Australian Manufacturing State of Play 2025:

How Network Design is Distinguishing Top Performers

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prological
Supply Chain Intelligence

White Paper

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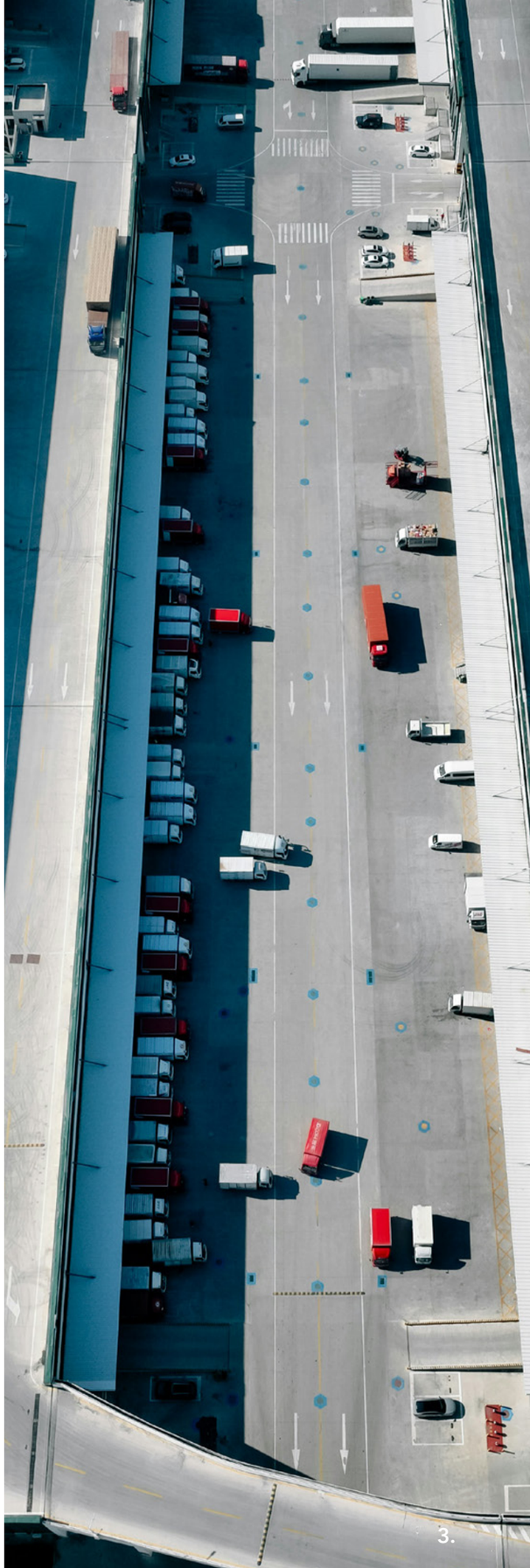
Introduction

Many Australian B2B manufacturers are caught between rising costs and shrinking margins. Increasing energy costs, complex industrial relations environments, and stringent ESG requirements are making traditional approaches to manufacturing and distribution unsustainable. At the same time, global supply chain disruptions have exposed the fragility of efficiency-focused models that dominated the past decade.

The manufacturers thriving in this environment share a common approach: they treat supply chain network design as a strategic imperative, not an operational afterthought. They make decisions based on robust data rather than intuition. They view their supply chains as competitive weapons, not cost centres.

Organisations approaching lease renewals, equipment refreshes, or expansion decisions have a strategic opportunity to fundamentally transform their operations. The question isn't whether to evolve – it's whether to lead the transformation or be left behind by competitors who act first.

The following analysis examines why network design has become essential for competitive advantage, how data-driven strategies reduce risk and open up growth opportunities, and the practical steps manufacturers can take to build resilience into their supply chain.



The B2B manufacturing landscape

Manufacturing in Australia is becoming increasingly difficult. Three major headwinds are reshaping the competitive landscape: energy costs that continue climbing, an industrial relations environment that adds complexity relative to competitor nations, and ESG requirements that, while necessary, can create challenging business realities.

