



The Institute for Integrated Economic Research - Australia was formed in 2018. Our purpose is to address our need for greater resilience in our society, both structurally and culturally, given the significant transition challenges that we will have to face in forthcoming decades, now compounded by the Coronavirus pandemic.

The Supply Chain on Blockchain Conference 2020 Sovereignty – Supply Chains – Resilience Warnings / Lessons from CV-19 Experience?

Where are we today?

Our security as a nation depends on our collective resilience, yet Australia’s ability to handle a growing range of economic, military, climate and medical threats has eroded in recent times. To quote the Home Affairs report on ‘Profiling Australia’s Vulnerability’ published in 2018, “what affects the nation’s resilience is the array of choices and decisions that have been made over generations and the decisions being made now that affect future generations. Fundamentally, the values and trade-offs inherent within these decisions have consequences and getting the balance right is a complex challenge.”¹ However, we need to understand that the consequences of past and present decisions have had the perverse outcome of building in more vulnerability for us.

The Coronavirus pandemic has exposed a global lack of resilience as a result of a collective failure to assess and act on national risks and vulnerabilities in the face of a rapidly changing world. Our Institute’s reports have addressed examples of the lack of resilience and security in Australia’s economic, environmental, energy and infrastructure systems.² For example, we currently import 90% of our medicines, 90% of our fuels (a 50% increase over the last decade) and 98% of our imports and exports depend on the foreign owned / controlled maritime trade system.³ This, without having conducted an integrated systems risk analysis for any of these areas. We have, in effect, left our resilience, and therefore our sovereignty and security, to the largely foreign-owned market. We must recognise that societies are communities of people and institutions, not components in an opaque global marketplace in which the drive for efficiency and lowest cost shapes all decisions.

The erosion of faith in, and effectiveness of, international institutions has also been under the spotlight as a result of the pandemic. Yet international collaboration and engagement will need to be a hallmark of the post-pandemic operating environment. Globalism is not dead, but merely in need of reshaping. Global cooperation will be essential to manage the pandemic, to discover a vaccine, to restore trading systems and supply chains, and to reinvigorate western liberal democracies and the system of alliances that underpin them.

¹ Department of Home Affairs National Resilience Task Force, Profiling Australia’s Vulnerability: the interconnected causes and cascading effects of systemic disaster risk, 2018

<https://www.aidr.org.au/media/6682/national-resilience-taskforce-profiling-australias-vulnerability.pdf>

The UNISDR definition of resilience is: “The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and function.”

² IIER-A reports and public commentary on these issues can be found at: <https://www.jbcs.co/#!/iieraustralia/>

³ Department of Infrastructure, Regional Development and Cities, Submission to Senate Inquiry on the Policy, Regulatory, Taxation, Administrative and Funding Priorities for Australian Shipping, March 2019, page 5.

We should not try to replicate the pre-COVID-19 Australia in the recovery. We need to capitalise on the positive aspects of our response, such as the social solidarity and the Federal / State political collaboration displayed in Australia, and learn from the negative, such as the fragility and opaque nature of our supply chains and the lack of preparation in critical areas such as in our health infrastructure and parts of our economy.

The challenge we face could appear to be so daunting that we run the risk that the Government will default to the establishment of a Royal Commission to address our lack of resilience. Hearings will occur, submissions will be made, recommendations will be proposed; the months and years will slip by, and then there will be an election. This has been the pattern of many of our historical responses to significant events. There is another way; there are existing bodies of work, and existing technologies, that could serve as the foundations for addressing our resilience in a timely manner. They could be adapted and developed collaboratively and acted upon in a bipartisan approach. These will be discussed later in this paper. We do not have the time to prevaricate; we need to analyse, plan and act in a timely manner in order to improve our national resilience in preparation for the ongoing impacts of the pandemic and a range of possible future crises.

