

Submission from



28.4.21

## *Australian Government – Productivity Commission into vulnerable supply chains.*

### Contents:

- 
- Progress Information provided by CIPS Sponsor and Chair to you on Wed April 13th (file copy included here just for completeness)
  - Our PC submission across 4 workstreams (including commentary offered from studying the interim report) and 4 case studies

Sponsor: Sharon Morris, GM, Chartered Institute of Procurement and Supply – Aust & NZ

Chair: Craig Lardner FCIPS, Principal, Procurement Advisory Services

# Chartered Institute of Procurement and Supply

*The Chartered Institute of Procurement & Supply (CIPS) is the leading international body representing procurement and supply management professionals. It is the worldwide centre of excellence on procurement and supply management issues. CIPS has a global community of 200,000 in 150 different countries, including senior business people, public servants and leading academics. The activities of procurement and supply chain professionals have a major impact on the profitability and efficiency of all types of organisations and CIPS offers corporate solutions and packages to improve business profitability.*



# Industry sector experience across the team...

## Submission committee:

17 executives from private and public sector and NFP, Australia-wide (members and Fellows of CIPS).

These specialist resources have pooled their knowledge and experience to address the topic of Australia's vulnerable supply chains across four key workstreams.

A timing and milestone schedule was created to ensure delivery.

We developed our **VISION** – CIPS and members are acknowledged for their significant content contribution to the Productivity Commission report into vulnerable supply chains (PCVSC).

Our **MISSION** – To collate the knowledge and experience of some of our most experienced members to produce the CIPS submission to the PCVSC.

## Our **OBJECTIVES**:

1. Span the industry sectors that most depend on resilient supply chains
2. Comprehensive review of the PSVSC report (interim/final); taking input from objective and knowledgeable procurement and supply chain management professionals
3. Collate the input in a coherent, well-structured and digestible submission

Retail & Consumer

Energy & utilities

Construction & transport

Infrastructure

Healthcare

Government

Metal & mining

Agribusiness & food

Education

Finance

Info media & telecommunication

Aerospace

Pharmaceutical

Manufacturing

Management / Consultants

# The Team

- Craig Lardner, Former CIPS President and Board member/ Consultant / CIPS Fellow
- Phil McDonald, GM Group Procurement – Woolworths Group
- Tanya Harris, Edge Environment / sustainability specialist
- Andrew McFarlane, Group Procurement Manager, McConnell Dowell Corp, CIPS Victoria committee
- Greg Parkinson, Consultant in Construction, CIPS SA committee
- Rachel Hanigan, CPO, NSW Rural Fire Service
- Kendall Richardson, Consultant in Aerospace / CIPS SA Chair
- Andrea Andrews, Executive Director Procurement & Supply Chain, SA Health
- Neil Abel, Consultant in Health / CIPS Profession Steering Committee
- Andrew Brightmore, Executive Director, Compass Group Australia & Foodbuy Australia / CIPS Fellow / CIPS Profession Steering Committee
- Kylie Bourke, Procurement Manager, Ventia / CIPS Congress representative
- Ben Ludik, Head of Procurement & Property, Water Corporation / CIPS Steering Committee
- Hannah Bodily, Sourcing Hub Rio Tinto / Non-Executive Director CIPS Global Board of Trustees
- Jodie Sherwell, Consultant, KPMG, CIPS ACT committee
- René Kling , Teaching Fellow,& Lecturer, University of Tasmania / CIPS Tasmania Chair
- Anita Morris, Consultant in ICT, CIPS ACT committee
- Sharon Morris, GM, CIPS ANZ

# Our 4 workstreams to address the Terms of Reference

## A. Contents of a Risk Matrix

- Nature of the risks, the source of those risks and the consequences
- Use a simple matrix or not

## B. Future shocks

- What and how caused and our response (solution)
- What hasn't happened yet, but might
- What has happened that was minor...but could have been catastrophic?

## C. Relationships and the protective (collaborative) network

- Who do we need to co-operate with, locally and globally?
- What is in place already?
- What new relationships are needed, locally or globally?

## D. Vision, mission, objectives, KPI's and framework (an Australian overall picture)

- Robust supply chains for Australia (future proofing)
- Protecting us from what we can't see coming (like 'B' above)
- Consider use of the known/unknowns and unknown/unknowns matrix

# The schedule established by CIPS to meet the deadline required by the commission

4. Timeline and key milestones: SM & CL green ...Min-teams Blue... 'all in' mtg Red (x2)...CPSC purple

Monday	Tuesday	Wednesday	Thursday	Friday
1 <sup>st</sup> March	2 <sup>nd</sup> March Project scoped CL/SM	3 <sup>rd</sup> March Invitees to the sub-committee	4 <sup>th</sup> March Invitees to the sub-committee	5 <sup>th</sup> March Invitees to the sub-committee
8 <sup>th</sup> March Labour Day Holiday (VIC/TAS)	9 <sup>th</sup> March Acceptances come in, shape the teams	10 <sup>th</sup> March	11 <sup>th</sup> March	12 <sup>th</sup> March
15 <sup>th</sup> March 5.00pm-6.00pm (AEDT) Committee kick-off meeting #1	16 <sup>th</sup> March	17 <sup>th</sup> March Digest the material, your early thoughts	18 <sup>th</sup> March Digest the material, your early thoughts	19 <sup>th</sup> March Digest the material, your early thoughts
22 <sup>nd</sup> March #1 (b) Committee kick-off meeting #1 for members not available last week	23 <sup>rd</sup> March Mini-teams set a time to have their 1 <sup>st</sup> broad discussion on their topic, sometime this week...target 30-45 mins	24 <sup>th</sup> March	25 <sup>th</sup> March	26 <sup>th</sup> March
29 <sup>th</sup> March Interim desktop report from Govt PCVSC to us SM&CL send copy to teams to read and digest This date is expected but Govt may move it to later	30 <sup>th</sup> March Read and digest Govt desktop report	31 <sup>st</sup> March 4.00pm-5.00pm (AEDT) Committee meeting #2 on the desktop report contents If the Govt interim desktop report does not arr on 29 <sup>th</sup> , this mtg for 31 <sup>st</sup> will move to later	1 <sup>st</sup> April SM & CL Create summary of relevant parts that suit our reporting intentions	2 <sup>nd</sup> April Good Friday Holiday
5 <sup>th</sup> April Easter Monday holiday	6 <sup>th</sup> April Mini-teams set a time have their 2nd mtg On their topic bullet points, a time this week. Target 30-45 mins	7 <sup>th</sup> April	8 <sup>th</sup> April	9 <sup>th</sup> April
12 <sup>th</sup> April Mini-teams set a time to have their 3rd discussion (if needed) on their topic bullet points, sometime this week...target 30-45 mins	13 <sup>th</sup> April	14 <sup>th</sup> April By noon...Mini-teams send their 3 pages of pwr ppt bullet points to Sharon & Craig	15 <sup>th</sup> April Sharon & Craig collate and consolidate the 7 packs of 3 pages each, into one pack	16 <sup>th</sup> April Sharon & Craig collate and consolidate the 7 packs of 3 pages each into one pack
19 <sup>th</sup> April By noon...draft final pack to CPSC for comment	20 <sup>th</sup> April	21 <sup>st</sup> April	22 <sup>nd</sup> April	23 <sup>rd</sup> April By noon, CPSC comments to SM&CL
26 <sup>th</sup> April Sharon & Craig incorporate CPSC comments	27 <sup>th</sup> April Sharon & Craig incorporate CPSC comments	28 <sup>th</sup> April Final version submitted to the Commission.	29 <sup>th</sup> April Contingency time for delays	30 <sup>th</sup> April Contingency time for delays. Closing date

# Feedback requested - Impressions from the interim report

Some examples;

- Thorough as a first pass.
- Findings sections are helpful summaries in the 140 pages.
- The study and hypothesis' line up with the original objectives.
- Product examples and short 1-para case studies add credibility to findings.
- The strength of the broad conclusions could be weakened by 'discovered detail'.

# Feedback requested – Experiences in our vulnerable supply chains

Some examples;

- Using ‘product aggregates’ to arrive at 5,950 different imported products will make ‘critical’ single products invisible.
- Devil is in the detail...at the single product level. ‘Firms’ typically do their risk matrix bottom up, from the item level that can hurt them if disrupted. Then top down to make sure they didn’t miss an item.
- The rigour of the 3 filters approach (Concentration from a country, Alternatives beyond the concentration, Our source point as the concentrated point) is valid and credible if it flags up single critical products.
- Example scenario of the diverge effect as you go upstream from one of your suppliers. Toyota sources an item from one of its 2,100 suppliers. (Tier 1)
  - That supplier has 10 suppliers (Tier 2) it uses to make the Toyota completed item.
  - Each of these 10 , have 5 suppliers (Tier 3) from whom they buy all the items they need to make the item that goes on to be in the item that forms part of the Toyota completed item
  - If each of Toyotas 2,100 suppliers follow a similar cascading and divergence then there are 147,000 suppliers in the chain



# Our questions/comments

Some examples;

- Using 'product aggregates' to arrive at 5,950 different imported products will make 'critical' single products invisible.
- Suggest to check the stated Toyota supply chain is 2,100 suppliers (top of page 2). It looks more like their tier 1 , not their total supply chain population.
- Explain what you consider to be a 'product aggregate? (page 4)...and an example of an aggregate.
- The data of 5,950 different imported 'product aggregates' is from 2016/17. More recent data point available?
- Dose the realm of 'well being' need to take account of job losses...if it does...at what level does it become a factor?
- Excluding 'food' as not critical for the reason outlined on top of page 4 is not easily accepted. Suggest explain the logic another way.