Wholesale gas prices have tripled over the past decade and remain at least double pre-2022 levels based on figures from the Australian Energy Regulator. Late last year, iconic regional manufacturer Nippy's saw monthly electricity costs rise from AU$51.6k to AU$109.6k over twelve months. This year, Prological has spoken to another manufacturer whose electricity costs almost doubled in a step-change after a periodic agreement ended. This is all too common for Australian manufacturers.

Meanwhile, environmental requirements can make manufacturing cost-prohibitive in Australia, forcing companies to close local operations and import the same products from countries with lower environmental standards. The result is higher carbon emissions globally, loss of capability and capacity, and Australian consumers end up buying from overseas producers with larger carbon footprints.

These challenges are forcing manufacturers toward high-value products with low energy requirements, minimal labour input and significant intellectual property behind them. When this limited combination comes together, Australia maintains a strong competitive position. The challenge, however, is creating the operational headroom to continue investing in both R&D and modern manufacturing processes.

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The infrastructure disadvantage

Much of Australia's existing manufacturing operates within legacy infrastructure compared with competitors. In Asia, for example, manufacturers have newer, modern facilities designed and built as their nations' economies flourished in the past 20 years, whereas the Australian competitor may be optimising infrastructure that is 50 years old. This infrastructure gap compounds the other cost pressures, making it harder for Australian manufacturers to compete on efficiency.

The mindset challenge runs deeper. While emerging manufacturing regions view the world as their market opportunity, Australian manufacturers have historically seen only the 32 million people in Australia and New Zealand as their primary market. This limited vision, which has sometimes been constrained by overseas business ownership, stifles growth potential and manufacturing scales of economy to be truly competitive on the global stage.

The export opportunity

Despite these challenges, Australia offers some surprising advantages for manufacturers thinking globally. It costs less to ship a container from Australia to the US West Coast than road or rail transport from the US East Coast to the West Coast. Similar efficiencies exist for the Australia-to-Europe shipping routes.

These export advantages remain largely untapped, not due to lack of vision, but because manufacturers face significant barriers to competitive local production. The logistics advantages of onshoring do exist, but can only be unlocked with a data-led, strategic business vision.

Not every manufacturer has an exportable product, but for those who do, there is a real advantage to unlock.

Network design strategy

For B2B manufacturers, network design is critical because of the unique challenges in competing against overseas manufacturing.

Consider what's facing an Australian manufacturer: if you're producing in Melbourne, it can cost more to send 20 tonnes of product from Melbourne to Brisbane than it costs a Chinese manufacturer to ship the same 20 tonnes from Shanghai to Brisbane. The Australian manufacturer's advantages are proximity to customers (shorter lead times and less inventory in the system), but these often come at a higher landed costs (Brisbane in this example). For east coast manufactures, Perth is also exposed to the same risk. If manufacturers lose some or all of their Perth or Brisbane volume, for instance, the cost per unit in manufacturing goes up due to loss of volume, which in turn increases pressure on their remaining market.

The remedy to this issue lies in network design correlated with freight strategy. Modern network design methodology goes beyond traditional location analysis to examine the entire cost structure of getting products to market.

The ideal network for local manufacturing is a distribution facility on the end of the production line with direct delivery to customers nationally from a single location. However, service commitments combined with freight cost consideration may not allow for this. The freight strategy, in parallel, must resonate with both customer service goals, commercial accessibility and the network design.

For most manufacturers, inbound supply chain issues majorly influence the optimal location. Every network needs to be tailored to the particular objectives of a business.

> "THERE'S NO UNIVERSAL NETWORK TEMPLATE THAT CATERS TO ALL. FOR EXAMPLE, YOU COULD MAKE ADJUSTMENTS TO YOUR NETWORK THAT EITHER DECREASE OR INCREASE FREIGHT COSTS. THERE ARE IMPLICATIONS TO CONSIDER, SUCH AS THE MORE NODES IN YOUR NETWORK, THE HIGHER THE INVENTORY LEVELS YOU'LL CARRY. BUT HIGHER INVENTORY ISN'T NECESSARILY A DRAWBACK. WITH HIGHER INVENTORY, A BUSINESS CAN MAINTAIN MORE SAFETY STOCK. WITH THE RIGHT FREIGHT STRATEGY, THIS MEANS FEWER STOCKOUTS AND A HIGHER ORDER FULFILLMENT RATE."