Sovereignty – Supply Chains – Resilience

Australia is particularly vulnerable to trade disruptions in the global marketplace. We are an island nation, at the end of long global trade routes, heavily reliant on just in time supply chains, with limited resilience in those chains, and low tolerance for loss and disruption. In 2018 alone there was A\$304B of imports and A\$344B of exports. Should any significant trade interruption occur, the flow on effects on the economy and our society would be significant.

The early days of the pandemic provided a graphic example of just how quickly societal cohesion can fracture when supply chains were compromised, or simply perceived to be compromised. During March 2020 Australia witnessed panic buying in the supermarkets, health professionals around the country were confronted with the reality of shortages of vital personal protective equipment (PPE) and pharmacists were struggling to fulfil prescriptions for medicines as people started stockpiling. The extensive global outsourcing of the production of pharmaceutical ingredients, medicines, PPE and other essential inputs to supply or finished products across a range of goods and services, has left many nations shocked and now saying ‘never again.’

Our economic and trade interdependencies have compounded over time and are now so complex that trying to understand and then manage the resulting risks, becomes a task too daunting for many to face. Yet now we must face it because at risk is our security, and national security should not be left to the market.

Global trade and diverse supply chains are essential for Australia’s economic and social well-being and will remain the predominant model into the future. However, we need to redesign critical components of our supply chains under what we are calling a ‘**Smart Sovereignty**’ model. Smart Sovereignty infers not only a degree of Australian based manufacturing capability and associated domestic supply chains, but the appropriate research and development facilities and a skilled, experienced workforce. Sovereignty also implies Australian ownership and/or control over critical capabilities. Smart Sovereignty is not socialism or nationalisation of whole sectors of the economy; nor is it ongoing subordination to the ideology of the free market.

A country like Australia, with a relatively small population and economic base will only ever have a moderate level of sovereign capabilities. We will not, nor should we try to, become self-sufficient. Countries like the United States will build a much greater degree of sovereign capability over the next decade, largely in response to the pandemic panic. However, this ‘America first’ model should not be a source of reassurance for us in the South Pacific; it should serve as yet another warning sign of what is to come.

Determining the appropriate level of sovereign capability that we must have will be a complex task. We need more than we have today in key infrastructure and supply chains given, for example, our 90% import dependency for fuels and medicines. Importantly, our sovereign capabilities need to be designed to improve our resilience, and not just left to the whim of market forces. Annexes A and B provide an overview of Australia’s vulnerabilities in relation to fuel and pharmaceutical import dependency and, by extension, the impacts on our resilience. **We are learning that the cheapest cost comes at a high price in a time of crisis.**

In our view, the essential complement to Smart Sovereignty is the establishment of **‘Trusted Supply Chains.’** **Where we depend on global trade imports for critical supplies, we must have diverse and transparent supply chains and have the ability to verify them.** What is evident from the pandemic crisis is that the massive global outsourcing and dependence upon China for many pharmaceutical ingredients, medicines and other essential supplies, cannot be considered as a ‘trusted’ supply chain as it is neither transparent nor verifiable and has had single points of failure with significant impacts on critical supply chains.

Current Supply Chain Trust Issues

A significant issue is the lack of supply chain transparency. As noted in our Institute’s Medicine Supply Chain report of February 2020,⁴ the US is having considerable difficulty analysing its own medicine supply chain. The issue is the apparent lack of an entity in the US Federal Government that is accountable for knowing who controls the US medicine supply; the US simply does not know enough about China’s pharmaceutical sector, yet most Active Pharmaceutical Ingredients (APIs) are imported from China or India, with India, in turn, actually sourcing a large number of inputs from China. In November 2019, the United States-China Economic and Security Review Commission concluded that the Chinese pharmaceutical industry is not effectively regulated, and corruption is rife, which has resulted in significant drug safety scandals in recent years.

