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Supply Chain Resiliency in a time of Global Uncertainty (Workshop)

Presented by Capability Systems Centre, UNSW

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Practical steps toward economic transformation for greater resiliency

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- Extensive knowledge of Australian defence industry.
- Royal Australian Navy Principal Warfare Officer (Anti-Submarine Warfare). Author of the ASW Capability Study.
- PhD in defence industry sovereignty. Master of Science in maritime defence technology. Master of Defence Studies. Bachelor of Science in pure mathematics. Insignia Award in Technology from the *City and Guilds of London Institute*.
- Published extensively on strategy, defence and industry topics.

Agenda

- National resilience, defence resilience and supply chain resilience (NDS, 2024)
- Why are we doing this?
- What do we need to do?
- How can we do it?

Resilience/s

- National resilience
  - The ability of a country to withstand and /or to recover from a shock
- Industry resilience
  - The ability of an industry to withstand and/or recover from a shock
  - Multiple industry sectors with a nation, therefore multiple instances of resilience
- Supply chain resilience
  - The ability of a supply chain to withstand and/or recover from a shock
  - Multiple supply chain instances with an industry sector, thereof multiple instances of resilience

So what?

- Cannot just consider a single supply chain without the context of where it sits within an industry
- Cannot just consider a single industry sector without the context of where it sits within the national support base
- National resilience is therefore a multi-dimensional problem
  - Defence/ Government/ Energy/ Health/ Food/ Water/ Communications/ Transportation
  - (Space/ Finance/ Education)

Why

Why

- Deteriorating geostrategic circumstances
- Increasing Chinese adventurism and belligerence
- Increasing US uncertainty
- Increasing supply chain vulnerability
- Increasing national risk

What

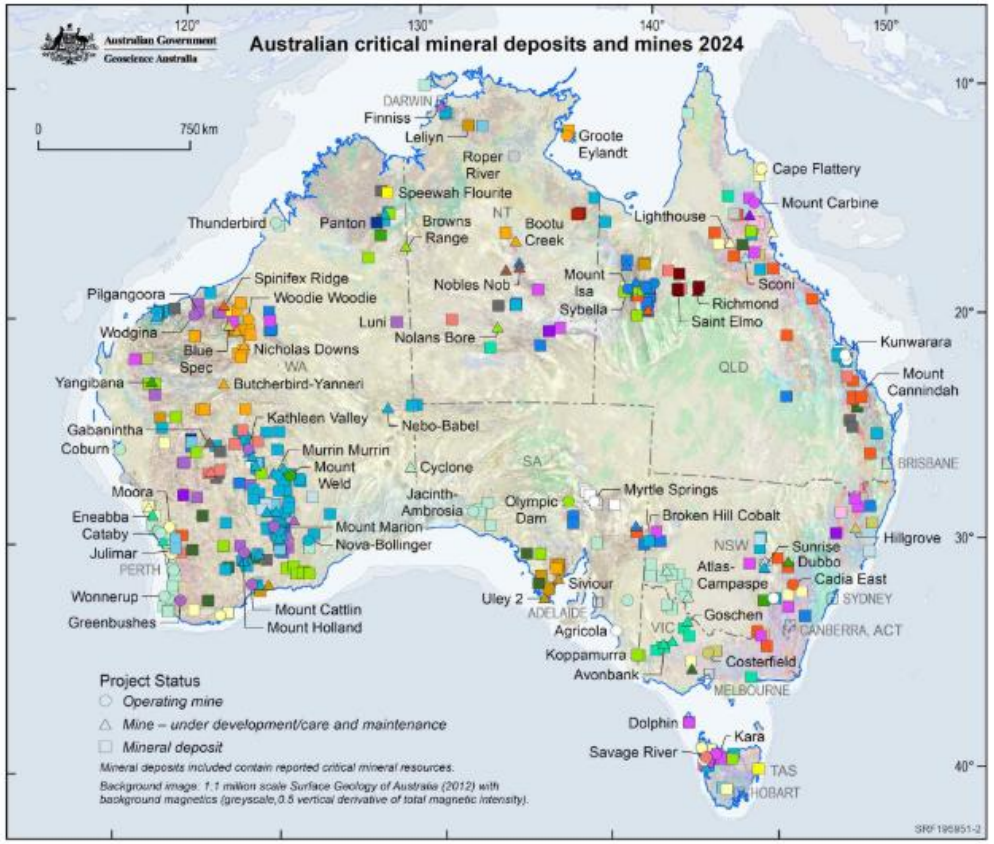
Vulnerabilities, risk and prioritisation