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A

## Risk Matrix Contents

Andrea, Greg,  
Neil, Andrew

# Our 4 workstreams to address the Terms of Reference

## Authored by:

- Neil Abel
- Andrea Andrews,
- Andrew McFarlane
- Greg Parkinson



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**In addition, each workstream team have summarised their reactions, impressions, and suggestions that relate specifically to the interim report**

# A. Contents of a Risk Matrix

Risks	Mitigations
<ul style="list-style-type: none"> <li>Ability to construct, maintain and repair critical infrastructure, including marine, pipeline and rail facilities.</li> <li>Few or no suppliers in critical product supply</li> <li>Little or no domestic sources available</li> </ul>	<ul style="list-style-type: none"> <li>Understand alternative capabilities that could be established in-country from adjacent industries.</li> <li>Incentivise lead contractors on major government infrastructure programs to invest in developing local supply chains.</li> <li>Government and Industry provides greater certainty as to possible demand over the longer term to encourage private sector investment.</li> </ul>
<ul style="list-style-type: none"> <li>Ability to locally manufacture product</li> </ul>	<ul style="list-style-type: none"> <li>Greater use of untrained or unproductive resources in society</li> <li>Greater certainty for sub-Contractors to win future work and projects to encourage the engagement of trainees and apprentices</li> </ul>
<ul style="list-style-type: none"> <li>Australian construction projects have relied upon white and blue collar for program delivery, which have been impacted by travel restrictions linked to global disruptions.</li> <li>Insufficient labour to progress infrastructure projects (construction, maintenance or repair)</li> </ul>	<ul style="list-style-type: none"> <li>Understand and agree potential quarantine options for workers prior to travelling to Australia alleviating pressure on both overseas workers and current onshore systems</li> <li>Identify suitable accommodation with appropriate medical governance processes and protocols in Australia for seasonal workers from overseas</li> <li>Investigate / increase incentives to encourage more Australians to support and/or participate in, important seasonal work</li> </ul>
<ul style="list-style-type: none"> <li>Primary Industries and Regions rely on overseas workers to support seasonal work. Travel and quarantine restrictions resulted in risk of work not being able to be undertaken e.g. fruit harvesting which is a billion dollar industry to Australia. There are also knock on effects such as impact on fruit fly should fruit not be harvested.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to investigate domestic manufacturing capability</li> <li>State government to increase collaboration. E.g. State Health department Chief Procurement Officers meet regularly and share information as part of Australia and New Zealand Procurement Round Table</li> <li>Encourage trading and production blocks that involve defence partners or Pacific regional networks</li> </ul>
<ul style="list-style-type: none"> <li>Suppliers may be unable or unwilling to manufacture sufficient quantity and quality of required goods</li> </ul>	<ul style="list-style-type: none"> <li>Identification of alternative inbound airports or seaports</li> <li>Identify alternative export airports or seaports in supporting locations</li> <li>Greater visibility of supplier logistics. Government agencies to strengthen an implement supply chain risk strategies and plan to keep information up to date.</li> </ul>
<ul style="list-style-type: none"> <li>Supplier transport and logistical systems may result in delays in receiving goods</li> </ul>	

# A. Contents of a Risk Matrix con't.

Risks	Mitigations
<ul style="list-style-type: none"> <li>New Australian manufacturers cannot remain viable after the pandemic, losing local support and government purchases.</li> </ul>	<ul style="list-style-type: none"> <li>Australian government to consider how to increase support to Australian businesses to access global markets</li> <li>Educating suppliers on how to access global markets</li> <li>Supporting Australian manufacturing companies and diversifying further into areas requiring same raw materials, equipment or skilled workforce</li> <li>Creating national industry roundtables to share experiences and strengthen end to end supply chain</li> </ul>
<ul style="list-style-type: none"> <li>Lack of risk frameworks and ready-to-go solutions within Government and Firms for continuance of supply, contributes to the potential for further disruption by another intervention event eg pandemic, ecological or terrorism event.</li> </ul>	<ul style="list-style-type: none"> <li>Greater planning and supplier pre-qualification frameworks that identify additional tier 2 and tier 3 supply options to combat risk and other areas such as exposure to Modern Slavery</li> <li>Expectation for procurement supply planning as a feature of a corporate risk framework</li> </ul>
<ul style="list-style-type: none"> <li>Current tender processes do not deeply and robustly explore the resilience of the prospective suppliers, supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>Tender pro-forma and templates already have a set of consistent 'always explore these topics' in their standard wording but we can add a deep dive set of text that covers the suppliers supply chain resilience levels that purport to manage disruption.</li> </ul>
<ul style="list-style-type: none"> <li>Previous risk assessments in both public and private sector may not have explored the supply chain resilience deeply enough, to in turn, discover weak and vulnerable points in the chain.</li> </ul>	<ul style="list-style-type: none"> <li>The technique (and formal training courses) on Risk management processes can be re engineered to include deeper and closer study methods of any supply chain that is involved in any business risk assessment course (not just in a procurement event)</li> </ul>
<ul style="list-style-type: none"> <li>While our Aust quality standards are well advanced and provide some protection for Aust firms when they import from low cost countries (eg China), the same is not true for our Pacific islands neighbours. When they source direct from LCC but on lowest price they pay a heavy price when (for example) thin gauge, cheapest roof cladding from China is quickly destroyed in adverse weather</li> </ul>	<ul style="list-style-type: none"> <li>We could take the position that it's a local problem for the Island leadership to see the risk in this type of sourcing. However as a good neighbour we could offer them our standards to use and our sourcing channels as a support. Our supply chains already in place between Aust and the Island nations would move higher quality and safer products for their local use.</li> </ul>

# Having considered the interim report, our team offer the following comments and feedback:

## Authored by:

- Neil Abel
- Andrea Andrews
- Andrew McFarlane
- Greg Parkinson

### 1. Defining 'Critical'

It is commended that the report focuses on supply chains which are Vulnerable, Essential & Critical, using a data scan to identify these. However, one level of risk that this introduces is that it may overlook economic activity within Australia that is reliant on external supply chains, which although not constituting a "Critical" product or services, may be a major employer and therefore could cause significant social disruption. An example of this would be food production reliant on imported ingredients, or utilising facilities reliant on imported cleaning chemicals for their hygienic operation.

### 2. Reliance on relationships in geo-political times.

The report implies a view that, if Australia is not reliant on the leading/primary source for importing goods, then this means the supply chain is not vulnerable, as alternatives exist. On a cautionary note however, Australia should be aware of our trading position in the world market. If a particular source of supply becomes unobtainable for geo-political reasons, then the rest of the world will move quickly to source from alternative locations as Australia does. Those with stronger political relationships or inter-twined economies may gain access to newly scarce resources, thereby reducing or removing options for Australia to rely on such alternatives.

### 3. Government incentives for firms to invest in local capability.

Supply chain risk management, as the report suggests (Ch. 5), is indeed something that organisations manage constantly, and are often best placed to manage. However, the Australian Government should give consideration to incentivising investment in local critical capability, that provided more sovereign assurance in the event of global disruption. This could include preferencing solutions, particularly for Government infrastructure projects, that will develop new and lasting capability (as opposed to the current regime which merely preferences local content).