The second issue is one of trust or verification. The quality and testing regimes of drugs and APIs manufactured in China are assessed as substandard, results in a lack of trust in this major component of the US supply chain. The Food and Drug Administration (FDA) struggles to guarantee the safety of drugs imported from China because of a lack of cooperation from Beijing and the fraudulent tactics, including data manipulation, of many Chinese drug manufacturers. For example, in 2018 the FDA announced that a carcinogen once used in the production of rocket fuel was found in valsartan and two other blood pressure medicines used in 30 countries by millions of people. The companies selling the contaminated medicines sourced the APIs from China.

This should concern all Australians given that the US is the No. 1 country from which Australia imports pharmaceuticals, and that the vast majority of medicines consumed in Australia are not

⁴ IIER-A reports and public commentary on these issues can be found at: <https://www.jbcs.co/#!/iieraustralia/>

subjected to routine pharmaceutical quality testing by the TGA, with adequate quality assumed, based on Good Manufacturing Principle product certification.

Supply Chain on Blockchain Implications

Our existing supply chains would look very different if they could be mapped, provenance assured, and standards enforced. The issue of supply chain trust and transparency is one that could clearly benefit from Blockchain technologies. The 2019 Supply Chain on Blockchain Conference held in Brisbane highlighted many clear opportunities.⁵ Discussions on supply chain integrity, the ability for Blockchain to provide a native infrastructure for transparency, traceability and trade offer technical solutions to a growing problem in critical supply chains. We have already discussed the issue of counterfeit drugs; however, the need for compliance, tracking and provenance in the pharmaceutical and medical equipment sector is now more evident than ever. The issue of counterfeit face masks has been repeatedly highlighted in recent months.

The ideas raised in the CSIRO Data 61 / UNSW presentation *Blockchain-based Solutions for Traceability and Trust Management in Supply Chains* appear particularly applicable to the issues we are raising with respect to our resilience.⁶ Trust is a quality in short supply in many instances today. A technology which can improve supply chain resilience without the need to presuppose trust in a foreign government or businesses entity would prove invaluable.

Priority Focus Areas

The discussion of Smart Sovereignty Trusted Supply Chains that has emerged during the pandemic provides an opportunity to reframe a part of the blockchain discussion. Priority will likely be afforded to critical infrastructure areas such as communications, energy, healthcare/public health, transportation systems, banking and financial services; food/agriculture and information technology, as is discussed later in this paper.

Given the current focus on medicine and medical equipment supply chains, targeting this domain could provide an opportunity to highlight the significant benefits of Blockchain technologies. The following discussion addresses the broader issues of national resilience. Adapting some of that narrative to explain the potential of Blockchain to improve our resilience may prove beneficial.

Where To Now?

Resilience needs to be addressed by individuals, communities, businesses, and at all levels of Government. It is about being better prepared and having the ability and the will to act collaboratively whenever necessary. **Resilience should not be perceived as an inconvenience that gets in the way of living – it is an inherent, essential, part of living in the modern world.**

To address these issues, we need an integrated national sovereignty / resilience framework, strategy and action plan. We need to determine how we better react, prepare for, adapt to changing conditions and, where feasible, prevent disasters and crises. Of course, our resilience is

⁵ <https://scobc.net/2019-agenda/>

⁶ https://scobc2019.files.wordpress.com/2019/07/2019_15_trust.pdf

interdependent with that of our regional neighbours. We need to also address how we can assist them to improve their resilience as well; an interdependent partnership will be a foundation for building resilient and trusted supply chains across our region.

There are numerous bodies of work related to aspects of Australia's resilience already in existence; we do not start from first principles to plan the way ahead. Two contemporary examples are discussed in Annexes C and D; they are the 2018 Home Affairs report, *Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk*⁷, and the Henry Jackson Society (HJS) Report of 14 May 2020, *Breaking the China Supply Chain*.⁸

The Profiling Australia's Vulnerability report provided conclusions, or perhaps more correctly threat assessments, worth thinking about in terms of our resilience, supply chains and vulnerabilities. It noted that our biggest vulnerabilities are the intersections and interdependencies in the systems that support us in this country from local to global levels. The report observed that we value and rely on the systems and processes that sustain us in our everyday lives, often unconsciously. However, as previously discussed, we need to understand that the consequences of past and present decisions have had the perverse outcome of building in more vulnerability for us. Due to the limited terms of reference, the Natural Disaster Risk Reduction Framework did not address the potential for 'unnatural disasters' to cause harm. Widening its scope, rather than 'reinventing the wheel', could be the best way to build a framework to help us address future crises.