Constraints

- Money is finite
- Small population, small part of the global market
- A generally unsophisticated economy
- Low national manufacturing base
  - We rank last on the OECD manufacturing self-sufficiency measure
- Geographically remote from major industrial sectors

Enablers

- Politically stable
- Educated society
- Technologically advanced
- Resource rich
- Trusted international relationships



Australian critical mineral deposits and mines in 2024

Prioritisation

- Address vulnerabilities
- Mitigate risks
- Provide mass
- Time efficient
- Affordable
- Advance national interests

How

Levers available to Government

Resilience types

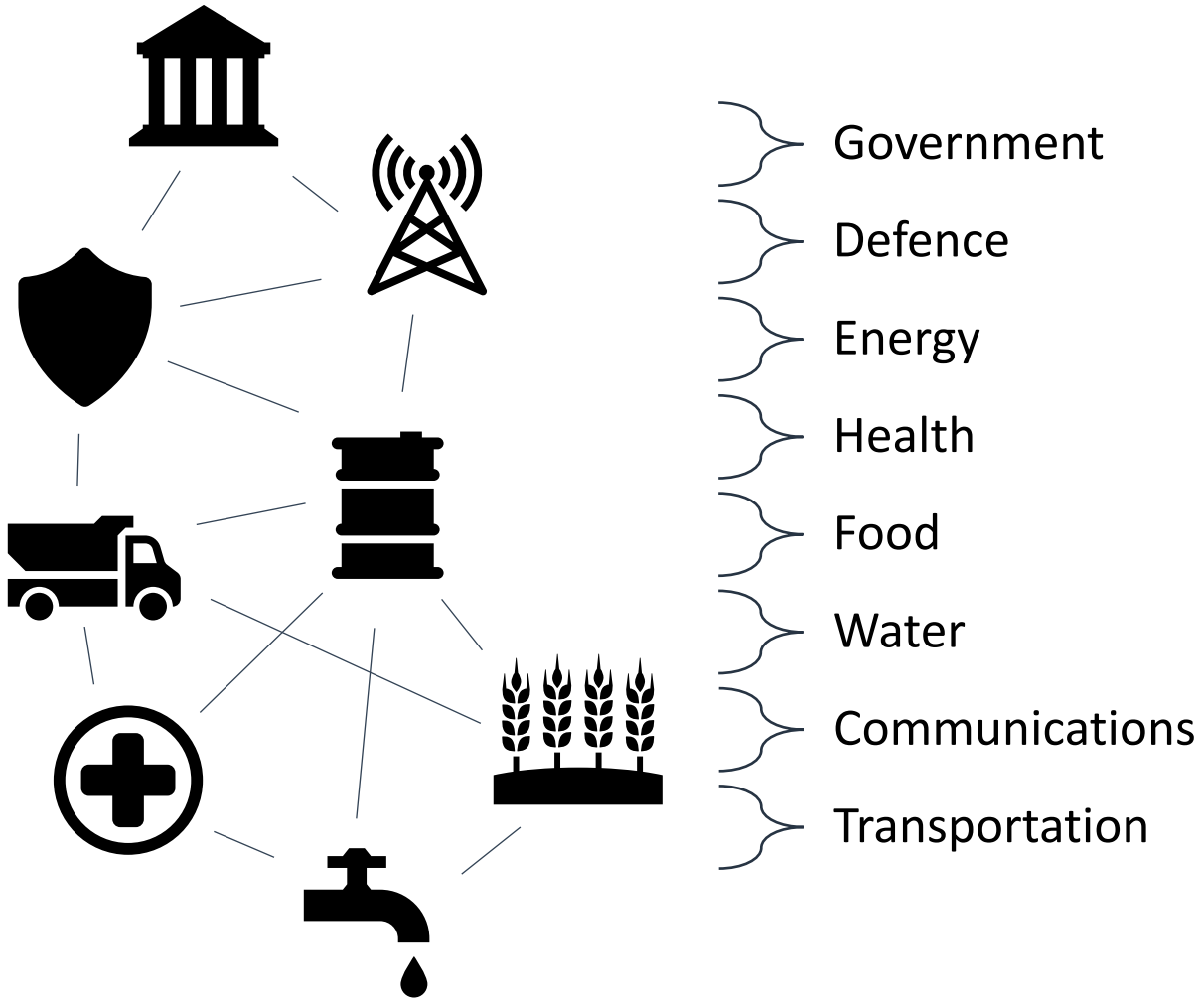
- The levers available to government depend upon the level of control over the activity
- **Resilient**– intellectual property and manufacturing activity controlled in Australia (DO-DC)
- **Limited** resilience – manufacturing activity in Australia, intellectual property in country but controlled elsewhere (DO-FC)
- **Partial** resilience – intellectual property controlled in Australia, but manufacturing activity elsewhere (FO-DC)
- **No** resilience – manufacturing activity and intellectual property controlled from elsewhere (FO-FC)