Case study:

17 years of continuous optimisation

MM Kembla, established in 1916 and Australia's only copper tube manufacturer, has worked with Prological for 17 years to continuously optimise their outbound supply chain and national network options. This relationship demonstrates how regular network design reviews create measurable ROI through cost savings and service improvements.

For a manufacturer supplying plumbing, HVAC-R, medical and industrial applications across Australia, New Zealand, South East Asia and the Middle East, distribution efficiency is critical to maintaining competitive pricing. Most recently, a review of regional freight on the Eastern Seaboard delivered significant benefits by addressing distribution cost challenges that threatened manufacturing viability. What was the right regional solution just five years ago, had become a debilitating direction if continued.

This 17-year relationship is a testament to the ongoing value network design brings. Supply chains aren't static – they require continuous optimisation as market conditions, customer locations, and competitive pressures evolve.

KEMBLA

The property connection

Network design decisions directly impact property requirements and vice versa. The convergence of supply chain expertise and property knowledge creates optimal outcomes because location, lease terms, automation, operational, company and ESG requirements must all align.

The current industrial property market provides additional leverage for manufacturers approaching lease renewals. With vacancy rates at multi-year highs and landlords increasingly flexible on lease terms, tenants currently have significantly more negotiating power than in previous cycles. This tenant's market puts the onus on securing properties that truly support operational requirements rather than accepting compromises.

The property decision becomes the catalyst for broader operational improvements, automation investments, and network optimisation. Modern facility requirements go beyond basic warehouse space. Manufacturers need properties that can accommodate automation, energy generation and storage capabilities, and the flexibility to adapt as operations evolve. These considerations must be integrated into network design from the beginning – many cannot be retrofitted effectively later.

Building data-led supply chains

Without accurate, complete datasets, manufacturers are making expensive guesses rather than evidence-based decisions. The challenge isn't just having data – it's having the right data that connects across your entire operation.

The five data pillars

Every manufacturer's data structure is unique, but successful supply chain analysis relies on five core information pillars that must work together:

Item Information:

Items can be raw materials, unfinished goods, or completed products. Manufacturers will almost certainly have a Product Master and may also have a Bill of Materials and Material Master as well. Whatever the format, you need detailed specifications including physical dimensions, weights, and handling requirements for everything you produce or process.

Order, Sales and Customer Records:

Historical transaction data that shows what was sold, when, to whom, and in what quantities. This becomes the baseline for understanding demand patterns and forecasting future requirements. Customer information may be included in the order data, or order records may be linked to a customer database, providing clean, accurate customer information including locations, delivery requirements, and service expectations. Something as simple as incorrect postcodes or duplicate entries can derail entire network analyses.

Warehouse Activity and Intralogistics:

Records of how products move within your facilities – receipt times, put-away duration, picking efficiency, and dispatch processes. This internal activity data often reveals the biggest improvement opportunities.

Freight Records:

Both inbound and outbound freight information at a detailed level. The freight industry's creative pricing methods make this particularly crucial for accurate cost analysis and comparison of alternatives.

Stock On Hand Records:

This includes SOH records over several months or years to understand how much stock is held throughout the year, typically including average and peak stock on hand levels. This data should also include stock locations within the warehouse and information about these locations, such as location types, shelves and shelf types, bulk storage areas, or stock held in automated material handling equipment systems.

These data pillars only create value when they connect to each other. Best practice is the ability to trace an item from order receipt through picking, packing, and delivery, and link that activity back to the order record. This end-to-end visibility enables calculation of true throughput metrics – measuring speed, volumes, cubic capacity, weight, and costs across the entire process.

When this integration works well, retrieving important data takes hours. When systems don't talk to each other or data quality is poor, preparation can consume months and up to half a project's budget. The investment in getting this right pays dividends across every supply chain improvement initiative.

Performance measurement and benchmarking

High-quality data enables critical performance measurements:

Warehouse Performance:

Time from receipt to availability for picking, warehouse capacity utilisation, and operations performance (speed and accuracy of tasks).

Operations Improvement:

Warehouse operations improvements and supply chain redesign work.