Whilst the focus of the HJS Report is the dependency of Five-Eyes nations on China (with Australia being the most dependent) the observations and recommendations made can apply more broadly to our global dependencies, in order to assist in the determination of the industries necessary for Smart Sovereign capability. The HJS report proposes that 'strategic industries' are those that support critical infrastructure including communications, energy, healthcare / public health, transportation systems and water. The report also identifies areas that should be afforded protection; these include artificial intelligence, autonomous robotics, computing hardware, cryptographic technology, materials and manufacturing science, nanotechnologies, networking and data communication, quantum technology and synthetic biology.

Supply chain fragilities and the need for a sovereign manufacturing capability are topics now being discussed across all levels of society and in the media. This is a positive indicator that the necessary political, policy, structural and cultural changes could occur to deliver Australia a greater level of resilience, and thus enhance our national security.

7 Department of Home Affairs National Resilience Task Force, *Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk*, 2018

<https://www.aidr.org.au/media/6682/national-resilience-taskforce-profiling-australias-vulnerability.pdf>

8 The Henry Jackson Society, *Breaking the China Supply Chain: How the 'Five Eyes' can decouple from Strategic Dependence*; James Rogers, Dr Andrew Foxall, Matthew Henderson, and Sam Armstrong, 14 May 2020,

<https://henryjacksonsociety.org/publications/breaking-the-china-supply-chain-how-the-five-eyes-can-decouple-from-strategic-dependency/>

IIER-A Action - The National Resilience Project

IIER-Australia is working on a National Resilience Project in collaboration with the Global Access Partners Institute in Sydney and with GravityiLabs, a company that specialises in visualising complex issues and integrating related data sets. Our intent for the project is to make a contribution to the conversation we have to have in Australia, and to offer constructive suggestions on where we, as a nation, need to head when we emerge from the pandemic crisis and face the challenge of building the next generation economy, more resilient societal systems and thus improved sovereignty and security.

Key themes emerging from the project include the need to:

- Conduct a comprehensive risk and vulnerabilities analysis using an expanded version of the framework produced by the Home Affairs report, *Profiling Australia's Vulnerability*. This should include:
 - The sovereign capabilities, knowledge and skills on which we must be self-reliant in times of crisis and where it is prudent to guarantee domestic supply.
 - **The critical supply chains which must be trusted, i.e. transparent and verifiable.**
 - Those capabilities, services and goods for which open, global supply chains should be maintained and encouraged.
- Develop an integrated national sovereignty / resilience framework, strategy and action plan, based on the risk and vulnerabilities analysis, that address what is critical to the Australian way of life and the functioning of our society, and then determines how to build such a sovereign capability.
- Implement the plan utilising an integrated team model; i.e. collaboration across all levels of government, industry, public and private sector enterprises and community organisations.

The IIER-A Resilience Project, the Medicine Supply Chain and other related reports are at:
(<https://www.jbcs.co/#/iieraust/>)

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Australia's Fuel (In)Security and our lack of National Resilience – A case study

On April 9th the media reported that the owner of the Geelong oil refinery is weighing whether to proceed as planned with a \$100 million investment in its future as the coronavirus outbreak wipes out fuel demand and guts refining profits. Viva's Geelong refinery, which can process up to 120,000 barrels a day, is the second largest among the country's four remaining refineries and supplies about 10 per cent of Australia's liquid fuel needs. Viva's announcement comes after rival fuel giant Caltex said on Monday it would extend a shutdown of its Brisbane oil refinery, where margins have similarly collapsed in recent months.¹

