

DISRUPTION & INNOVATION: RESHAPING REGIONAL SUPPLY CHAINS

**A report by
Asialink Business**
Supported by
Toll Group

TOLL



About Asialink Business

Asialink Business was established in 2013 as the National Centre for Asia Capability.

Our founding partners include the Australian Government's Department of Industry, Science, Energy and Resources (DISER), the University of Melbourne and the Myer Foundation.

Our business-focused capability development programs, advisory services, and public events assist organisations to develop essential knowledge of Asian markets, business environments, cultures and political landscapes to engage more effectively with the region.

The organisation brings deep knowledge about doing business in Asia, proven methodologies to unlock opportunities in the region, and an extensive business, government and academic network. This combination uniquely positions Asialink Business to support Australian businesses wishing to maximise their growth opportunities.

To start a conversation about how we can help unlock Asia opportunities for your business, please get in touch.

About Toll Group

Toll Group is a leading transport and logistics provider, with a key focus on the Indo-Pacific and Asia-Pacific regions, including Australia.

At Toll, we do more than just logistics - we move the businesses that move the world. Our 20,000 team members can help solve any logistics, transport or supply chain challenge – big or small.

We have been supporting our customers for more than 130 years. Today, we support more than 20,000 customers worldwide with 500 sites in 25 countries, and a forwarding network spanning 150 countries. We are proudly part of Japan Post — www.tollgroup.com

Contents

A report by Asialink Business

P3



About Asialink Business	2	Chapter Two — Technology	18
About Toll Group	2	Case Study: Foodbuy and CIPS	23
Contents	3	Chapter Three — E-commerce	24
Foreword	5	Case Study: Vitality Brands	31
Executive Summary	6	Chapter Four — Sustainability	32
Approach	9	Case Study: Super Retail Group	37
Chapter One — Resilience	10	Recommendations	38
Case Study: Riverina Oils and Bioenergy	17	Acknowledgements	40
		References	41



Foreword

A report by Asialink Business

P5



The pace of change in supply chains over the last two years has been greater than the last twenty.

While the trends driving this change are in many ways global, they are playing out in unique ways in Asia.

The region's economic recovery from the COVID-19 pandemic will depend on the ability to boost trade and investment. So it's essential that business and government understand the impact of the major trends affecting regional supply chains.

Without wishing to ignore the complexity of changes underway, we think they can be characterised in two words: disruption and innovation.

The twin impacts of geopolitical tensions and COVID-19 have caused significant disruption to supply chains, and will continue to do so. In particular, they are resulting in record sea freight costs.

In the face of this, business is innovating through new strategies, standards, processes and technologies.

The challenge now is twofold: for business to prepare for the years ahead as we learn to live with COVID-19 and rising tensions in the region; and for government to support business develop resilient and sustainable supply chains that meet the needs of citizens.

While many reports focus on what has changed in supply changes over the last two years, we believe this report brings a

unique perspective that combines geopolitics, business considerations, consumer trends and supply chain strategies and technology.

It is particularly timely as we take stock of the unprecedented changes of recent years and start to plan for the future beyond COVID-19.



Jenny McGregor AM
Founding Group CEO Asialink



Thomas Knudsen
Managing Director, Toll Group

Executive Summary

Supply chains have come under immense strain in the last two years, primarily due to geopolitical tensions in the region and the impact of COVID-19. These factors have resulted in, amongst other things, rising costs, shipping delays, fluctuating inventory levels and business disruption.



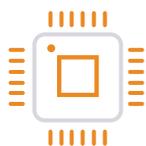
These rolling crises have necessitated many businesses to rapidly transition their supply chains away from lowest cost, just-in-time logistics. While long, global supply chains will remain relevant for certain industries, there is a clear trend towards shorter, regional supply chains.

To remain globally competitive, businesses need to understand how supply chains in Asia are evolving and respond accordingly.

We have identified four key trends that are impacting regional supply chains:



1. Resilience



2. Technology



3. E-commerce



4. Sustainability

1. Resilience – Businesses are now prioritising building resilient supply chains. They are achieving this through a range of approaches, including onshoring, near-shoring, supplier diversification, building inventory, and new operating models and processes. For strategic industries, resilience is likely to remain the key factor in supply chain planning. For others, as the world learns to live with COVID-19, the pendulum is likely to swing back towards managing costs. But geopolitical risk in the region will remain heightened over the next decade at least, so it's important the pendulum doesn't swing back too far.

2. Technology – China and other North Asian economies are rapidly adopting new supply chain technologies such as automation, smart sensors and data analytics. These technologies are proliferating across the rest of Asia, driven in part by the e-commerce boom. Businesses will need to invest in technology that will allow interoperability with these new technologies. They should also partner with regional players that are at the leading edge of new technologies. Failing to keep pace could become a technical barrier to trade.