Freight Assessment:

Accurate comparison of freight alternatives.

Predictive capability through data

Predictive analysis is inherently risky because it deals with events that haven't happened yet. However, when high-quality data combines with experienced judgement, manufacturers can make reasonable future decisions.

The key is getting other functions and stakeholders aligned with the data. When intuition and analysis point in the same direction, confidence in future decisions increases dramatically.

This becomes critical for growth planning. Most manufacturers expect growth, but without good data, how do you determine network requirements and freight needs? For example, poor data leads to choosing properties too large (paying rent for unused space) or too small (throwing money at operational problems when lease constraints prevent expansion).

Implementation roadmap

Project timelines

Simple network reviews typically require 12 weeks from start to finish, assuming average to above-average data cleanliness and availability. Complex, large networks may require 16-20 weeks. These timelines assume good data quality – poor data extends timelines significantly.

Success factors for implementation

The first key success factor is ensuring the new network design augments the business's ability to fulfil its business plan. Supply chain capability must enable business plan execution, not constrain it.

This typically means the sales team can sell confidently against service promises that are consistent and competitive within their market. The new network should deliver relative OpEx reduction while providing a platform for increased market share. If it doesn't achieve these outcomes, the strategy needs questioning.

Risk management and contingency planning

The biggest implementation risk is maintaining decision-making speed and consistency across network changes. When you change multiple nodes within your network, they must work in unison. If decision-making processes can't maintain the required cadence, things get out of balance and somebody pays for it.

The second major risk area involves people and transitions. Implementation focus often concentrates on new tools and systems – new warehouses, new systems, new transport providers. What gets missed, often due to budget constraints, is training and transitional processes for people.

Teams migrating from old processes to new ones don't fully understand the new environment initially. They default to what they know, which often doesn't work well in the new system. This creates workarounds that leave gaps in required information collection.

The solution is simple but often overlooked: invest in people and transition processes, not just technology and infrastructure. The person working on the warehouse floor who's stressed about not knowing what to do today deserves as much attention as the new equipment and systems.

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Setting up the future

There's no silver bullet to ensuring your organisation will be successful for years to come. However, building resilience into the supply chain offers more wiggle room to overcome unforeseen challenges, and capitalise on growth opportunities when they appear.

The three-eyes approach

Successful manufacturers maintain three perspectives simultaneously: one eye looking over your shoulder at what's happening around the world and who's encroaching on your space, and two eyes on your own future to ensure you stay ahead in all critical supply chain areas.

Supply chain excellence isn't a destination – it's an ongoing journey requiring constant attention and adjustment.

Creating continuous improvement mechanisms

Network design isn't a one-time exercise. Markets evolve, customers relocate, competitors change strategies, and new technologies emerge. Manufacturers need mechanisms for ongoing network optimisation rather than periodic major overhauls.

This requires building review processes into operational planning, maintaining data quality over time, and staying connected to market developments that could impact network efficiency.

Conclusion

The evolution of B2B manufacturing demands more sophisticated supply chain thinking. Energy costs, regulatory complexity, and global competition have made traditional approaches insufficient.

An opportunity exists for Australian manufacturers to compete globally, leveraging unique export advantages and proximity to growing Asian markets. Regular network design reviews create measurable ROI through cost improvements and service enhancements, particularly when integrated with strategic property decisions.

The foundation remains high-quality data. Without accurate customer, product, sales, and freight information, manufacturers are making expensive guesses rather than strategic decisions. Implementation success depends on maintaining focus on people and processes, not just technology and infrastructure.

For Australian B2B manufacturers, the choice is clear: evolve through strategic network design and data-driven decision making, or be left behind by competitors who recognise that supply chains have become the primary battleground for competitive advantage.

About Prological

Established in 2010, Prological Consulting has a strong focus on international and domestic freight strategy and design. Prological designs and implements supply chain innovation with the intent of supporting and enhancing already existing business strategy. With expertise across all key industry sectors, Prological Consulting delivers individualised, innovative, commercially viable and operationally sustainable outcomes for its clients. Prological and its extended team have a broad range of backgrounds, training and experiences and have completed assignments in Europe, Asia and North America as well as here at home in Australia and New Zealand.

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