Building Supply Chain Resilience in Australia Against Global Disruptions.

Abstract

Australia depends on long international supply routes for fuel, medicines, manufactured goods and inputs to agriculture and construction, while its own exports of food, energy and minerals travel the same routes in the opposite direction. The pandemic, extreme weather, trade tensions and attacks on shipping have shown how quickly these links can break. This paper examines how supply chain resilience can be built in Australia against such disruptions, linking firm-level strategies with sector and national exposure. The evidence base is a systematic integrative review of 30 refereed articles from 2020 to 2025, built around a major review of supply chain disruptions and resilience and a review of resilience from a network modelling perspective. Thirteen of the studies examine Australian supply chains or national exposure directly; the remainder supply the conceptual and international evidence against which Australian findings are read. The synthesis shows that Australian exposure arises from four sources: pandemic shocks to supply and demand, compound natural disasters intensified by climate change, geopolitical restrictions on trade, and concentration in strategic resources such as critical minerals, liquid fuels and medicines. Firms respond mainly through flexibility, multi-sourcing, visibility, collaboration and information systems, but small enterprises face limits of capability, cost and redundancy. Digital capabilities, knowledge management and risk culture strengthen resilience, yet investment in analytics remains uneven. National choices about local production, partnerships and stockholding shape the options available to firms. A multi-level resilience framework is proposed that connects disruption sources, resilience phases and enabling capabilities across firm, sector and national levels, together with propositions for empirical testing.

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1. Introduction

Few advanced economies are as far from their main trading partners as Australia. Its population and industries rely on imported fuel, pharmaceuticals, machinery and consumer goods, and its export earnings rely on moving grain, meat, wine, gas and minerals across long sea routes. This

distance has long been managed through efficient, lean and globally sourced supply chains. The events of the past six years have tested that model. During the COVID-19 pandemic the supply of personal protective equipment in Australia was severely disrupted (Boehme et al., 2021), organisations in the built environment saw suppliers go offline and demand spike (Caldera et al., 2022), and small clothing retailers proved vulnerable to disruption (Mamun, 2024).

Disruptions have not been limited to the pandemic. Australia faces bushfires, floods and cyclones that can occur together within a single season, and such compound disasters have been responsible for the highest seasonal financial losses in the national record of insured losses (Gissing et al., 2022). An assessment of climate change and national security found it very probable that a changing climate will erode Australia's security before 2050, including by disrupting critical infrastructure and interrupting important supply chains (Ide, 2023). Geopolitical tension adds another layer of risk: trade disputes with a major partner, competition over critical minerals and conflict along key shipping lanes all affect the routes on which Australian supply chains depend (Laurenceson, 2025; Rai, 2025; Shi et al., 2021).

Research on supply chain resilience has grown rapidly in response. Reviews have synthesised the types and impacts of disruptions, the methods used to design resilient supply chains and the recovery strategies proposed in the literature (Katsaliaki et al., 2022), and have described how network modelling can represent the structure and dynamics of supply chains under stress (Ma et al., 2024). Much of this work is international, however, and the Australian evidence is spread across sector studies in agriculture, construction, retail, health and resources. It is not clear how far general findings about resilience strategies apply to an economy with Australia's geography, industrial structure and strategic position.

This paper addresses that gap by reviewing the evidence systematically and reading the international literature against the Australian studies. The sections that follow set out the research questions, explains the review method, synthesises Australian exposure to disruption, examines resilience strategies and enabling capabilities, and proposes a multi-level framework before discussing implications and limitations.

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2. Purpose and Research Questions

This study sets out to explain how supply chain resilience can be strengthened in Australia against global disruptions by integrating evidence on disruption exposure, firm strategies, enabling capabilities and national settings. The study has four objectives: (1) to characterise the main sources of disruption to which Australian supply chains are exposed; (2) to identify the resilience strategies and capabilities that the literature associates with better outcomes, and the barriers that limit their use; (3) to examine how national choices about strategic resources, trade and local production condition the resilience options of firms; and (4) to develop a framework that links these elements across firm, sector and national levels.

