

Australia's strategic environment out to 2050

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The unknowable future

It's a little daunting to be asked to describe the strategic environment out to the middle of the century. So let me start with an apology—this talk is going to be an extended “I don't know”. To explain why, let's step into a time machine and travel back a little over 100 years, to a time just prior to start of WWI.

Had I been asked then to talk about the European security environment in 1950, I would've started with the status quo; looking around in 1910, the major powers would be those in the first column of the table below. The United States was clearly in the ascendancy, and was exerting its influence locally through the Monroe Doctrine—making it clear that it was going to be the dominant power in its hemisphere.

Table: Key European players and security relationships in 1910 and 1950

1910	1950
Austro-Hungarian Empire	United States
British Empire	Soviet Union
France	NATO
German Empire	Warsaw Pact (from 1955)
Italy	
Ottoman Empire (in decline)	
(Tsarist) Russia	

Then there's technology. In 1910, I'd have know about aeroplanes and submarines—and the experts of the time would assure me that while these novelties will likely be of some marginal utility in warfare, they'll be unlikely to replace, or even seriously rival, tried and tested military systems such as the newly commissioned [HMS Dreadnought](#). Radio was another technology whose future ubiquity and application were only partly understood at the time. In 1910 I'd know about the [political and economic theory of Marx and Engels](#). But even if I read widely, I'd have no way of knowing about the atomic nucleus, the discovery of which was announced by Rutherford a year later. (And even Rutherford was wrong when he opined about the possible future liberation of nuclear energy.) Antibiotics changed the world too—but not until a couple of decades later.

By 1950, the power structure of Europe looked like the second column of the table, and the USA and USSR, the latter now firmly a communist state, were both nuclear powers. What had been a concert of European royal houses with complex and intertwined security guarantees and alliances became a bipolar, ideologically charged

and nuclear-armed standoff. There's no reasonable prospect of being able to predict a change of that sort.

There are two notions needed to understand the transition from column A to column B. The first is that extrapolation based on current trends and data points—the basis for many predictions—is only likely to give an accurate prediction up to a point of *dislocation*. That is, up to a major upheaval which fundamentally alters strategic relations and thereby invalidates working assumptions. World War I certainly fits that description; the [pre-war world](#), to all intents and purposes, ceased to exist.

To give an example of extrapolation error, imagine if we'd been asked in 1928 to predict the size of the American economy in 1938. There we were, at the height of the roaring twenties, after years of economic growth of 5% p.a. or more. The US economy was around \$800 billion (in year 2000 dollars) in 1928. Our extrapolated value for a decade hence at recent growth rates would lead us to predict a value of about \$1.3 trillion in 1938. In fact, after the impact of the 1929 crash, the US economy had barely moved in that decade, reaching only \$830 million—and the 1933 value was a considerably contracted \$600 billion. We might want to bear this example in mind when extrapolating recent trends in the Asia Pacific. Economies can suffer significant setbacks.

The second important observation is that factors on which future developments might critically depend can be unknown or poorly understood. Former US Defense Secretary and sometimes philosopher Donald Rumsfeld summed the situation up neatly with [this observation](#):

I would not say that the future is necessarily less predictable than the past. I think the past was not predictable when it started.

There's a deep truth hidden in there, and we need to guard against [hindsight bias](#) when looking back in time for lessons about prediction. Knowing what happened, we can construct a narrative thread that links the [Concert of Europe](#) through WWI to the [Treaty of Versailles](#), on to the collapse of the [Weimar Republic](#), to the rise of [National Socialism](#) in Germany, and so on. There's no shortage of arguments between historians about the details or the significance of individual events, but there's (largely) a consensus about the causality.

But we're only so 'sure' about that because of those events actually happened. There's no way to run counterfactual simulations to see what would've happened if some things had transpired differently. For example, we can speculate about the evolution of Europe after 1919 had the Versailles negotiations produced a less punishing outcome for Germany, but that's all we can do. Alternative pasts are unknowable.

So when we try to look forward to 2050, we do so with unwarranted confidence that we understand why what came before happened the way it did. And there might well be factors that will play a critical role in the future that we're currently only dimly aware of, or simply can't know now. It's extremely likely that any predictions made today—[even those more likely to be correct ones made by non-experts](#)—will hold

only up to the next dislocation. If we knew the chapter headings in the future's history books, we'd be much better placed.

Just as a century ago, uncertainty about the future includes uncertainty about technological developments. There are some technologies visible now that might prove to be pivotal. For example, Lockheed Martin recently announced that they've made a significant breakthrough in the development of nuclear fusion power. That could be a game changer. If we could produce large quantities of energy from material found in abundance in seawater, imagine the strategic changes that might follow—the significance of energy trade routes and the Middle East could be completely rewritten. That would be a true revolution.