B

Future shocks

Phil, Tanya,  
Hannah, Jodie



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### Authored by:

- Phil McDonald
- Tanya Harris
- Hannah Bodily
- Jodie Sherwell

## C. Relationships and the protective (collaborative) network

- Who do we need to co-operate with, locally and globally?
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# B. Future shocks

(The need for...) Vision, mission, objectives, KPI's and framework (an Australian overall picture of our critical supply chains)

-What and how caused and our response (solution)

-What hasn't happened yet, but might

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Future Shocks (key elements)	Examples of Elements	Example of Impacts	Current Ease of Response	Examples of Mitigations
<b>Societal Shocks</b>  (impact estimated timeframe 3 weeks-12 months)	1. Pandemic 2. Epidemic 3. Diseases 4. Labour	1. Inability to respond to medical emergency 2. Inability to protect citizens – loss of trust 3. Implications to productivity and economic environment 4. Citizen mental health impacts 5. Reduced local capability to respond	Medium	1. Selective on-shoring production 2. Uplift medical research capability & funding 3. National co-ordination to aggregate spend/optimize leverage 4. International risk watch-group to anticipate future shocks 5. National warehousing/stockpile capacity increased
<b>Environmental Shocks</b>  (impact estimated timeframe immediate to 3 months)	1. Tsunami 2. Hurricane 3. Earthquake 4. Eruption 5. Flood 6. Drought 7. Fire	1. Imports not arriving 2. Insurance claims/industry stretched 3. International production capabilities reduced/orders not fulfilled 4. Delayed local response due to lack of anticipation and predesigned solutions	Difficult – Community shocks and losses, personal and financial. Recovery delayed	1. Consistent building design to cater for externalities for warehousing 2. Stockpiling 3. Effective national emissions reduction 4. Participation in the green economy 5. Ready-to-go solutions for each of the 7 that are quickly implementable
<b>Geo-Political Shocks</b>  (impact estimated timeframe immediate to years)	1. Government bilateral relations 2. Military conflicts 3. Government coups 4. National protectionism 5. Civil unrest	1. Imports not arriving 2. Trade sanctions imposed 3. Holding back/re-prioritization of supply 4. Local market affected 5. Infrastructure compromised 6. Military action especially if close to Aust waters eg Sth China sea	Difficult – Time delays for solutions that go through political international channels.	1. Co-ordination of national manufacturing plants 2. Diversification of sources 3. Establish shipping routes that bypass Sth China sea
<b>Economic Shocks</b>  (impact estimated timeframe 3 months to 2 years)	1. Liquidity availability 2. Recession /AUD ↓ 3. Financial ratings	1. Bankruptcies of businesses 2. Increased unemployment 3. Price gouging locally 4. Less available capital 5. Balance of trade and deficit impact	Medium	1. Government financial stimulus 2. Punitive measures for over-pricing
<b>Infrastructure</b>  (impact estimated timeframe)	1. Energy disruption 2. Telcos 3. Utilities 4. Fuel 5. Water 6. Food	1. Trade tariffs/sanctions/import blocks due to embedded carbon content (EU/US) 2. Large international imports of feed local chicken industry by northern hemisphere drought 3. National defense satellites/infra compromised (semi-conductor scarcity)	Difficult – finished/refined product local capability minimal	1. Government policy & investment in local refining capability/manufacturing 2. Participation in the green economy 3. 'Insurance spares' held for core infrastructure
<b>Commodity Shocks</b>  (impact estimated timeframe immediate to years)	1. Raw material availability 2. OEMs production 3. Specialised products with limited switching options	1. Industry shutdowns 2. Increased finished product cost 3. Product shortages 4. Utilities eg water, unfit with a missing key chemical	Difficult – finished/refined product local capability minimal	1. Stockpiling 2. Local sources 3. Redundancies 4. Government policy & investment in local refining capability/manufacturing 5. Participation in the green economy

Australia is unique – a large consumer, service-based island nation; heavily reliant on international imports for most commodities and finished products. National & State Gov - increased privatization of national assets can reduce control of critical infrastructure. International and community sentiments increasing on green economy transition plans and climate targets impacting trade relations. The need to drive investment and effective integrated policy frameworks to stimulate local resilience and innovation. Possible event horizon – by 2025 plans are tested & embedded

Key Element	Key Recommendation	“The Why”	Illustrative Examples
Commodity shocks	National leadership & coordination of all actors to optimize volume leverage in times of crisis (higher volume, higher spend – better chance of securing supplies). Ensure diverse stakeholder participation & response readiness	Federal is best placed to provide the coordination function. State insights allow agile/flexible legislative response (if required). Non-Gov actors would be open & receptive to co ordination in this area	<ul style="list-style-type: none"> <li>2020 Bushfire response was inadequate &amp; directly impacted effectiveness of respondents</li> <li>China response to COVID impacts to local production and export squeeze</li> </ul>
Infra-structure	Firms conduct annual/bi-annual self audit reports on supply chain performance, risks & recommendations for Fed and state Gov to build into National Continuity Plans (use same timeframe as Business reporting). Voice of stakeholder & expertise. National Continuity plans integrate all agencies (equal weighting) for holistic & coordinated response. Transparency & consultation with stakeholders vital.	<p>Proactive engagement of stakeholders to co-design solutions. More agile than Govt alone but support welcomed</p> <p>National crisis planning through Continuity plans that are updated regularly.</p>	<ul style="list-style-type: none"> <li>Current National and Regional emergency response structures, capabilities and plans exist. (Lessons learned need to be leveraged for resilience building and preventative strategies.)</li> </ul>
Commodity shocks	Practical and achievable on-shoring national solutions of local production capability targeting critical industries (wider than interim report scope)	All nations will protect national interest first. Firms will seek to protect future self-viability	<ul style="list-style-type: none"> <li>EU – vaccine production</li> <li>China response to COVID impacts to local production and export squeeze</li> </ul>
Environmental shocks	National TCFD alignment & published guidance (which includes specific criteria & reporting on supply chains) to stress test supply chain resilience	Effective risk identification & measurable progress of actions, alignment between public & private sectors	<ul style="list-style-type: none"> <li>EU</li> <li>Industry expertise leveraged and specific response facilitated e.g. Alternative Energy &amp; EVs PPPs, Water Association of Australia (WSAA)</li> </ul>
Societal shocks	National workforce planning & skills availability based on risk projections to mitigate future shocks, including green economy transition	Future proofing labour market to compete effectively at global level, increase productivity	<ul style="list-style-type: none"> <li>NZ MBiE</li> </ul>
Geo-political shocks	Readily accessible information on bilateral trade agreements with key trading partners to shift business decisions and capital to those partners to increase the degree of reciprocity in times of need	Coordinated national approach to use billion-dollar import spend as leverage	<ul style="list-style-type: none"> <li>Aust/USA</li> </ul>
Geo-political shocks	50 year urban plans cater for population growth, self-sufficiency with food, energy, manufacturing, biodiversity protection and expansion	Interconnectedness of different Gov agencies to ensure national resilience & self-sufficiency	<ul style="list-style-type: none"> <li>EU/China</li> </ul>
Infra-structure	Policy framework & investment to stimulate local industry & innovation	Reduce reliance on international imports, increase national economy, increase international reliance on Australian products/innovation as leverage	<ul style="list-style-type: none"> <li>National Food Waste Strategy under development</li> <li>State based approaches to renewable energy</li> </ul>



C

## Relationships

Rachel, Kendall,  
Anita, René

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## C. Relationships and the protective (collaborative) network

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### Authored by:

- Rachel Hanigan
- Kendall Richardson
- René Kling
- Anita Morris

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# C. Relationships & the protective (collaborative) network

## Relationships we need – local & global

Relationships	Why	Example
Emergency procurement experts	Capability to respond to emergency situations such as COVID, Military conflict, bushfires & floods. Proactively secure what is deemed critical supplies through a tested, resilient supply chain	NSW Police handled responsibility for sourcing critical COVID supplies for NSW as a collaborative buying network triaging and prioritising supplies for all state agencies. SA Heath Procurement assumed responsibility for PPE supply including logistics for all SA Govt agencies including police and Education.
Strategic Suppliers	Contracted suppliers to advise and understand impacts on their ability to supply	Goods to be supplied may be delayed or unavailable due to unforeseen impacts on supply such as dramatic increase in demand. Suppliers can provide industry insights and support our efforts in alternate sourcing
Trusted global sources of info such as UN, WHO	To determine how government needs to respond can smooth out supply impacts in their local markets and understand global priorities on critical items	During COVID Dept of Education secured significant quantities of toilet paper when schools, based on health advice, were closed. This was redistributed to other agencies in need.  More formalised National and regional crisis management guidelines and roles e.g. Dept of Health and cross-agency COVID PPE usage and demand reporting, regional coordination and prioritisation of procurement, imports and allocations
Known industry experts and industry bodies	To ensure appropriate certifications and compliance is met for critical products. Provide valuable and timely insights on potential supply impacts and possible mitigations.	ISO or CSIRO certifications are required but may be unknown to the buyer. During COVID masks were purchased which were not compliant with local standards. Our own governing body CIPS provide us a collaborative forum
Relationships enabled in Contracts – piggyback/benefits clauses	Ability to access contracts through relationships both state and federally to allow agencies to procure quickly whilst still achieving value for money with public funds.	Piggy back clauses are available in many NSW state contracts and allow alternative agencies to accept the suppliers contract terms and proceed with their sourcing, saving valuable time and effort.
Relationships enabled in Contracts – emergency procurement provisions	Ability to respond to emergency situations with agility and pre determined conditions. This is both in Govt Procurement regulations and in supplier contracts	An emergency is declared these provisions allow Govt agencies to operate outside standard frameworks to respond to the emergency. This could be reflected in supplier contracts to pre determine how the supply arrangements and processes would change under these conditions

## C. Relationships & the protective (collaborative) network con't.

Relationships in Place	
Relationships currently in place	Are they effective?
State Government Chief Procurement Officer networks at NSW state / cluster level , all agencies represented	These are effective collaborative networks of CPO's to regularly come together to support the agency clusters. It is a primary channel of news feed, information from the state procurement boards on all matters of government procurement
Engagement with key national industry bodies like AFAC (Australian Fire and Emergency Service Authorities Council)	This is a strong industry body that supports and fosters collaborative procurement and supply contract benefits for members nationally.
State collaboration for national resource sharing arrangements for emergencies	Highly effective as we see multi agency support from both state, federal and international when called upon to support the lead agency in need. Recent examples include the 2021 floods in NSW and 2019/2021 bushfires in NSW.
Legislative & Statutory Regulations enable contractual relationships to be formed quickly to then be agile in responding to emergency situations	They are effective and critical for agencies to be effective in supplying critical goods and supplies, in shorter time frames, for all agencies.