The review is guided by three research questions. RQ1: What sources of disruption expose Australian supply chains, and how do they affect firms and sectors? RQ2: Which strategies and capabilities strengthen supply chain resilience, and what constrains Australian firms in adopting them? RQ3: How can firm-level resilience and national resilience settings be connected in a single framework for Australia?

3. Methodology

The study follows a systematic integrative review design. This design suits a topic in which the evidence includes literature reviews, surveys, case studies, simulation models and policy analyses, and in which the purpose is to combine these forms of evidence into a coherent explanation rather than to combine results into a single effect size. Identification, screening, eligibility and synthesis were carried out as explicit steps so that the selection can be traced.

Searches were run in November 2026 in an open catalogue of scholarly works and checked against the registration metadata of each record. Query strings paired resilience and disruption terms (supply chain resilience, disruption, risk management, ripple effect, flexibility, redundancy, diversification, reshoring) with context terms (Australia, Australian, COVID-19, bushfire, flood, critical minerals, fuel security, pharmaceutical, agri-food, Red Sea, geopolitical risk). Records were screened on title and abstract, and those retained were read against the eligibility rules.

Articles were eligible when they had been peer-reviewed, were published in English in a journal, had a final publication year from 2020 to 2025, and addressed disruption, risk or resilience in

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supply chains or in the national systems on which supply chains depend. Reviews were admitted alongside primary studies because they consolidate large bodies of earlier work. Conference papers, editorials, items without an available abstract and studies whose interest in supply chains was incidental were excluded. Where several eligible studies made the same point, preference was given to those with an Australian setting or a distinct method.

Two anchor studies framed the corpus: the major review of supply chain disruptions and resilience by Katsaliaki et al. (2022) and the network modelling review by Ma et al. (2024). Further articles were selected to cover each source of exposure and each family of strategies with at least two studies. The final set contains 30 articles: six reviews of resilience concepts and methods, five studies of operational strategies, five on digital capabilities, five on Australian firm and sector responses, two on natural hazards and climate, two on geopolitics and trade routes, and five on strategic resources. Thirteen of the 30 have an Australian setting or focus.

Each article was coded for setting, sector, disruption type, resilience strategy or capability, method and principal findings. The synthesis proceeded thematically, first describing exposure and then strategies, and finally integrating the two across levels of analysis. Each claim made about a study was compared with what that study actually reports. Results from studies outside Australia are presented as international evidence rather than as findings about Australia. The review generates no new primary data; its framework is put forward as testable propositions.

4. Disruption Exposure of Australian Supply Chains

The studies point to four sources of exposure: shocks from the pandemic, natural hazards and climate change, geopolitical restrictions on trade and shipping, and concentration in strategic resources. Table 1 summarises the Australian empirical studies in the corpus.

Table 1. Australian empirical studies in the corpus (findings as reported by the authors)

Study	Sector or scope	Method	Principal finding
Mamun (2024)	Clothing retail SMEs	Semi-structured interviews	Five enablers; capability, cost, autonomy and redundancy limits
Caldera et al. (2022)	Built environment procurement	Focus groups	Reactive procurement; levers include local supply and digital tools

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Study	Sector or scope	Method	Principal finding
Boehme et al. (2021)	Protective equipment	Longitudinal case study	Additive manufacturing cluster supplied equipment during crisis
Ali et al. (2023)	Agri-food chains	Survey of 349 participants	Knowledge practices build risk culture, which supports resilience
Taghikhah et al. (2025)	Six agri-food chains	Delphi, network analysis, system dynamics	Five digital capabilities with different roles over time
Ziaee et al. (2023)	Pharmaceuticals	Interviews across a triad	Analytics most useful for planning, delivery and return
Dixon et al. (2021)	Agriculture and mining	Computable general equilibrium model	Output about 6% below baseline at the peak of impacts
Shi et al. (2021)	Australia-China trade	Computable general equilibrium analysis	Embargo causes losses for both countries and the world
Gissing et al. (2022)	Natural disasters	Normalised insurance loss data	Compound disasters cause the highest seasonal losses

4.1 Pandemic Shocks to Supply and Demand

The pandemic disrupted Australian supply chains on both the supply and the demand side. In the built environment, practitioners and government decision makers described rapid reactive changes to procurement, and identified reliable, transparent and local supply chains, digital engineering tools, coalitions between government and industry, and risk assessment at several levels as levers for the period after the pandemic (Caldera et al., 2022). Small and medium-sized clothing retailers named collaboration, sourcing from several suppliers, visibility, flexibility and information systems as the main enablers of resilience, while weak internal capabilities, the cost and financing of change, little managerial autonomy and an inability to build redundancy held them back (Mamun, 2024).