Another potential revolutionary technology is quantum computing—though I wouldn't bet on that one myself. Sticking my neck out and looking for something truly unexpected, let me suggest what're known as Von Neumann machines. These devices are self-replicating automatons. You could turn them loose, and they'd have the ability to find and process the materials required to manufacture new ones, as well as other perform other tasks. That might sound ridiculous, but so did nuclear energy once. A combination of robotics, nano-technology and artificial intelligence might do the job. After all, a precedent of sorts exists already in the form of biological life; what can arise by chance can surely be engineered.

Whether that comes to pass or not, the evolution of existing and well-established technology could also lead to profound changes in the way we do business. [Moore's Law](#) of computing—if sustained—will lead to the same factor of increase in computing power between now and 2054 as between 1974 and today. Not the same increase, but the same factor of increase. If we've jumped ahead a million times in the past 40 years, we'll jump ahead another million in the next 40—a total increase of a trillion times. The computing and communication technologies of the middle of this century are likely to be as unimaginable to us as a smart phone was in 1974.

We need also to be aware that things can go backwards in technology—just as in economics. There's a genuine reason to worry about what's known as [Kessler's syndrome](#), in which collisions between objects in near earth orbit generate fragments that cause further collisions, eventually rendering low earth orbit unusable for many years to come. Similarly, the declining efficacy of antibiotics could be as significant a change in this century as their invention was in the last. And then there's the still to be understood consequences of climate change.

So there's a lot we don't know. But being in the business of strategy, and having been involved in military capability development for a couple of decades now, I appreciate that throwing up our hands and saying it's all unknowable isn't an option. We have to make our best assessments—note the plural—based on what we know and what we think we can anticipate. I use a plural form because betting on one particular future makes little sense. One way to at least test the robustness of our planning against unexpected changes is to consider a range of possible future scenarios, with alternative values for various key variables. We need to embrace rather than deny the uncertainties we face. This is the methodology of Peter Schwartz's [Art of the long view](#) (PDF). He describes it like this:

Scenarios are not predictions. It's simply not possible to predict the future with certainty. An old Arab proverb says that, "he who predicts the future lies even if he tells the truth." Rather, scenarios are vehicles for helping people learn. Unlike traditional business forecasting or market research, they present alternative images; they don't merely extrapolate the trends of the present.

Note that it's probably not possible to exhaustively list the credibly representative futures (and mathematically impossible to list the continuum of possibilities), so while this approach is probably better than taking a punt on a single possible future, it can still give the wrong answer(s)—especially in the face of hard to anticipate discontinuities.

Regardless, in some possible futures the status quo order will be largely maintained, with some tinkering at the periphery. In others there'll be fundamental changes to the world order. As military planners and analysts, we want to know how best to hedge against changes that disrupt our preferred model of the world order. We're in the business of developing military options that allow us to deter or at least respond successfully to unpropitious externalities. With that in mind, let's take a look at what we think we can reasonably anticipate, and how military capability—especially submarines—might be relevant.

(Relatively) predictable externalities

Let's start, in the time honoured way for Australian defence thinking, with what previous Defence White Papers have called the 'inner arc'—roughly the region from Timor Leste across PNG and into the South Pacific. This is a part of the world Australia has been active in over the past decade and a half, conducting peacekeeping and stabilisation operations. Alas, I predict with a high level of confidence that this will continue into the future. To see why, let's look at the Arab Spring. One group of academics that wasn't surprised by those events was the demographers. They long-ago observed a significant youth bulge across the Arab world, with the under 30 population constituting almost two-thirds of the population. While that doesn't guarantee instability, youthful energy certainly fuels it when other factors such as unemployment and economic stagnation are present. And in many parts of the 'inner arc', that's exactly what we see—very young populations due to high fertility rates, and insufficient economic activity to keep the young gainfully employed. One example is Timor Leste, with a [fertility rate of between 5 and 7](#) (Australia's is a little under 2 and the USA is lower still). Other near-region states are also well above the western fertility average and have very young populations as a result. Unless there are some extraordinary changes, the chances are good that our armed forces will be back there sooner rather than later.

Moving outwards, Southeast Asia has had an extended period of economic growth, which has lifted millions of people out of poverty. It's almost an entirely good story. For our purposes, when we think about hedging, we need to have a look at some of the consequences of prosperity. We've seen the armed forces of the region increasing turn from being inwardly focused and lightly equipped internal stability land forces to operators of sophisticated air and maritime platforms that provide a measure of anti-access capability. This trend will only continue, with the proliferation into the region

of cruise and possibly ballistic anti-shipping missile systems, advanced and stealthy aircraft, surface combatants and submarines. The net result in the future might be the development of what I'll call 'bubbles of exclusion' around each state, in which power projection by external forces is an increasingly fraught prospect.