# C. Relationships & the protective (collaborative) network con't.

## New relationships we need

Relationship	Why	Example
Technology providers	Data insights to support buying decisions to secure supply  Social media trends and emerging topics	Information on what's trending in the active markets. "chatter" , even threats, relating to supply chain, dramatic increases in searches.
Intelligence agencies	Data mining to understand what's trading locally and internationally and likely impacts on our ability to secure goods and commercial terms.	Movement of money , movement of goods. If shipping from a particular port has suddenly increased cost of freight will be impacted. Emerging civil unrest has similar impact.
Relationships enabled in Supply Contracts	Ability to access contracts through relationships both state and federally to allow agencies to procure quickly whilst still achieving value for money with public funds.	Enabling govt to be agile in sourcing. A mantra like...'Working as One'
Willingness for Govt to collaborate to resolve market level issues.	Access to information quickly will reduce the risk on the supply chain being impacted. Govt clearing of the usual blockages, barriers, procedural steps (within reason) changes the cycle time for emergency 'clearance'	Allowing retail competitors to talk to each other through covid to find a balance of stock and inventory of critical consumer products.
The relevant and leading governing bodies that specialise in procurement and supply chains	A co ordination committee of the 4 bodies would table common interest SCM issues and collaborate with their wider and deeper knowledge to solve them locally and globally	CIPS UK with ISM of USA
Government advisory bodies representing essential and critical industries collaboration	Provides direct and specialised knowledge and solutions for implementation and leverage across multiple entities	Representatives essential and critical industry bodies e.g. Water Association of Australia (WSAA)



# D

(for Australia's supply chains)

Establish a Vision, mission,  
objectives and KPI's  
And... the unknown,  
unknowns

Andrew, Kylie,  
Ben.

# Our 4 workstreams to address the Terms of Reference

## A. Contents of a Risk Matrix

- Nature of the risks, the source of those risks and the consequences
- Use a simple matrix or not

## B. Future shocks

- What and how caused and our response (solution)
- What hasn't happened yet, but might
- What has happened that was minor...but could have been catastrophic?

## C. Relationships and the protective (collaborative) network

- Who do we need to co-operate with, locally and globally?
- What is in place already?
- What new relationships are needed, locally or globally?



## D. Vision, mission, objectives, KPI's and framework (an Australian overall picture)

- Robust supply chains for Australia (future proofing)
- Protecting us from what we can't see coming (like 'B' above)
- Consider use of the known/unknowns and unknown/unknowns matrix

### Authored by:

- Andrew Brightmore
- Kylie Burke
- Ben Ludik

**In addition, each workstream team have summarised their reactions, impressions, and suggestions that relate specifically to the interim report**

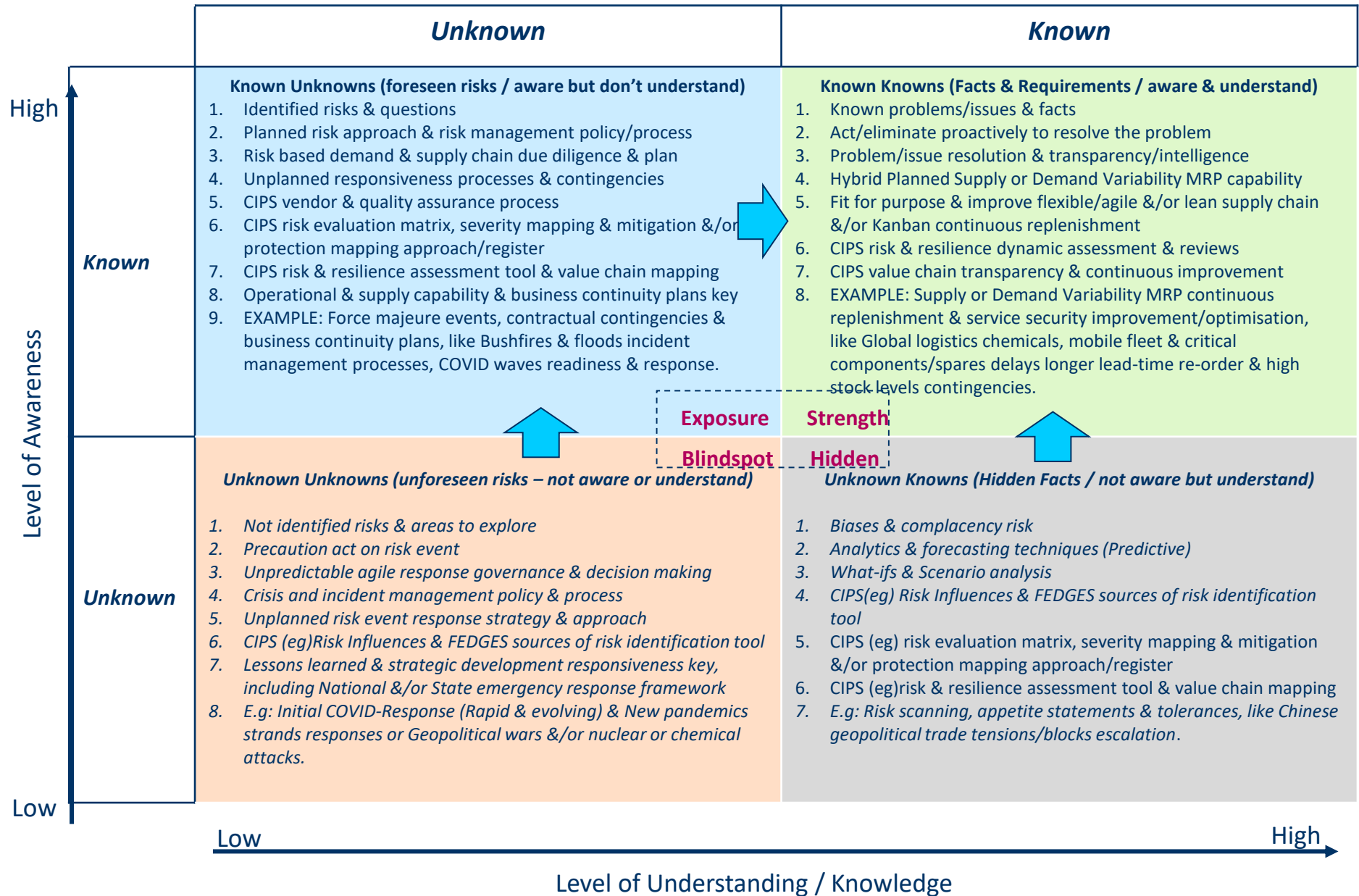
# D. Vision, mission, objectives, KPI's and framework

(Seek an Australian overall picture in respect of our supply chains)