Economy-wide modelling places these firm experiences in context. Simulations with a computable general equilibrium model of Australia found that, at the peak of the impacts, output in agriculture and mining fell by about 6% relative to a baseline without the pandemic, a smaller decline than the economy-wide average, which the authors attributed to minor effects on work practices, relatively low falls in demand and limited disruption to export demand (Dixon et al., 2021). The pandemic therefore hit sectors unevenly: export-oriented primary industries were

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cushioned, while firms dependent on imported inputs and discretionary demand absorbed more of the shock.

Local responses also emerged. When imports of personal protective equipment were disrupted, a geographical cluster of firms used additive manufacturing to supply equipment responsively and flexibly, and the alignment created by a shared supply goal later developed into a commercial and relational case for a longer-term configuration (Boehme et al., 2021). The case shows how distributed production technologies can provide surge capacity, although its authors present clusters as a viable option when knowledge diffuses rapidly among participants rather than as a general solution.

4.2 Natural Hazards and Climate Change

Australia's exposure to natural hazards is recurrent rather than exceptional. Gissing et al. (2022) defined compound disasters as two or more disasters within three months in the same jurisdiction, showed with a database of normalised insurance losses that they produce the highest seasonal financial losses, found that their frequency has not trended upwards or downwards since 1966, and linked their occurrence most clearly to the El Niño Southern Oscillation, which can be forecast at seasonal timescales. For supply chain managers, this suggests that hazard seasons can be anticipated and that readiness can be raised before they arrive.

Climate change is expected to sharpen these risks. Ide (2023) judged it very likely that climate change will weaken Australia's national security before 2050 by disrupting critical infrastructure, challenging the capacity of the defence force, increasing the risk of political instability in the immediate region, reducing the capabilities of partner countries and interrupting important supply chains, with the greatest effects if several large disasters occur together. Natural hazards thus link firm-level continuity planning with national preparedness.

4.3 Geopolitics, Trade Restrictions and Shipping Routes

Trade with China illustrates the cost of geopolitical disruption. Using a computable general equilibrium approach, Shi et al. (2021) estimated that a trade embargo between Australia and China, even if compensated by alternative supply chains, would cause losses in gross domestic production and increases in emissions for both countries and for the world, and that third parties,

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including India and the members of ASEAN, could also lose despite gaining trade volume. Their results support defending a rules-based trading regime rather than relying on rerouting alone.

Shipping routes add a separate exposure. Attacks on commercial vessels in the Red Sea since October 2023 have affected maritime business through operational difficulties, financial concerns, human resource and ethical issues and reputational risks, showing that a conflict in one region can disrupt operations worldwide (Rai, 2025). Although that study is not specific to Australia, Australian trade with Europe and the Middle East relies on the same corridors, so disruption there lengthens voyages and raises costs for Australian shippers. The two studies together show that geopolitical risk reaches Australian firms through two channels: decisions by governments that restrict trade directly, and conflicts elsewhere that disturb the routes along which trade moves.

4.4 Strategic Resources: Minerals, Fuel and Medicines

Some exposures concern resources of national significance. Australia holds documented resources of 26 commodities from the 31 on its Critical Minerals List, spread across 477 deposits of which 75% are undeveloped; developing them, reprocessing mine waste and recovering by-products are seen as ways to counter the geopolitical leverage of dominant market players (Britt & Czarnota, 2024). Internationally, critical mineral supply chains are described as being marked by political interference and distorted trade practices, which has prompted research on security evaluation and national strategies for responding to risk (Dou & Xu, 2023). Policy choices matter here: Laurenceson (2025) contended that Canberra's goals of prosperity, security and resilient supply would gain more from keeping China in view as a possible partner than from excluding further Chinese involvement in the sector.