States of resilience degradation

- Resilience is not a binary consideration
- There will be levels of manageable degradation
- Degradation in one sector will impact upon another
- The application of levers will also depend upon the level of degradation that is acceptable

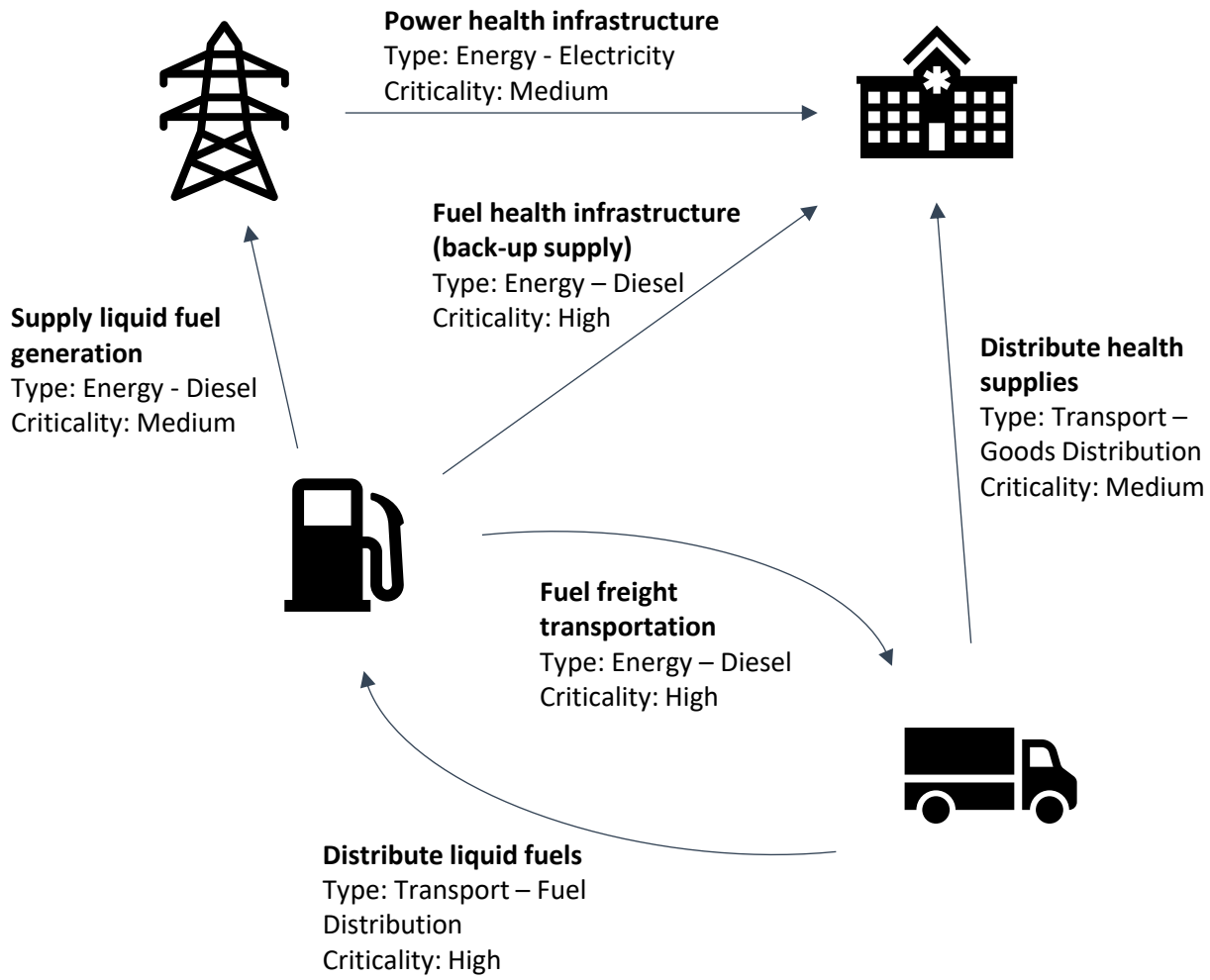
Modelling the problem

- Resilience is a system of systems problem
- Focuses on dependencies and resources exchange across sectors
- Allows “what-if” simulation to stress-test the overall system
- Can use to investigate criticality and unintended consequences
- Remain at a relatively high level otherwise becomes very complex
- Not intended to provide / replace detailed analysis within a particular sector
- Allows defence elements to integrate with other industrial sectors



Key Model Elements – Systems & Dependency Links

- System elements for national resilience
  - Combination of infrastructure, assets, services and personnel
- Links represent resource and information dependencies
- Multiple links represent different resource/information flows and direction of flow
- Attributes can be defined for these links, e.g. type, criticality, flow capacity…