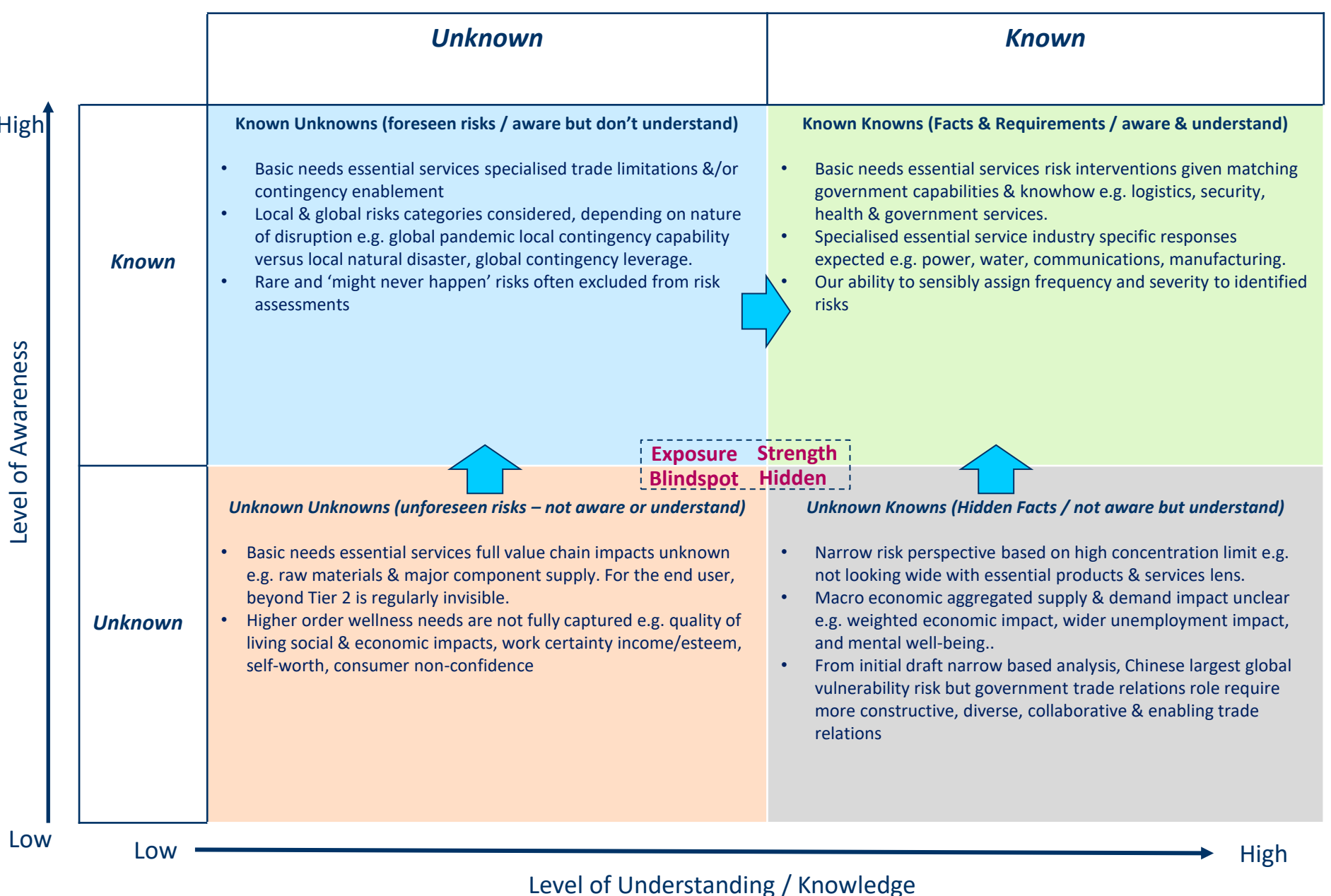
**Lessons learned: What were the key impact areas we experienced from Covid**

Topic	Impact element	Example
<b>Labour</b>	<ol style="list-style-type: none"> <li>1. Availability of labour (resident vs. temporary) – impact on critical services skills shortages (fruit pickers, chefs, haulage drivers)</li> <li>2. Visa Management (uncertainty) – (talent leaves / mental wellbeing)</li> <li>3. Shifting labour to demand areas with relocate incentives</li> <li>4. Mental Health and access to well-being services (cost, availability, staffing) capacity)</li> <li>5. Connectivity infrastructure (social / economic mix)</li> <li>6. BCP &amp; WFH agility &amp; flexibility risk balance &amp; capacity develop</li> </ol>	<ol style="list-style-type: none"> <li>1. Sector impacts through closure of labour borders (agriculture, chefs, FIFO, ) – pace to create controls to enable specific skills flow that cannot be locally redeployed to cover capacity (Food demand up – chef demand up )</li> <li>2. Employees and families in visa processes left uncertain on status through crisis period – very disruptive (incl. mental health)</li> <li>3. Jobkeeper excellent scheme but created “stay at home” economy versus “additional incentive” to relocate to demand – i.e. fruit picking</li> <li>4. Business / trade / crisis mgmt. relied on video-calling – Internet becomes an emergency service</li> <li>5. How do we change approach and scale of BCP scenario testing based on this experience</li> </ol>
<b>Logistics</b>	<ol style="list-style-type: none"> <li>1. Interstate confidence in transport network (incl capacity / employment)</li> <li>2. Federal logistics access (post office, defence, ) – incl. airfreight for private sector</li> <li>3. Logistics &amp; freight contingency planning &amp; different modes leverage</li> <li>4. Price gouging by air freighters</li> </ol>	<ol style="list-style-type: none"> <li>1. Border closures, fires and floods – how do we keep high dependency on road transport moving. Australia is a east to west shipment economy - high risk</li> <li>2. Protocols to utilise additional resources to cope with demand / risk</li> <li>3. Rail transport underutilised and not commercially viable in many areas</li> <li>4. Chilled food storage capacity – in total and in regional areas (key crisis issues in not needing to ship food into disaster areas versus already located there – like medical supplies)</li> </ol>
<b>Importation</b>	<ol style="list-style-type: none"> <li>1. Port access, labour / capacity and commercial (costs) assurance</li> <li>2. Order lead times extend, stock contingencies &amp; substitutes deploy</li> </ol>	<ol style="list-style-type: none"> <li>1. Water treatment chemicals, PPE, mobile fleet &amp; critical/essential infrastructure components</li> <li>2. Medical stockpiling is priority – Consider food, capital, consumables, (Federal stockpiling of PPE for healthcare created additional shortage for food industry)</li> </ol>
<b>On-shore Manufacturing</b>	<ol style="list-style-type: none"> <li>1. Reduce dependency on imports through regional incentives (look at UK Free Port model?)</li> <li>2. Capacity assurance</li> <li>3. Agriculture labour continuity</li> <li>4. Raw materials &amp; components dependency</li> </ol>	<ol style="list-style-type: none"> <li>1. High dependency on imported PPE and safety. Local manufacture not cost feasible with AU labour rates / business tax rates</li> <li>2. Local chemical production raw materials &amp; infra-structure components local production/assembly off-shore dependencies e.g. valves, meters, pipes &amp; fittings.</li> </ol>
<b>Standards &amp; Governance</b>	<ol style="list-style-type: none"> <li>1. Food safety (and other) risk management and regulatory safeguards for new entrants / opportunists</li> <li>2. High quality &amp; safety design standards reduced flexibility</li> </ol>	<ol style="list-style-type: none"> <li>1. Active governance mechanisms to control / protect risk on “cheap imports” or local products that are misleading / confusing on standards (e.g. PPE) – consumer confidence and “level playing field” for OEM's</li> <li>2. High water quality, safety and design standards and specifications</li> </ol>
<b>Financial</b>	<ol style="list-style-type: none"> <li>1. Payment term (cash flow) consistency</li> <li>2. Early payment flexibility for overall lower cost</li> </ol>	<ol style="list-style-type: none"> <li>1. SME payment code process in place but “level playing field” on industry (SME) protections to support cash flow and mid term viability (some negative opportunistic behaviour) – legislative controls?</li> <li>2. Public services early payment support mechanisms &amp; low cost of capital</li> </ol>
<b>Supply Market Continuity</b>	<ol style="list-style-type: none"> <li>1. SME &amp; Indigenous owned business protection (more than just labour)</li> <li>2. Essential &amp; critical services &amp; supply security &amp; prioritisation</li> </ol>	<ol style="list-style-type: none"> <li>1. Protection of highly dependant SME economy – often first to suffer when demand changes – little time / reserves not available to react and pivot</li> </ol>
<b>Regional Australia</b>	<ol style="list-style-type: none"> <li>1. Supply to community / socio-economic distribution</li> </ol>	<ol style="list-style-type: none"> <li>1. Regional &amp; remote local services capacity leverage &amp; specialist support e.g. COVID-clean</li> </ol>

# Translating our procurement profession experience into the Known/Unknown model)



# Translating our procurement profession experience into the Known/Unknown model con't.



# D. Vision, mission, objectives, KPI's and framework

(Seek an Australian overall picture in respect of our supply chains)

Key Element	Key Recommendation	Illustrative Examples	Other
Vision	<ul style="list-style-type: none"><li>• Have it based on citizen needs and Govt duty of care to population health and wellbeing</li><li>• Broad in scope to enable enterprise and industry specific response</li><li>• Creates clear whole of Govt / whole of industry commitment – binds the effort V's silo separate interests. Show Federal and state unified collaboration</li></ul>	<ul style="list-style-type: none"><li>• Not aware of a truly all encompassing Vision for a countries Vulnerable supply chains.</li></ul>	<ul style="list-style-type: none"><li>• Clearly defined supply chain vulnerabilities, risk/crisis based approach &amp; emergency response plans, priorities, contingencies &amp; roles.</li></ul>
Mission	<ul style="list-style-type: none"><li>• Have it illustrate an appropriate centralised and decentralised response delineation with governance, comms and co-ordination as a standardised template for quick activation</li><li>• Show how it will keep social, economic, health and production capacity protected</li><li>• Protect most vulnerable – focus on education and healthcare BCP to dilute long term vulnerable / generational economic impact</li></ul>	<ul style="list-style-type: none"><li>• Not aware of a truly all encompassing Mission for a countries Vulnerable supply chains.</li></ul>	<ul style="list-style-type: none"><li>• The Mission will show we will ensure the right essential services &amp; products at right time &amp; place at the right quality, to mitigate planned risks &amp; respond to unplanned events or shocks.</li></ul>
Core Objectives	<ul style="list-style-type: none"><li>• Understand, identify and protect core essential services (utilities, internet, banking, food, Comms, Health)</li><li>• Truly unified federal and state approach</li><li>• Protection / accumulation of imported skills, product and service priorities</li><li>• Continuity of supply to us to protect our capacity to produce and export essential needs to other economies</li><li>• Protect free movement of trade and labour</li><li>• Communicate to create confidence and security</li></ul>	<ul style="list-style-type: none"><li>• Potential to use Maslow's hierarchy (perhaps inversed) as a model for services / capacity demand / supply planning</li></ul>	<ul style="list-style-type: none"><li>• Prioritised risk categories, strategies &amp; transparency determined from a wide essential services &amp; products catchment &amp; filtered based on comprehensive data &amp; expert validated criticality, frequency &amp; severity impact assessment.</li></ul>

See over next page.