Liquid fuels and medicines are dependencies of a different kind, because Australia imports rather than exports them. Boretti (2025) argued that dependence on imported crude and refined petroleum challenges energy security and economic resilience, and proposed domestic production of fuels from natural gas. For medicines, a scoping review of 115 studies identified decision criteria for partial nationalisation of pharmaceutical supply chains and noted that countries have responded to shortages by diversifying suppliers, increasing safety stock and nationalising medical supply chains (Marrone et al., 2023). In answer to RQ1, the corpus identifies four recurring exposures, and their effects differ sharply by sector.

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5. Resilience Strategies and Enabling Capabilities

The second part of the synthesis turns from exposure to response. It considers the conceptual foundations of resilience, operational strategies, digital capabilities, and the role of knowledge and culture.

5.1 Conceptual Foundations

Reviews describe supply chain resilience as a mature but fragmented field. A bibliometric analysis of 771 articles published from 1988 to 2020 identified nine research themes, including the design of resilient networks, the drivers of vulnerability and risk, the measurement of resilience and the development of robustness, and mapped relationships among vulnerabilities, capabilities, strategies and performance metrics (Shishodia et al., 2023). A meta-review of 83 literature reviews concluded that resilience has become an independent research area and that resilience capabilities should be considered bundles of practices extending beyond risk management, with dynamic capabilities enabling organisations to prepare for, counter and recover from disruptions (Stadtfeld & Gruchmann, 2024).

Two further reviews highlight the role of method. Network modelling based on complex networks and agent-based models can represent how whole supply networks evolve as well as how individual firms behave, and stronger resilience may produce benefits beyond individual firms that support economic stability across countries (Ma et al., 2024). An analysis of 294 articles found three research clusters, namely optimisation, technology adoption and resilience strategies against disruptions, and recommended integrating digital twins and machine learning into risk management for real-time monitoring (Hosseini Shekarabi et al., 2025). Katsaliaki et al. (2022) added that recovery strategies should be supported by cost-benefit analysis, a point of particular relevance to small Australian firms with limited resources. The same review examined the information technology tools that enhance resilience and reduce disruption risk, and set out a research agenda on the gaps that remain.

5.2 Flexibility, Redundancy and Diversification

Flexibility is the strategy most often associated with resilience. A systematic review that matched four practices (flexibility, agility, redundancy and collaboration) with five types of disruption found that the literature identifies flexibility as the most important strategy for demand, supply,

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process and environmental disruptions, and collaboration as the most important for control disruptions (Shekarian & Mellat Parast, 2021). Survey evidence from 191 large manufacturers in Pakistan showed that multidimensional supply chain flexibility significantly improved resilience, with stronger effects under customer-oriented and external risks (Piprani et al., 2022).

Strategies work in combination rather than alone. A multi-method study using quality function deployment and fuzzy-set qualitative comparative analysis found that resilience strategies by themselves did not improve supply chain performance during severe disruption, whereas strategies combined with the removal of risk factors did, and it identified two alternative configurations of strategies (Chowdhury et al., 2024). A configurational analysis of 191 listed manufacturers found three paths to high resilience, driven respectively by digital transformation, by supply chain diversification, and by supplier centralisation combined with customer base diversification (Yin & Ran, 2022). Evidence from Pakistani manufacturing also linked green practices, crisis mitigation strategies and smart technologies to sustainable supply chain performance during the pandemic (Khan et al., 2022).

Relocating supply is a structural form of diversification. In the Italian ceramic sector, scenarios developed after the loss of Ukrainian clay showed that nearshoring and reshoring could reduce supply risk and lower transport emissions (Fernández-Miguel et al., 2022). The Australian equivalents are local manufacturing of protective equipment (Boehme et al., 2021), domestic fuel production (Boretti, 2025) and downstream processing of critical minerals (Britt & Czarnota, 2024). The small clothing retailers studied by Mamun (2024), however, could not afford redundancy, which suggests that structural options are more feasible for larger firms or with public support.