At the same time, Energy Minister Angus Taylor said the government was working with the refiners to ensure no disruption to Australia's fuel supplies amid the coronavirus emergency. "The Australian government recognises that this is a difficult time for oil refineries worldwide, including refineries in Australia," he said. "Australia has a highly reliable fuel supply and these decisions from refineries will not hinder our immediate fuel security."²

The Minister's assurances regarding our immediate fuel security, do not address the issue of real concern which is our ongoing fuel security. Here are a few facts to consider:

- The last time we had a National Energy Security Review in Australia was 2011. Despite repeated commitments to produce one in 2014, 2015, and 2016, none has been conducted.
- Between 2012 and 2015 the number of refineries in Australia decreased from 7 to 4. In 2014, the Department of Industry, in relation to a question regarding what would be the necessary minimum number of refineries that we must have in Australia for security /resilience purposes, advised that no refineries were necessary ...as it would be cheaper to import refined fuel.
- Three of the four major refineries in Australia are foreign owned. The fourth, Caltex, is in the process of being sold to foreign owners. It would be foolhardy to expect the refinery owners to act in any way other than to look after their own business interests. That is a free market reality.
- The recommendations made in the fuel security reports written by John Blackburn for the NRMA were ignored by both Labor and Liberal Energy Ministers - <https://www.jbcs.co/#/energy-security/>
- The recommendations of the 2015 Senate Inquiry into "Australia's transport energy resilience and sustainability" were ignored by the Government.
- The Mar18 Parliamentary Joint Committee on Intelligence and Security recommended that the Government review and develop measures to ensure that Australia has a continuous supply of fuel to meet its national security priorities has not been addressed. The target date of Dec 18 for the report was missed.

¹ <https://www.watoday.com.au/business/companies/geelong-oil-refinery-100m-investment-under-review-as-virus-hits-fuel-demand-20200409-p54iht.html>

² ibid

- In Apr 19 an interim report was released which highlighted significant problems such as “there is no overarching understanding of the whole liquid fuel market in Australia and how different parts interact with each other.”
- As of June 20, there is no final report and we are in the midst of a health and economic crisis. If the Government does not have an “overarching understanding of the whole liquid fuel market” how can they possibly make rational risk decisions regarding critical infrastructure?

If we do not act to ensure that our four oil refineries remain operating after we emerge from our Coronavirus crisis, then we will significantly reduce the options available to us to address the concerns repeatedly raised by the Parliamentary Committees. We could become 100% dependent on foreign owned fuel imports, coming to Australia on foreign owned ships ... up from the present 90%. This is not reassuring, particularly when we are seeing an “every man for themselves” pandemic panic emerge around the world, disrupting critical supply chains. The US administration is saying “never again” with respect to its supply chain dependence on some foreign countries. Whilst that is an emotional reaction in a time of shock, it would be reckless for us to contemplate 100% import dependency for one of our critical supply chains.

A classic assumption related to fuel security, quoted in the Australian Newspaper in January 2019, was extraordinarily naïve, yet surprisingly prevalent: “The Energy Department said Australia’s low supplies were not a serious concern as there had never been a serious interruption to Australia’s supply.” The chaotic cascading effects of the pandemic on our energy / fuel security can perhaps more easily be visualised now.

While the Government manages the economic fallout of the pandemic, it must keep options open regarding fuel security. To that end, Government should take whatever steps are necessary to ensure the short to mid-term financial viability of the Australian refineries, as they are doing across our industry base, regardless of their foreign ownership status. That would at least give us the option of maintaining some level of refining capacity in this country once we emerge from our reactive crisis management mode and start reshaping our nation to deal with the new reality.

The second step is to accept that this is not an issue that can be left to a single Minister or Department. Resilience cannot be addressed if we are not willing to identify and address our vulnerabilities and risks. The latter is politically challenging given our current political culture, as evidenced by the trail of ignored warning and Committee recommendations related to our fuel security.