# D. Vision, mission, objectives, KPI's and framework

(Seek an Australian overall picture in respect of our supply chains) con't.

Key Element	Key Recommendation	Illustrative Examples	Other
Core KPI's & measures of Success	<ul style="list-style-type: none"> <li>Identification of multi-industry key import critical needs and create local incentive to manufacture / supply</li> <li>Infrastructure capacity up-time (multiple forms) to ensure trade movement</li> <li>Effective and available capacity in critical services for both own use (over prolonged period) whilst ensuring export potential to local developing economies</li> </ul>	<ul style="list-style-type: none"> <li>Define by federal, state and key industry – through advisory body</li> <li>Private sector has key role to play in BCP and activation to support federal / state Govt</li> <li>Utilities, transport, manufacturing, agriculture, media. Communications and credit are key</li> </ul>	<ul style="list-style-type: none"> <li>Essential &amp; critical risks &amp; categories identified &amp; severity levels determined. All tracked.</li> <li>National, market &amp; critical industry level risk mitigation &amp; plans</li> <li>Transparency in risk scanning &amp; defined levels of priority &amp; crisis escalation.</li> </ul>
Framework Structure	<ul style="list-style-type: none"> <li>Required across key pillars reflecting whole of federal and whole of industry response focus (co-ordinated and approved)</li> <li>Industrial BCP planning with effective investment incentives with corresponding capacity creation metrics (over capacity targets)</li> <li>Refocus on labour skills shortages for refined investment in education and immigration strategy</li> </ul>	<ul style="list-style-type: none"> <li>Industry specific matrix under core framework – industry verticals led by private / public sector appointed bodies</li> <li>Technology infrastructure is key (every state)</li> <li>Industry/market level bodies, forums and experts leverage, as well as cross industry functional and professional bodies and networks e.g. AMA, CIPS, CPA, APEA, IOD</li> </ul>	<ul style="list-style-type: none"> <li>Risk scan/ID (scan wide &amp; filter narrow)</li> <li>Risk categorise, frequency &amp; severity determined</li> <li>Risk mitigation plans &amp;/or capability development plans &amp; roles defined</li> <li>Track, monitor &amp; continuously improve. (with proof)</li> </ul>
Other	<ul style="list-style-type: none"> <li>"Middle" Australia unused capacity – east and west coast capability needs complementing with NT / SA equal maturity to protect local economies if state border lockdowns restrict freedom of trade / labour movement</li> </ul>	<ul style="list-style-type: none"> <li>Free Trade Zones / migration focus / education and skills base / key export zones</li> </ul>	<ul style="list-style-type: none"> <li>Industry &amp; state specific</li> </ul>

# Having considered the interim report, our team offer the following comments and feedback:

## Authored by:

- Andrew Brightmore
- Kylie Burke
- Ben Ludik

The purpose and intent of the study and proposed framework to help further the Australia's identification of critical vulnerability and preparedness to deal with possible global supply chain disruption is meaningful.

The projected notion of shorter supply chains, less fragmentation and more regional capability are worthwhile exploring in terms of risk mitigation options, enhancement opportunities and clearer roles.

Overall, the interim report provides a very well-constructed and comprehensive starting point, where, with closing a few minor gaps highlighted and refinements suggested in this submission, will result in an improved and more robust framework deliverable.



# Having considered the interim report, our team offer the following comments and feedback con't:

## Risk Identification

1. It needs to be noted that some **supply chain sources of risk and disruptions** e.g. storms, floods, fires, droughts, critical facilities damage or failures, can involve local sources of disruption, as well as supply chain competitive economies of scale and risk mitigation capability leverage value from dynamic and resilient global supply networks and risk spread options.

A recommendation would be to provide a holistic context of risk exposure by identify sources and categories of risk across a continuum of positioning across local versus global risk management strategic response position.

Scenario analysis parameters and what-if sensitivities modelling in context of defined risk appetite or tolerances can also be considered e.g. Best-case vs worst case vs most likely, ranges.
2. Commentary is made regarding firm-level **risk-based exposure identification and management** based on risk appetite consideration, which is accurate.

The scope and approach of this study have been focused on market-level disruption exposure, but market level risk appetite and impact tolerance are not clear from a business, market, economic and wellness impact perspective e.g. the market level micro-economic scale or nature of disruption as well as macro-economic impact on aggregated supply and demand, unemployment and indirect service and supply industries potential related impacts.

The report's market level-supply chain referenced is more reflective of a connected generic manufacturing supply chain, where for the main essential services and products industries identified for 'basic needs' and assets or services based business the customer supply chain tier 1 suppliers will be agents, distributors or manufacturers.

As a result there are gaps related to the identified main inputs to the supply chain related to essential services, assets, infrastructure and essential service e.g. direct consumables, equipment, critical spares and components.

It is important to more specifically, in addition, consider intermediary, consumption and utilisation-based supply chains related to and enabling essential products, services and assets procured and maintained as critical dependencies for enabling the provision of end-user product or services e.g. power, water, communications.

# Having considered the interim report, our team offer the following comments and feedback con't:

## Risk Management

- From a **risk mitigation and strategy** perspective it is suggested in the report the aim is to reduce the probability of an event happening, which might be relevant related to internal planned and controlled risks e.g. assets design, manufacturing process, or product quality assurance.

Perhaps less so with respect to external uncontrollable events e.g. natural disasters, unknown or new global pandemics, global economic crisis, geopolitical tensions, military events.

The report suggest that related to the effects of an event, that cost is the main impact.

It is correct that cost inevitably always will be impacted to some extent, the effect or impact could also relate to safety, quality, environment and/or sustainability impacts.

This suggests a more holistic measurement model should be considered. In this regard a Recommendation is to potentially follow a globally recognised standard like ISO:AS20400 Sustainable Procurement and related UN Global Reporting Standard.
- Regarding **risk management and the role of government** relating to supply chain disruption within the identified essential products and services categories.

Stating firms and government taking primary responsibility for the direct supply chains that they are accountable for, and incentives to manage, is correct.

There could be further additions to the definition of 'incentives'.

Those parties that have primary control and expertise, capability related to the risk event and mitigators need to take primary accountability in the first instance e.g. planned and known risks.

Major unplanned impacts/shocks and/or of longer durations challenges market-level risk appetite/tolerances then needs to be escalated to involve a government or state emergency response and involvement in areas of shared or leverage expertise and capability e.g. health, logistics and security, versus areas of specialised industry expertise e.g. chemical manufacturing and transport.

Government trade or other legislative or standards barriers could be temporarily adjusted/relaxed (as highlighted already in the report) or involve negotiations with counterparty sourcing countries or states or ideally trigger pre-agreed collaborative and joint contingency plans. For example, if Chinese supplies of vulnerable import products are at risk or disrupted or limited alternatives options exist to meet demand, then collaborative constructive trade arrangements and relationships needs to be encouraged, established and facilitated to enable risk mitigation, contingency management and/or future enhanced resilience.

# Having considered the interim report, our team offer the following comments and feedback con't:

## Proposed Framework

1. The **'data-with-experts' proposed framework** in principle is sound and the stated intent of casting a starting wider net is good, but the fundamental gap in the current proposed framework starting and risk of not achieving the stated intent of being wider from the outset, are due to a combination of starting with vulnerability as the first consideration and applying a very narrow 80% supply concentration filter.  
This then result in a very narrow result with some dilution or 'false positives' of non-essential products and services included, as well as not all high risk vulnerability essential and critical products and services being highlighted e.g. Essential equipment parts and components, emergency services, pharmaceutical, food stores and markets, wholesale and hardware, fuel stations, vehicle services, animal care, waste services, essential high movement appliances, tools, products and consumables for sustaining quality of life and supporting maintenance servicing.  
  