5.3 Digital Capabilities

Digital technologies contribute to resilience through several connected functions. A content-centric review identified sixteen ways in which Industry 4.0 technologies support resilience, beginning with data-centric functions such as automation, information quality, process monitoring and visibility, and leading to responsiveness, adaptive capability and continuity management (Ghobakhloo et al., 2025). Traceability improves risk awareness directly and supports flexibility, velocity, visibility and collaboration indirectly (Razak et al., 2023). Digital supply chain twins, which represent network states in real time, combine model-based and data-

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driven approaches to support predictive and reactive decisions and end-to-end visibility (Ivanov & Dolgui, 2021).

Australian studies show how these capabilities play out in specific sectors. Across six agri-food chains covering grain, red meat, dairy, horticultural produce, seafood and wine, Taghikhah et al. (2025) found that logistics technology was crucial for short-term persistence, secure data for long-term persistence, decision insight for immediate adaptation, client value for long-term adaptation and innovation technology for systemic transformation. In the pharmaceutical supply chain, interviews with manufacturers, wholesalers and hospital pharmacies indicated that big data analytics would be most helpful in planning, delivery and return processes, and that the Australian pharmaceutical supply chain lags in investment in such analytics (Ziaee et al., 2023).

5.4 Knowledge, Culture and Collaboration

Resilience also rests on organisational learning. A survey of 349 participants in Australian agri-food supply chains found that exposure to risk triggers knowledge management practices, which operate in sequence (acquisition, assimilation and application) and build a risk management culture that in turn supports resilience (Ali et al., 2023). Collaboration features in the enablers named by clothing retailers (Mamun, 2024), in the coalition between government and industry recommended for construction procurement (Caldera et al., 2022) and in the cluster that produced protective equipment (Boehme et al., 2021).

In answer to RQ2, resilience is strengthened by flexibility, diversification, visibility and collaboration, supported by digital capabilities and by a culture of risk awareness. The main constraints for Australian firms are limited capability and finance in small enterprises, the cost of redundancy, and uneven investment in analytics.

6. Cross-Cutting Synthesis

Table 2 brings the two parts of the synthesis together by matching each source of exposure with the strategies the evidence supports and the level at which action is needed. Three patterns stand out.

Table 2. Sources of exposure, supported strategies and level of action

Source of exposure	Supported strategies	Main level of action	Key sources

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Source of exposure	Supported strategies	Main level of action	Key sources
Pandemic shocks to supply and demand	Multi-sourcing, flexibility, visibility, local production	Firm and sector	Mamun (2024); Caldera et al. (2022); Boehme et al. (2021)
Compound natural hazards and climate	Seasonal readiness, continuity planning, infrastructure coordination	Sector and national	Gissing et al. (2022); Ide (2023)
Geopolitical restrictions and shipping	Rules-based trade, route diversification, partnership options	National and firm	Shi et al. (2021); Rai (2025); Laurenceson (2025)
Strategic resource concentration	Domestic processing, safety stock, partial local production	National	Britt and Czarnota (2024); Boretti (2025); Marrone et al. (2023)
Weak visibility across tiers	Traceability, digital twins, analytics	Firm and sector	Razak et al. (2023); Ivanov and Dolgui (2021); Ziaee et al. (2023)

First, the level of action differs by disruption. Pandemic shocks to supply and demand were largely managed by firms through procurement changes, multi-sourcing and local production (Caldera et al., 2022; Mamun, 2024). Compound disasters and climate impacts require coordination between firms, infrastructure operators and governments (Gissing et al., 2022; Ide, 2023). Geopolitical and strategic resource exposures are shaped by national policy on trade, investment and local capability (Britt & Czarnota, 2024; Laurenceson, 2025; Shi et al., 2021).

Second, there is a tension between efficiency and redundancy. Reshoring, safety stock and domestic production reduce exposure but add cost, and the evidence on their net benefits depends on context (Fernández-Miguel et al., 2022; Marrone et al., 2023). The modelling by Shi et al. (2021) shows that rerouting supply away from a major partner can impose losses on all parties, so diversification is not a free option.