That's not intrinsically a bad thing. No one cares, for example, if Norway and the UK have the ability to inflict significant losses on each other's military forces. That's because those two countries have a shared view of security that's unlikely to bring them into conflict. Western Europe shows us that military modernisation of a region isn't necessarily a bad thing. Of course, recent events in Eastern Europe show us that a lack of a shared view of security and modern military capabilities can result in disastrous outcomes—even unintentionally, as the Flight MH17 incident showed.

So while military capabilities are important for future planning, they perhaps aren't as important as views on order and security. And that's where we're at something of a crossroads, and one that could potentially result in a dislocation if we're not careful. And we need to be careful to not draw too many lessons from the past 70 or so years. As I'll explain, I think we've just emerged from an unrepresentative phase of history—certainly in our part of the world.

When the dust settled at the end of WWII, there was no powerful Asian nation. China devolved into civil war and Southeast Asia readied itself for a period of decolonialisation, a process which took decades. The USN was unchallenged in the western Pacific (and almost everywhere else, for that matter) and America effectively underwrote the maritime security of the region. In security terms, the 'hub and spokes' San Francisco system saw the establishment of bilateral defence treaties—as opposed to the collective defence model of NATO—and an overarching nuclear umbrella. For Australia and most other American allies, it was a grand time of prosperity and security. It wasn't without its trials of course, and the conflicts in Korea and Vietnam were serious matters. But they didn't upset the 'big picture' security model of American maritime preeminence.

For Australia, the period was a particularly easy one. The poor state of military capabilities in Southeast Asia and the almost non-existent ones in the inner arc meant that we had it easy as far as local security was concerned. So when President Nixon's 'Guam doctrine' gave us an out on wider regional security, we took it and ran. Over the following twenty years we wound back proportional expenditure on defence from around 4% of GDP to a number under 2%. The US did the security heavy lifting in Asia and we did fine by it. But for the reasons explained below, those days are increasingly behind us.

Before looking towards the future, let's take one more trip in the time machine to a little over a century ago. In 1911 an insouciant America was on a steep growth curve that would lead it to become the dominant power of the second half of the century. Even so, one of its leading strategists was ready to cede the western Pacific to Asian powers. Leading naval strategist Admiral A. T. Mahan, probably with Japan's victory over Russia in their 1905 war in mind, [recognised the limitations of even enhanced American power](#) when, in contemplating American naval power in the Pacific, he wrote that 'the Western Pacific will remain Asiatic, as it should'. For him the real

question in naval strategy was working out where the line was to be drawn between American naval dominance and Asian:

The question awaiting and approaching solution is the line of demarcation between the Asiatic and European elements in the Pacific. The considerations advanced appear to indicate that it will be that joining Puget Sound and Vancouver with Australia... but there are outposts of European and American tenure in positions like the Marshall and Caroline Islands, Guam, Hongkong...

In WW2, those theoretical musings became stark reality when the Japanese empire expanded throughout the western Pacific and Southeast Asia. American naval power has never been more sorely tested than in 1942, when [Australia's strategic geography](#) and the [maritime lifelines between the west coast of the USA and Australia](#) were of critical importance. For most of the first half of the twentieth century we couldn't assume American naval superiority in east Asian waters, and certainly couldn't when the stakes were at their highest. That's why I say that the period since WWII was unrepresentative. For those of us gathered here, one of the most important uncertainties about the future is the role of American naval power in Asia—will there be a significant challenge?

Which leads us to the biggest question we have to address: what is the future of Asian security with the rise of China? And the related question: does China want to play by the extant rules? So far the evidence is mixed on the latter. China has enmeshed itself in world trade to an extraordinary degree, in a way that completely rules out any sensible comparison with the Soviet Union in the Cold War. But it's also been throwing its new-found muscle around in ways that haven't been constructive in terms of convincing anyone that China shares a common regional view of security.

As defence planners, we have to think about the worst case. In this instance, that's a China that actively pushes against the American led security order we've all enjoyed so much in order to replace it—at least locally—with something that it judges to better suit its own needs. And there are clear signs that China is thinking that way. Successive Chinese annual defence documents explicitly spell out the aim of preventing foreign powers from being able to exert pressure on China in its immediate environs. In case there's any doubt who they are talking about, the 2008 paper was [prepared to name names](#). In a listing of security challenges, and positioned between 'conflicting claims over territorial and maritime rights' and 'separatist and extremist forces [that] are running rampant' we find this:

At the same time, the US has increased its strategic attention to and input in the Asia-Pacific region, further consolidating its military alliances, adjusting its military deployment and enhancing its military capabilities.

In fact, China's development of military capabilities to keep external powers at arm's length got a significant boost immediately after the Taiwan Strait crisis of 1996, when the USN's carrier battle groups played a significant role in toning down Chinese assertiveness. We're far from the point where the western Pacific is a no-go zone for the USN, but the development of Chinese anti-access and area denial military capabilities is certainly raising the stakes.