An alternative to resolve this filtering sequencing gap would be to more accurately start with all essential products and services as the first filter, picking-up a more holistic 'wellness' risk-based business/market impact perspective (i.e. \$600Bn or 56% of Goods & Services 2016-17 report), hence removing all non-essential data upfront.  
Then secondly filter(s) two categories of 'Wellness' and/or 'Basic needs' essential services, products and industries categories.  
Then thirdly add list(s) by impact criticality criteria supply chain risks and related resilience/vulnerability exposure filter(s).  
  
The need for a clearer **essential products and services definition** appears necessary, where there appears to be different and non-consistent definition across states and sectors.  
A more holistic 'Wellness' (e.g. Maslow's needs hierarchy) scope typically covers a much wider and complex range of direct and indirect products, services and industries. These include psychological and social sustaining quality of life and employment well-being, compared to 'Basic Needs' which typically and more specifically focuses on Physiological, Health and Security needs.  
The results of the current report due to the filtering framework related to 'essential services industries' appear to produce more accurately a 'basics needs' industries vulnerability result rather than a holistic 'wellness' products and services result.  
The recommendation would be to either cast the filter results net wider for a more accurate 'wellness' need determination or for the avoidance of doubt, clearly define the intent and scope being 'basic needs' products, services and industries, as the main framework analysis and framework focus.

# Having considered the interim report, our team offer the following comments and feedback con't:

## Vulnerability

1. On improving **supply chain vulnerability** filters, which is currently reasonable well defined and looks like a sound process and related criteria, by correcting the recommended application of this filter to be at a later stage together with lowering the first concentration filter to >50% from the too high and narrow >80%, as a starting filter, it will ensure a more accurate vulnerability exposure.  
For example for the Water Treatment vulnerability case presented in annexure B, the true extend of vulnerability at a usage sub-category level and switching risk will be more apparent, accurate and meaningful if >50% is used, than the narrow and somewhat limited perspective of potential risk of current summary by applying the current high filter limit of >80%.  
  
On vulnerability of critical market impact/severity supply chains, in addition to the ability, capability and capacity to substitute, the final risk rating consideration should also factor and consider minimum viable or risk tolerance for an alternative standard or work around that can be considered and potential temporary relaxing or **flexibility of industry or regulated quality standards** (as also touched-on in the interim report).  
  
The recommended added component would be to be able to determine existing **business and market continuity readiness and response resilience** and related lead-times and contingency capacity for switching to viable and tested alternatives e.g. days fuel, water supply cover, chemical supply switching turn-around time and cover.

# Having considered the interim report, our team offer the following comments and feedback con't:

## Network and data

1. Following refreshing the vulnerability filtering assessment recommendation covering a broader base essential and critical products and services data and criticality assessment, **industry and government joint expert task teams** e.g. PPPs, WSAA, CIPS, etc. (i.e. current leverage or new, as required) can be an asset.  
These bodies can be leveraged or established to provide specific market level extreme and high risk areas reviews, to define and develop mitigation and resilience building actions, and coordination plans.
2. The obvious gap of having a 3 year lag of **trade data**, where for example latest COVID impacted trade scenario and the ability to respond more-in-time as new shocks and trade impacts change supply and demand.  
Having a more recent data input to provide a more up to date perspective of recent period changes in context of the longer term moving average trend, will be useful to ensure recency and current time relevance. Even if the data does not show wide variances across time, the use of more recent data adds credibility to the conclusions and decisions made.
3. On **trade data classifications** and specific reference to patented products, similar to proprietary equipment (that should be added) and related know-how, spares and maintenance dependencies.  
An added layer of data needs to be sourced to bring this layer in, which in this type of supply chain implies a bottleneck or sole supply chain switching limitation and liability.  
This forms a high risk essential service assets and equipment sub-category.  
On and off-shore manufacturing and assembly-based OEM expertise, Australian standards added local content and capital intensive locked-in investment and assets should have an end-to-end value chain based global supply network mapping and risk assessment mitigation strategies and contingencies.  
Consider this at company, industry and market level, leveraging relevant industry bodies and expertise, e.g. Monopoly and Oligopoly based markets.



# Brief case study: Critical supply chain breakdown

## 1. Local single source water treatment chemical by-product production failure

### **What was the problem that emerged....and the cause of it.**

Local single source water treatment chemical by-product production failure, caused by a planned shutdown re-start of the main production plant that resulted in a failure of the dated by-product conversion plant.

### **What were the consequences? (or would have been, if it wasn't managed). How bad could it have been?**

The impact of stock out will result in the inability to treat hard water sources e.g., desalination, within health department quality standards and specifications, and in the long run also impact major infrastructure damage.

### **What happened...What made it not happen (what made it manageable).**

Off-shore contingency iso containers and product had to be triggered (longer offshore lead-time, whilst local contingency/safety stock gets drawn down), to then provide added immediate stock-replenishment on delivery. Containers could be immediately put on the interstate rail shorter cycle return to trigger the alternative contingency supply chain. Container compliance import clearance delays occurred which resulted in coming within 2 days of stocking out. Given the extent and complexity of the major repairs, the alternative supply chain had to run for 5-6 months before the local production plant could become available again. It obviously had a financial impact, but quality water services delivery was sustained. The event triggered immediate local safety/contingency stock enhancement in partnership with the incumbent service provider. Future options reviews regarding alternative technologies and circular self generation options to spread risk and add contingency resilience were also triggered.

# Brief case study: Critical supply chain breakdown

## 2. Global critical water treatment chemical intermediate & final product supply chain delivery cycle times impact

### **What was the problem that emerged....and the cause of it.**

A critical water industry treatment chemical raw material import was an input to local production for part supply and finished import for excess local production capacity demand. Severely impacted by the post COVID global shipping capacity, ports clearance issues and containers bottleneck delays, by aprox 1 month.

### **What were the consequences? (or would have been, if it wasn't managed). How bad could it have been?**

The impact of stock out will result in the inability to treat water and waste-water within health department quality standards and specifications, and in the long run also impact major infrastructure damage.

### **What happened...What made it not happen (what made it manageable).**

The incumbent strategic chemical supplier's multi-country raw materials and production capability as well as contingent capacity, together with enough local safety stock capacity to transition to alternatives supply channels. Added lead-time ordering and stock planning resulted in enhanced supply chain risk spread and contingency options.



# Brief case study: Critical supply chain breakdown

## 3. Local industry standard customized assembled essential component for water supply customer services impacted by the global COVID mold casting and supply chain impact of the proprietary manufacturer in China

### **What was the problem that emerged....and the cause of it.**

Local industry standard customized assembled essential component for water supply customer services impacted by the global COVID mold casting and supply chain impact of the proprietary manufacturer in China.

### **What were the consequences? (or would have been, if it wasn't managed). How bad could it have been?**

The single source off-shore bottleneck supply chain disruption impacted availability of product and quality of customer accurate measurement and billing services.

### **What happened...What made it not happen (what made it manageable).**

Work arounds and substitute interim products were deployed until the added stock capacity have been restored and the new contingency resilience capacity have been established to cater for the added lead-time variable impacts. Further alternative product design standards and alternative/substitute products testing undertaken, and innovation processes have been initiated as a result, to provide enhanced flexibility and resilience in future.

# Brief case study: Critical supply chain breakdown

## 4. Global COVID impacted OEM essential vehicle and mobile fleet supply chain disruption and lead time delays

### **What was the problem that emerged....and the cause of it.**

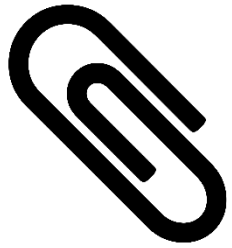
Global COVID impacted OEM essential vehicle and mobile fleet supply chain disruption and lead time delays.

### **What were the consequences? (or would have been, if it wasn't managed). How bad could it have been?**

The global impact of essential vehicle and mobile fleet manufacturing, supply chain delays and continued uncertainties is currently adding around 2-6+ months delays (asset specific) on replacement schedules of essential service vehicles. Resulting in having to push current fleet life for longer and risk potential failure and safety risks.

### **What happened...What made it not happen (what made it manageable).**

This is still playing out given the global COVID waves are still active and impacting many parts of the world and related connected supply chains. Where longer order lead times are being planned for and end-life refurbishment and servicing work arounds are deployed to transition to the longer lead-time order cycle. For new business and growth demand an assets risk-based approach are also followed via prioritization and allocation of existing fleet and in areas of less customized and specialized fleet, interim rental options are also deployed to bridge until new fleet gets delivered.