Third, digital capabilities cut across levels. They give firms visibility of their own networks (Ivanov & Dolgui, 2021; Razak et al., 2023), help sectors coordinate (Taghikhah et al., 2025) and could give policymakers better information about national dependencies. Yet the Australian evidence also shows gaps in adoption (Ziaee et al., 2023) and in the capabilities of small firms (Mamun, 2024).

Fourth, exposure and capacity vary greatly between sectors. Primary exporters such as agriculture and mining were relatively protected during the pandemic because export demand

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held up (Dixon et al., 2021), whereas import-dependent activities such as clothing retail, construction procurement and pharmaceutical supply reported disruption to supply or the challenge of shortages (Caldera et al., 2022; Mamun, 2024; Ziaee et al., 2023). Resource sectors face a different problem, in which the risk lies less in obtaining inputs than in the concentration of processing and buyers abroad (Britt & Czarnota, 2024; Dou & Xu, 2023). A single national prescription for resilience is therefore unlikely to fit all sectors, and sector-specific assessments are needed.

Figure 1 maps the corpus by theme and setting. Australian studies concentrate on firm and sector responses and on national exposure, whereas the reviews and most of the evidence on operational strategies come from international settings. No study in the corpus tests a resilience strategy in Australia before and after a disruption, which limits causal conclusions about what works.

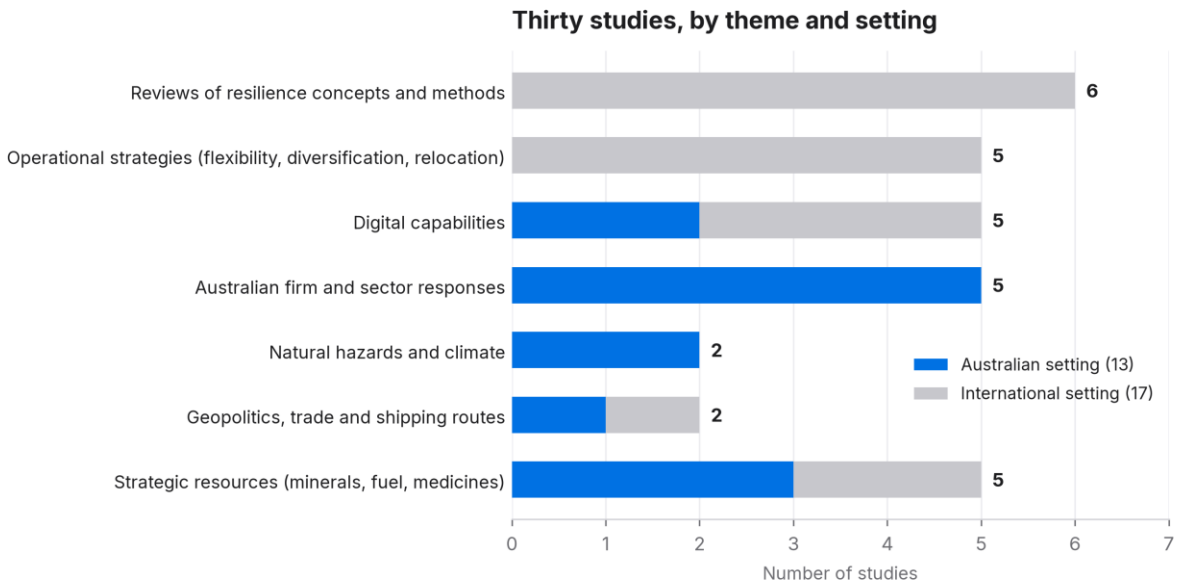


Figure 1. Distribution of the 30 reviewed studies by theme and by Australian or international setting.

7. A Multi-Level Resilience Framework for Australia

Figure 2 presents the proposed framework. It responds to the finding that Australian supply chain resilience depends on action at several levels, and it organises the evidence around three

elements: disruption sources, resilience phases and enabling capabilities, set across firm, sector and national levels.