If we address our risks and vulnerabilities in an integrated manner, we can improve our resilience. Improved resilience means improved security. We need an integrated national resilience framework, strategy and action plan.

Australia's Medicine Supply Chain – A Case Study in Vulnerability

One topical example of our lack of resilience is that of our fragile medicine supply chain. This is a much bigger problem than just “medical kit” as some commentators have described it. In mid 2019 we became aware of the US Government's US-China Economic and Security Review Commission which held a public hearing on *‘Exploring the Growing US Reliance on China's Biotech and Pharmaceutical Products’*. We subsequently investigated our own medicine supply chain. Our report noted the following:

- The US Commission hearings highlighted that the US, our largest source of medicines, does not have a robust understanding of its medicine supply chains, its vulnerabilities are not fully understood and no one agency seems to have responsibility or accountability. They have concluded that an over reliance on foreign production for critical medication is a national security risk. We would be foolhardy to think that our situation is any less risky.
- Australia imports over 90% of medicines and is at the end of a very long global supply chain making the nation vulnerable to supply chain disruptions. The Therapeutic Goods Administration (TGA), in 2019 discussion paper, noted that Australia is particularly vulnerable to medicine shortages arising from factors outside our control. They stated that these factors could include manufacturing problems, difficulties in procurement, political instability, pandemics, another global economic crisis and a range of natural disasters. As at 20 April 2020, the TGA was reporting shortages of 562 medicines, 76 of which were classified as “critical.” This had risen in the previous two weeks from a total of 520 medicines shortages.
- There is no publicly available information on the level of medicine stocks in the commercial supply chain in Australia and the Australian Government does not mandate any minimum stockholdings of medicines. In contrast, the Finnish Government's Decree on Mandatory Reserve Supplies of Medicines identifies 1457 medicinal products to be stocked in their pharmaceutical supply chain, including a number of active pharmaceutical ingredients. Stock levels vary between 3 and 10 months depending on the medicine.
- Australia has extremely limited and diminishing manufacturing capacity across all sectors of pharmaceutical products apart from vaccine manufacture. As a benchmark, Australia has almost no capacity to manufacture any active pharmaceutical product for most of the products listed on World Health Organisation's list of Essential Medicines.
- China is fast becoming one of the leading manufacturers of pharmaceuticals and the active pharmaceutical ingredients that go into medicines. A significant problem is that there is no publicly available information on what ingredients of critical medicines originate in China. China also produces a significant portion of the world's supply of personal protective equipment, such as face masks and respirators. The pandemic impacts on the medicine and medical equipment supply chain has caught many countries unaware. That was a fundamental failure of governance.

We need to conduct a robust analysis of our medicine supply chains and the lack of resiliency must be addressed as a matter of urgency. Of course, our supply chain risks extend far beyond medicines, and we need to address this broader issue concurrently.

Breaking the China Supply Chain: How the ‘Five Eyes’ can Decouple from Strategic Dependency

The Henry Jackson Society (HJS) Report of 14 May 2020, *Breaking the China Supply Chain: How the ‘Five Eyes’ can Decouple from Strategic Dependency*¹ provides an analysis of ‘strategic industries’ and ‘core areas’ that it deems essential for the ‘national security, economic security, prosperity, and health and safety’ of the Five-Eyes nations. While the focus of the report is the dependency on China (and Australia is heavily dependent), the observations and recommendations can apply more broadly to assist in the determination of the industries necessary for Smart Sovereign capability and to develop Trusted Supply Chains.

The HJS report proposes that ‘strategic industries’ are those that support critical infrastructure and that this infrastructure includes at least the five following components:

- Communications
- Energy
- Healthcare and public health
- Transportation systems
- Water (including wastewater and storm water systems)²

Furthermore, critical sub-components identified included: banking and financial services; emergency services; food and agriculture, and information technology.