*the*  
**Appendix**

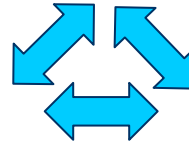
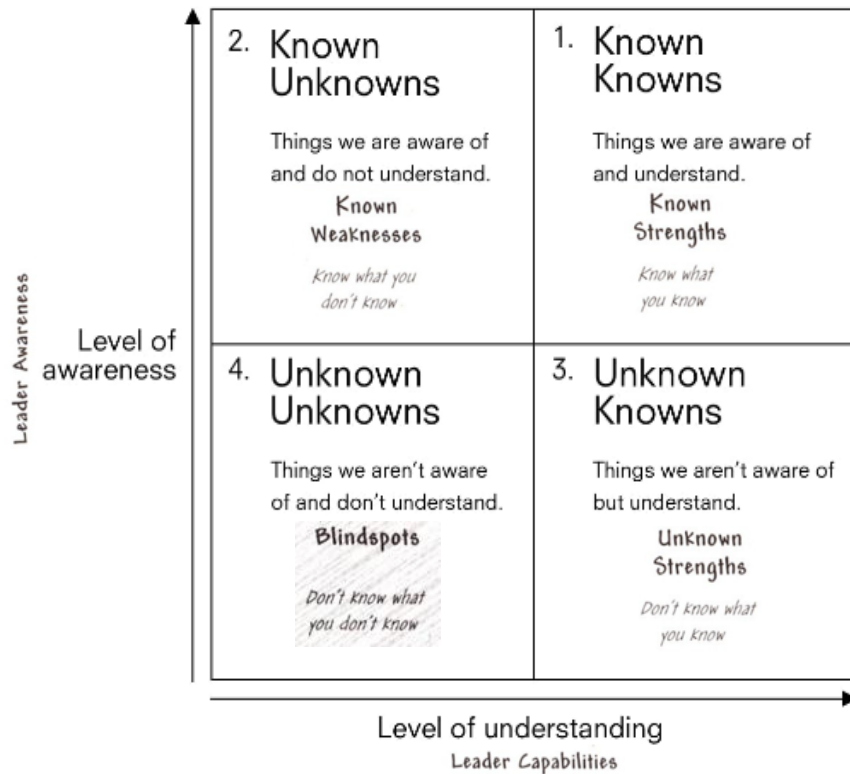



***Background information that we considered  
useful for you to have sight of***

## #D

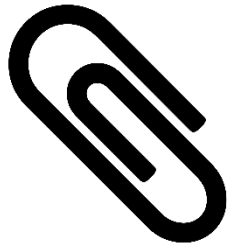
We used the known/unknowns matrix to gather our thoughts and suggestions (background to it is below)

- Rumfeld's knowns/unknowns (2012) / Shaw Leadership strengths/blindspots (2014)
- Christopher's Supply & Demand Lean/Agile Supply Chain Strategies (2016)



Degree of Knowledge	Approach	PM Process
unknown Unknowns (not identified risks)	<b>Precautions</b> act on risk event   <b>Act, Eliminate</b> act proactively, eliminate the problem	<b>Crisis Management</b>
known Unknowns (identified risks)		<b>Risk Management</b>
known Knowns (actual problems)		<b>Problem Management</b>

Supply characteristics	Long lead times	<b>Lean</b> Plan and optimise	<b>Hybrid</b> De-couple through postponement
	Short lead times	<b>Kanban</b> Continuous replenishment	<b>Agile</b> Quick response
		Predictable	Unpredictable
		Demand characteristics	



## *the* **Appendix**



The CIPS professional procurement and supply chain community use a suite of tools to perform our function. This suite covers all aspects of our work.

These slides following are an extract to give you a sense of the tools used in our profession to address the topics that feature in this study.

- Vision, Mission
- Risk and Resilience Framework Back-up
- Objective setting and KPI's
- Problem solving
- Supply chain mapping

# Risk, Quality Assurance and Resilience Framework:

## ***CIPS Risk and Vendor Quality Assurance Process i.e.:***

1.	Due diligence (Business/Supply strategy/capability, impacts/priorities and risk/tolerance)
2.	Categorise suppliers (Risk based approach)
3.	Fit for purpose and flexible approach (e.g. Knowns/Lean vs Unknown/Agile)
4.	Collaborative & secure supply chain / suppliers model (e.g. Integrated & connected network)

## ***CIPS Risk and Resilience Framework, i.e.:***

1.	Risk Identification Wall
2.	Potential Risks (FEDGES)
3.	Risk Evaluation Matrix
4.	Severity Flow Chart & Risk Register
5.	Risk Mitigation Mapping (MITIGATE) & Risk Protection
6.	Risk & Resilience Model / Assessment
7.	Supply Chain Mapping and Visibility (SCV) / Transparency

Your Govt procurement colleagues would be familiar with these tools and those similar to them

CIPS Tools

## Risk Identification Wall



(SOURCE: JARVIS-GROVE, 2020)

### CIPS Procurement Content

Members Only

- › CIPS Risk and Resilience Assessment Tool
- › Possible signs of supplier distress
- › Potential Risks
- › Risk Evaluation Matrix
- › Risk Identification Wall
- › Risk Mitigation Mapping
- › Risk Protection
- › Risk Register Template
- › Risk Severity Flow Chart
- › Risk Tools Guidance Notes
- › Supply Chain Mapping
- › Supply Chain Visibility

- › Mitigating supply chain risk
- › CIPS Global supply chain and low cost country sourcing guidance
- › CIPS Global supply chains tools

CIPS Tools

## Risk Protection



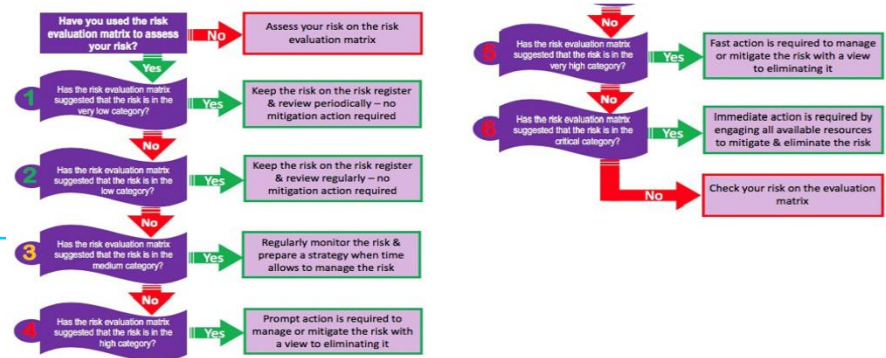
(SOURCE: JARVIS-GROVE, 2020)

CIPS Tools

## Risk Mitigation Mapping

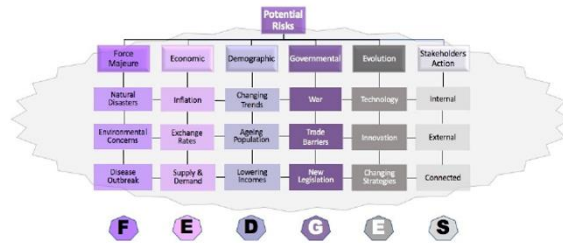


## Risk Severity Flow Chart



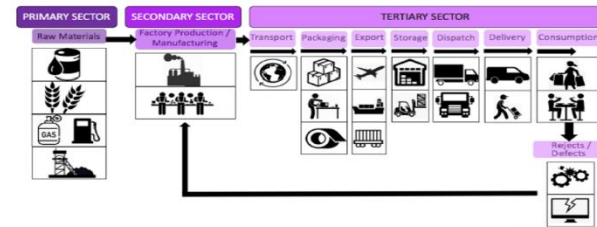


## Potential Risks



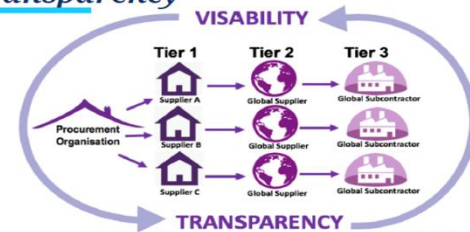
(SOURCE: JARVIS-GROVE,2020)

## Supply Chain Mapping



CIPS Tools

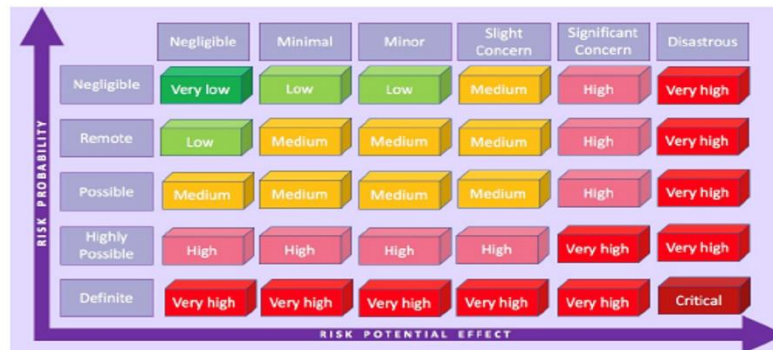
## Supply Chain Visibility (SCV) / Transparency



(SOURCE: JARVIS-GROVE,2020)

CIPS Tools

## Risk Evaluation Matrix



(SOURCE: JARVIS-GROVE,2020)



For further  
information

**Submission from**



**28.4.21**

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Services**