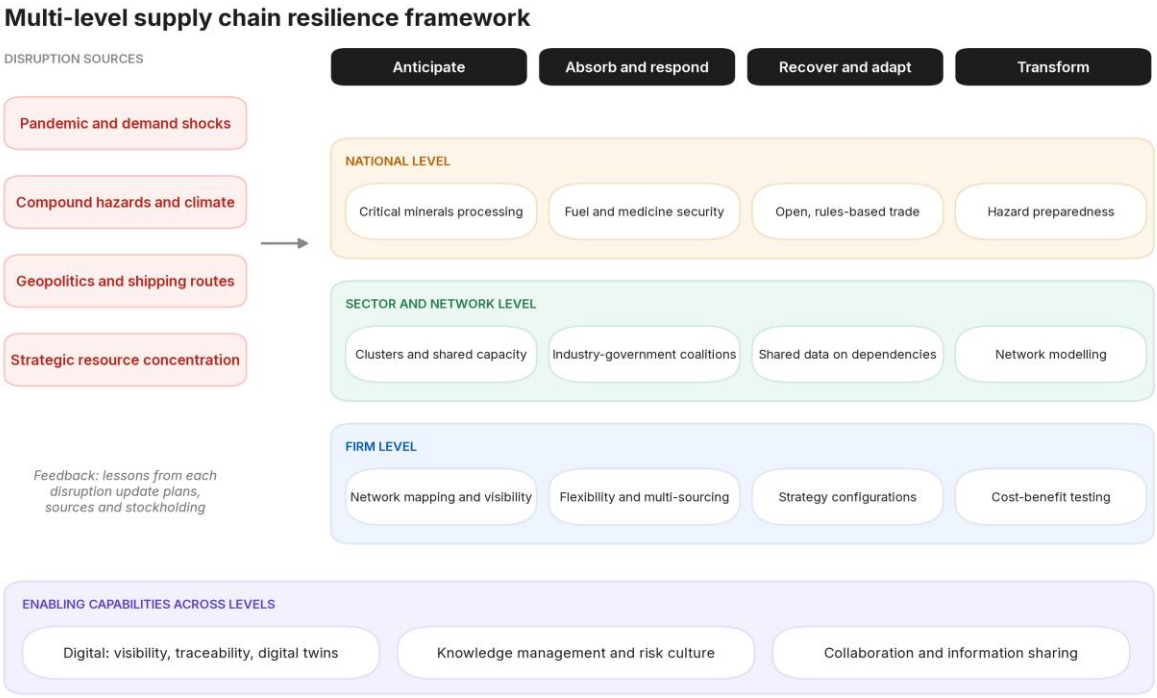


Figure 2. Proposed multi-level supply chain resilience framework for Australia.

The disruption sources are the four identified in Section 4: pandemic and demand shocks, compound natural hazards and climate change, geopolitical and shipping disruptions, and strategic resource concentration. The resilience phases draw on the dynamic capability view, in which organisations prepare for, respond to and recover from disruption, and in which some disruptions lead to longer-term transformation (Stadtfeld & Gruchmann, 2024; Taghikhah et al., 2025). The framework therefore distinguishes anticipation, absorption and response, recovery and adaptation, and transformation.

At the firm level, the framework places flexibility, multi-sourcing and visibility at the centre, because these are the strategies most consistently supported by the evidence (Mamun, 2024; Piprani et al., 2022; Shekarian & Mellat Parast, 2021). Strategies are selected as configurations rather than in isolation, and are tested against cost-benefit criteria (Chowdhury et al., 2024; Katsaliaki et al., 2022). At the sector level, collaboration, clusters and shared information support coordinated responses, as in the protective equipment cluster and the agri-food chains (Boehme

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et al., 2021; Taghikhah et al., 2025). At the national level, policies on critical minerals, fuel and medicines, on trade partnerships and on hazard preparedness set the conditions under which firms operate (Boretti, 2025; Britt & Czarnota, 2024; Gissing et al., 2022; Marrone et al., 2023).