Besides supporting traditional strategic industries, the report identifies ‘core areas of the Fourth Industrial Revolution’ that should be afforded protection. These ‘core areas’ are:

- Artificial Intelligence
- Autonomous Robotics
- Computing Hardware
- Cryptographic technology
- Materials and manufacturing science
- Nanotechnologies
- Networking and data communication
- Quantum technology
- Synthetic biology³

The report argues that these industries should also be considered ‘strategic’ because:

¹ The Henry Jackson Society, *Breaking the China Supply Chain: How the ‘Five Eyes’ can decouple from Strategic Dependence*; James Rogers, Dr Andrew Foxall, Matthew Henderson, and Sam Armstrong, 14 May 2020, <https://henryjacksonsociety.org/publications/breaking-the-china-supply-chain-how-the-five-eyes-can-decouple-from-strategic-dependency/>

² Ibid, p.10

³ Ibid, p. 12

'... they are expected to provide significant technological and economic benefits to those countries that come to lead in them ...Indeed, the COVID-19 crisis has revealed the extent to which recent and emerging technologies – networked communications, pharmaceuticals and biotechnology – are themselves part of a nation's critical infrastructure.'⁴

In terms of immediate actions, the report makes four recommendations:

- Conduct and publish audits at national and company level, so as to identify where dependency on China exists in relation to raw materials, components and complex supply chains;
- Undertake a national review of strategic industries to identify and prioritise those that require protection from dependency on China;
- Review bilateral investment treaties and free trade agreements, to assess how effectively they manage risk from strategic dependency from China; and
- Review existing trading partnerships to identify ways in which increased cooperation could reduce strategic dependency on China.⁵

Again, while the report, and actions, are China-focused, Australia should expand the field-of-view and undertake these reviews and assessments as a matter of priority across all those supply chains that deliver critical goods and services to the nation. Essentially, actioning the four recommendations above will facilitate the establishment of Trusted Supply Chains and also deliver the means to identify where to focus our efforts for Smart Sovereignty.

⁴ Loc. Cit.

⁵ Ibid, p. 6

Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk

In searching for a framework within which to explore the resilience challenges ahead, the 2018 Home Affairs report, *Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk*¹, is a worthwhile starting point. The report provided conclusions, or perhaps more correctly threat assessments, worth thinking about in terms of our resilience, supply chains and vulnerabilities. It noted that our biggest vulnerabilities are the intersections and interdependencies in the systems that support us in this country from local to global levels.

As a nation we need to understand that the consequences of past and present decisions have had the perverse outcome of building in more vulnerability for us. By extrapolating the interconnected risks that we face in terms of our preparedness and resilience when it comes to 'disasters', we can quickly see where our weaknesses and vulnerabilities lie as a society and a nation to deal with 'disasters' and 'disruptions' in the broadest sense.

Specifically, the report observed that:

'the systems that sustain how we live in the modern world include those that provide food, water, energy, health, education and widely available methods of communications. We value and rely on these systems and processes in our everyday lives, often unconsciously. ***We often have high expectations about the delivery of a reliable and consistent supply of services from these systems with little tolerance for loss or disruption to them. Yet there are variable levels of redundancy built into these systems to reduce the potential for disruption.***' (our emphasis)

What we value as a society, why we value the things we do, and how we acknowledge and assign that value are also explored in the report. The COVID-19 pandemic has shown that as a society we can very quickly shift our hearts and minds and 're-value' the various components of our lives. Any framework for national resilience must ensure inclusion of the human element.

Finally, the report proposes a model of 'Pathways to Safety' that could be leveraged to become 'Pathways to Resilience and National Security.'

¹ Department of Home Affairs National Resilience Task Force, *Profiling Australia's Vulnerability: the interconnected causes and cascading effects of systemic disaster risk*, 2018
<https://www.aidr.org.au/media/6682/national-resilience-taskforce-profiling-australias-vulnerability.pdf>