As the potential costs of projecting American power into the western Pacific continue to rise, we're increasingly faced with several weighty strategic questions:

1. What role will the United States play in the future security landscape of east Asia?
2. What does the US expect of its allies today? (Is the post-Guam doctrine free riding era over?)
3. What will the hub and spokes model look like in the future? (Will we see more robust spoke-to-spoke security relationships?)
4. What role will Russia play in the region?
5. What haven't I thought of? (History suggests that there'll be plenty.)

Australia's military options and the future submarine

Of course, we then need to decide what Australia can do about any of that. The future security environment will be in part an externality over which we have little control (and so will require hedging). But there are certainly some aspects over which Australia can have some influence (through shaping).

On the military side of Australian responses, we have three broad and not mutually exclusive options:

- Invest in sovereign military capabilities that allow us to operate independently and, by acquiring high technology equipment, to project power into contested spaces.
- Build alliance capability with the United States, through interoperability of platforms and C4ISR systems, and by helping the US to consolidate its military posture in the Asia-Pacific region.
- Deepen security relationships with other regional countries. We're already in the process of doing more with Japan, and might opt to do more with India, Korea or Southeast Asian nations.

Let's go through each of these and look at the role the future submarine (FSM) might play.

For independent Australian operations, a capable and long endurance FSM would provide a significant deterrent against other conventionally armed powers, especially those with military capabilities commensurate with or less than our own. Against larger powers it's not so clear, and I'd suggest that against a nuclear power we'd be playing a dangerous game. A capable FSM would also allow Australia to project power into spaces denied to less stealthy platforms, albeit only a limited amount of power. For strike operations, for example, a submarine can launch a number of weapons, but has far less 'throw weight' than an air delivered capability, which can

repeat attacks at far shorter intervals. Again, against a smaller power, the effect could be substantial, while against a major power it'd be unlikely to be decisive.

In an alliance context, however, those criticisms are less important. The nuclear umbrella provided by the United States mitigates an adversaries nuclear weapon advantage, and the stealthy delivery of a small number of precision weapons, against critical command and control nodes for example, as an early stage of a much larger campaign waged immediately by a much larger American force could be very useful. In this case, the delivery mode could enable those assets that provide greater throw weight and faster turnaround times. As well, Australian submarines could play a role in such constructs as the [AirSea Battle concept of operation](#), perhaps forming part of a distant blockade at critical chokepoints. Similarly, the FSM could play a part in a network theatre-wide ASW campaign.

Finally, there are positives and negatives about developing deeper security relationships with other regional countries (and involving Australia's future submarine capability in those relationships). On the positive side, it'd tend to reinforce the hub and spokes model. The more that US allies work together to build their own security, the less suite of alliance relationships costs the United States. In effect it'd be a collective implementation of the Guam doctrine, with the potential benefit of encouraging the United States to remain engaged in the region even as the potential costs of guaranteeing security rise. It'd also reinforce a shared view of regional security. From Australia's point of view it could diversify our close security partnerships, thereby providing some insurance against a reduced American commitment to the region or to our security.

On the downside, there's no such thing as a free lunch. In order to have new partners who might help us in times of security threat, there'd be a quid pro quo, and we'd therefore run the risk of finding ourselves called upon in circumstances in which we have no direct stake. That's what Kevin Rudd meant [when he warned](#) about the risks of tying 'our security interests to the vicissitudes of an unknown security policy future in Northeast Asia'. That should be particularly kept in mind when we contemplate having a major Australian military capability dependent on support from a partner with its own set of challenging regional security issues. Finally, more 'spoke to spoke' interaction could potentially drive China to redouble its efforts to develop military capabilities to thwart the ability of America and its allies to intervene in regional security issues.

Conclusion

Much of the prognostication above is wrong. At the moment, it's not possible to say which parts—we'll only be able to identify the important factors I've missed or undervalued with hindsight decades from now. And even if my analysis of the security situation is right, it probably won't be after the next dislocation, whatever form it takes.

For this conference, let me sum up the impact of my strategic survey by saying that Australia's future security depends most critically on being able to act independently in its own backyard, and on having the United States continue to be the major regional power beyond that. We don't need the FSM for the former task, but it has the potential

to play an important part in the latter. A couple of years ago I spoke at the previous SIA conference and did a 'first principles' analysis of the types of warfare Australia might find itself involved in, and what the adversary's military capabilities might look like. I came to the conclusion that the FSM made most sense in an alliance context, and that we should steer the program towards making the most valuable contribution to alliance operations in our extended region. I think that's still the case.

Andrew Davies is the senior analyst for defence capability at the Australian Strategic Policy Institute. Some of the ideas here were developed for the ASPI publication [Known unknowns: uncertainty about the future of the Asia-Pacific](#) by Andrew Davies and Mark Thomson.