Three enabling capabilities link the levels. Digital capabilities provide visibility, traceability and the ability to simulate disruptions (Ghobakhloo et al., 2025; Ivanov & Dolgui, 2021). Knowledge management and risk culture turn experience of disruption into routine practice (Ali et al., 2023). Network modelling helps sectors and governments understand how disruptions propagate and where intervention has most effect (Ma et al., 2024).

The framework yields four propositions for empirical testing. P1: Australian firms that combine flexibility with visibility will recover from disruptions faster than firms that rely on either alone. P2: Sector-level collaboration will reduce the cost of resilience for small enterprises that cannot afford redundancy individually. P3: Firms in sectors with stronger knowledge management and risk culture will show higher resilience for a given level of exposure. P4: National policies that diversify sources of strategic resources while maintaining open trade will provide more resilience at lower economic cost than policies based mainly on self-sufficiency.

8. Discussion

The review makes three contributions. It brings together Australian evidence that is usually reported sector by sector, and shows that exposure arises from a few recurring sources. It reads international findings on resilience strategies against this evidence, identifying where they fit Australian conditions and where they do not, as in the case of redundancy for small enterprises. Finally, it proposes a framework that connects firm strategies with sector coordination and national policy, a link that most of the resilience literature leaves implicit.

The findings are consistent with the anchor reviews but extend them in a specific direction. Katsaliaki et al. (2022) organised the field around types of disruption, their impacts, design methods and recovery strategies, and Ma et al. (2024) emphasised the value of modelling supply chains as networks whose structure shapes how shocks travel. The Australian evidence adds geography and national position to these accounts. Distance from suppliers and markets, exposure to seasonal hazards, and the strategic weight of minerals and energy mean that the network an Australian firm belongs to is shaped partly by public policy. The framework

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therefore treats national settings as part of the resilience system rather than as background conditions.

For managers, the findings suggest a practical sequence. Firms can begin by mapping their supply networks and building visibility, then develop flexibility and alternative sources for the inputs most exposed to the four sources of disruption, and finally invest in digital tools that support monitoring and simulation. Small enterprises are likely to gain more from shared arrangements through industry associations and clusters than from holding redundancy alone. Seasonal hazard forecasts offer an opportunity to raise readiness before the bushfire and cyclone seasons.

For policymakers, the evidence points to a balanced approach. Building domestic capability in critical minerals processing, fuel and medicines can reduce exposure, but modelling suggests that disengaging from major trading partners carries costs for all parties (Shi et al., 2021), and keeping partnership options open may do more for resilience (Laurenceson, 2025). Government can also help by supporting shared data on national dependencies and by coordinating with industry, as recommended in construction procurement (Caldera et al., 2022).

For researchers, the main gap is longitudinal evidence. Studies that follow Australian firms and sectors through successive disruptions, using consistent measures of exposure, strategy and recovery, would allow the propositions to be tested. Network models calibrated with Australian data could estimate how disruptions to imports of fuel, medicines or components would propagate (Ma et al., 2024), and comparisons between large and small firms would clarify the role of public support.

9. Limitations

The review has several limitations. It is based on 30 journal articles chosen to cover each source of exposure and each family of strategy, so it cannot claim exhaustive coverage of a large literature. Only 13 studies have an Australian focus, and several important sectors, such as defence logistics, retail groceries and automotive parts, are represented indirectly or not at all. Much of the evidence on strategies comes from other countries, especially from manufacturing in Asia and Europe, and may not transfer fully to Australian conditions. The primary studies use

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different methods and measures, so their results are compared qualitatively. Finally, the framework rests on published evidence alone and awaits empirical testing.

10. Conclusion

This review examined how supply chain resilience can be built in Australia against global disruptions, drawing on 30 journal articles published from 2020 to 2025. Australian supply chains are exposed to pandemic shocks, compound natural disasters, geopolitical restrictions on trade and shipping, and concentration in strategic resources. Firms respond mainly through flexibility, multi-sourcing, visibility, collaboration and information systems, and their resilience is strengthened by digital capabilities, knowledge management and risk culture. Smaller firms remain held back by their limited resources, and investment in analytics is uneven. National choices about strategic resources, trade partnerships and hazard preparedness shape the options open to firms. The proposed multi-level framework connects these elements and offers four propositions for future research.

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