our Submarine Force, both as an element of seapower and as a measure of effectiveness. It should be exceedingly important to industry also. Looking through the recent history of our submarine yards and depots – Platypus, Cockatoo Island, Garden Island East and West, Osborne and Henderson - we have a chequered record of ensuring that we have '*the right industry in the right place at the right time.*'

Very soon, Navy will be making decisions about the future disposition of it's growing Submarine Force. Certainly the logic of basing submarines on the East coast - to enable workforce growth, tactical development and anti-surface warfare training, and to develop the strategic depth of our principal deterrent - is compelling. And it's worth noting, this

could be achieved by a Collins boat within the next several years.

In my role as Director, Defence NSW, I learn every day of the strength of that states' economy, the rapid growth of the skilled workforce and the vibrant connections between academia and industry. These resources need to be brought to bear in support of our current and future challenges. Certainly, when the Navy decides submarines are needed there, the East Coast is a land of opportunity for submarine industry.

More generally, industry needs to be ready and willing to respond to Navy, and seek clarity on the character of the industrial presence required in various locations – be that design, build, test, short-term maintenance, extended maintenance or support to operational submarines. Industry will need to progressively generate depth in each of these functions. Clearly, we can't have everything, everywhere. But taking a national approach, we can generate the required resources.

'Presence' is as important for submarine industry as it is for the Force. Taking the lead from Navy decisions on submarine fleet disposition, industry needs to generate location specific role clarity and avoid the identity crises of the past. Be what you need to be, where you are most needed, when you need to be there!

Performance

Have you ever been under pressure to perform but held back by factors that were beyond your control or influence??

Earlier, I mentioned the two reasons I was reluctant to assume the role of DG Submarines – *'the people issue'* and *'the trust issue'*.

You may have guessed, my *'trust issue'* was with submarine industry. Over many years, I'd developed a profound distrust of the motivations and objectives of an industry that, to my mind, had proven itself totally ambivalent to the interests of the Service.

Yet, I was being assured, by the dolphin wearers around me - *"The Submarine Enterprise exists now, Scotty. It's real; we're working together; you can trust those guys."* There were some individual exceptions, but I did not trust *'those guys'*. If you were *'those guys'*, I did not trust you. I did trust the submariners.

I have formed a view that in just about any endeavour demanding high standards of performance in complex, difficult and risky environments, the two essential ingredients of success are trust and determination.

To share a different kind of story, back in May I ran my third ultra-marathon for the year. A hundred kilometre trail race in the Blue Mountains, with 4400 metres of vertical climb and descent, in and out of the Jamison and Megalong valleys. I'd trained for two years; not a beer for six months. Six weeks out, my right knee blew up. Running stopped; physio and cycling started. One week out, I was teaching myself to run with poles. Race day, I was on the line.

It's a long race. The cut-off time is 29 hours – a day, a night and half a day. With 10 kays to go, I was exhausted - again. I'd been pretty cooked at the 50 kay mark! Now, I was out of food and water. It was dark and cold, the trails wet and rugged underfoot.

Three kays to go, I fell. Wrenching my knee, I slid off the trail. Clinging to a tree root, nearly vertical, I couldn't move for fear of slipping down the face into the gully below. Three minutes later, I called for help from a passing runner. I sorted myself

out and ran on. The final kilometre is a 220 metre climb with of over 950 steps. I hauled myself up every step on my one good leg and two poles. I finished in just over fourteen hours. I thanked my support crew, and we celebrated.

There are aspects of ultra-marathon running that relate to submarine ops and by extension to submarine industry. To train for and run a marathon is hard. To do the same for an ultra-marathon can be even harder. You need a wealth of experience to inform meticulous planning and deliberate execution. Ultra-marathons are longer, you are much more isolated, and you need to survive in an even harsher and less forgiving environment.

To say that *'it requires determination'* is to understate the facts. But for an individual effort, it also requires enormous trust. Trust in the race organisers, trust in your fellow runners, in your support crew, and in yourself. But it's worth it - for the people, the challenge, the effect on your mind and the resulting freedom!!

To design, build, operate and sustain a warship is hard. To do the same for a regionally superior submarine is even harder, because they are more complex, more independent, and need to survive in an even harsher and less forgiving environment. But it's worth it - for the people, the challenge, the effect on your adversary's mind and the resulting freedom!!

In August, I attended a commemoration: the 50th Anniversary of the establishment of the modern Submarine Arm at HMAS PLATYPUS. We are the inheritants of five decades of hard won knowledge and experience built into the Australian Submarine Enterprise of today. To our *Oberon* experience, we've added a build experience with *Collins*, and will now add a design experience with the next class.

We may not be a nation with a truly sovereign submarine industry, yet, but we will be that! We will cross that finish line! I know this because I've seen the success of the past several years, achieved through the efforts of a highly collaborative, sharply focussed Submarine Enterprise; now renowned for performance.

Through our shared experience, of challenge and success, I have learnt to trust submarine industry again. I now trust *'those guys'*.

Conclusion

People, purpose, priorities, and presence - all crucial to the strength of the capability. Ultimately, though, our continued success will be a matter of trust in each other and our clear determination to perform – our determination to deliver a potent and enduring submarine capability that serves as the Nation's principle strategic deterrent.

Thankyou.