Levers – Partial, and no resilience

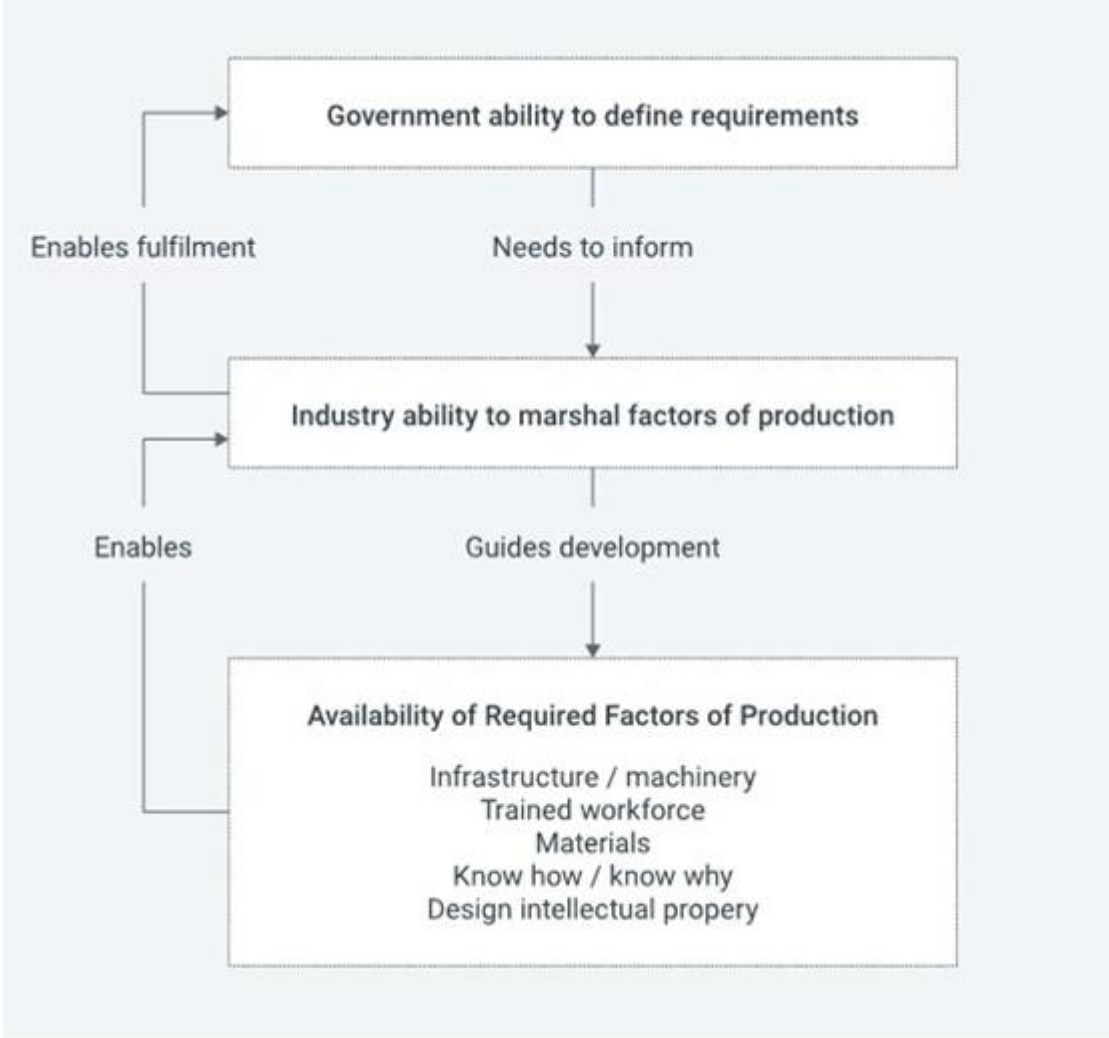
- No substantial leverage
- Manufacturing is undertaken offshore
- Reliant on external relationships
- Innovation in Australia does not improve resilience
- Partial resilience an option when cost of establishing domestic manufacturing might be prohibitive

Levers – Limited resilience

- Manufacturing in Australia, IP controlled elsewhere
- Provision of grants and concessional loans
- Preferential workforce development
- Access to government infrastructure, and test facilities
- Tax incentives

Alignment of levers and factors of production

- Successful policy implementation requires alignment of levers and factors of production
- Government to define what it needs for resilience
- Industrial capability, capacity and ability to innovate



Ref: Defence Industry in National Defence

Reality check

- The time is now
- Supply chains are likely to be a bit of this (domestic) and a bit of that (offshore)
- Some manufacturing is already established
- The way ahead must be mixed

Levers – Resilient

- Provision of grants and concessional loans
- Tax incentives
- Financial support for research and development
- State ownership – establishment of GO-GO or GO-CO entities
- State investment in DC-DO entities
- Provision of government infrastructure, and test facilities
- Preferential contracting arrangements
- Intellectual property restrictions
- Preferential workforce development
- Legislative and regulatory requirements
- Involvement of private capital

How to proceed

- Start now
- Stop talking about a “defence industry”
- Get all the necessary regulations in place -The ability to requisition civilian transport for example
- Develop a clear understanding of how the entire society/ economy works as a system – so unintended consequences can be avoided
- Understand the risks at the national, industry and supply chain level
- Prioritise
- Determine manageable levels of degradation for prioritisation targets
- Build industry clusters across the country for prioritisation targets
- Engage with the private investor community to determine where their potential investment could be used
- Develop the necessary international agreements and implement
- Review each activity periodically for impediments to success

Questions

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