3. E-commerce – The already rapid growth of e-commerce in Asia has been accelerated by COVID-19. This growth is accompanied by evolving consumer expectations around speed of delivery, convenient fulfilment options, product traceability, customer service and personalisation. For Australian businesses selling to Asian consumers, these expectations are placing increased supply chain demands on in-market distribution partners. To keep pace with these changes, business will need to invest in the right capabilities and partnerships.

4. Sustainability – Consumer expectations around the ethical and environmental sustainability of products are evolving. While there is still some way to go, consumers increasingly want assurances that their products are sustainably sourced. This expectation is changing how businesses engage suppliers in the region. Suppliers need to be brought on this change journey, particularly as it has cost implications. Both business and government have a role to play in developing regional sustainability frameworks and supporting capacity building in suppliers.

Across these four trends, there are common themes around the likely increased frequency of disruptions, proliferation of new technologies and supply chain infrastructure across the region, and rising consumer expectations around convenience, speed and transparency. These have implications for business and government.

Even if the region learns to live with COVID-19, business should avoid the temptation to unravel resilience measures and instead transform their supply chain management to balance resilience and costs. Business should prioritise working with supply chain partners in the region that are adopting the

latest technology, particularly for interoperability with e-commerce platforms. Business should also partner with organisations that use technology to improve supply chain transparency.

Government has a role to play in supporting supply chain resilience, adoption of new technology and promoting sustainability standards. The Australian Government should consider putting special emphasis on supporting SMEs to adopt new technologies as part of its initiatives to boost resilience. And the Government can shape regional norms by establishing an initiative to collaborate and share knowledge around supply chain sustainability.



Approach

A report by Asialink Business

P9



This report is based on a combination of original research, interviews with supply chain practitioners, an online survey and expert review.

Working with experts from Toll Group, we used a design thinking approach to canvass a broad range of trends affecting regional supply chains. We then narrowed those trends down to those we considered would have the most significant impact over the coming years: resilience, technology, e-commerce and sustainability.

The report's content was then developed by drawing on original research and interviews with supply chain practitioners.

The findings were supplemented by an online survey with 123 respondents who were

involved in managing, or had visibility, of the supply chain in their business. Business sizes covered non-employing (8%) micro (25%), small (25%), medium (29%) and large (13%). The survey was advertised primarily through the social media channels and subscriber lists of Asialink Business and Toll Group. While the survey does not constitute a representative sample, it is still valuable directional data.

The report was also reviewed by both academic and industry experts.

All views in the report are of Asialink Business alone.

CHAPTER ONE — Resilience

P10

KEY POINTS

- Supply chains in Asia have experienced significant disruption due to the COVID-19 pandemic, steep rises in freight costs and geopolitical tensions with China

- Businesses have adopted approaches such as diversification, onshoring and boosting inventory to manage the impact of disruption

- Governments are considering their role in ensuring access to critical goods, including through international cooperation

- Even if the impact of COVID-19 lessens in coming years, business will need to maintain a focus on resilience as disruptions become more frequent due to persistent geopolitical tensions



In the last two decades, supply chains in Asia have evolved to support low-cost production and just-in-time logistics, lowering the cost of doing business across borders. Supply chains have become leaner and more efficient as businesses have reduced the number of suppliers and minimised inventory waste. Trade liberalisation enabled businesses to scour the globe for the lowest cost inputs, creating supply chains that often extended beyond multiple borders in the production of a single item.

However, recent disruptions created by COVID-19 and geopolitical tensions have revealed some of the risks of chasing efficiencies in this way. To meet the challenges posed by more frequent disruptions, businesses and governments need to think carefully about how they can most effectively build resilience into their supply chains in the mid- to long-term.

COVID-19 is a once in a generation supply chain disruption

COVID-19 has been the greatest shock to the highly complex supply chain networks that have evolved over recent decades. The outbreak initially impacted production as whole cities and regions were locked down. Output dropped significantly, first in China, and then other regions, and production lines shifted to produce essential items such as personal protective equipment (PPE).

By March 2020, 95 per cent of companies around the world had their supply chain impacted by the pandemic.¹ A thousand of the world's top companies found 12,000 of their factories in quarantined zones.² Australian businesses reported delivery delays of up to a few weeks and in some instances difficulties sourcing products entirely, with the greatest problems associated with PPE and other hygiene and medical products.³

A spike in freight costs is hitting profits

While production recovered within a few months of the first COVID-19 outbreak, the sudden shift in demand away from services and towards goods further affected already strained global freight networks, especially sea freight.

In some developed economies, workers were supported by stimulus measures but confined to home, so spending shifted from services like hospitality to consumer goods mostly produced in East Asia, which put pressure on transport infrastructure. A shortage of shipping containers, reduced port capacity due to restrictions, and the rising popularity of e-commerce also drove up the

cost of sea freight, with the cost of container space in August 2021 nearly three times what it was a year prior.

Some analysts expect bottlenecks to dissipate and prices to fall as COVID-19 recedes and the global economy recovers. Others suggest higher freight costs are a symptom of deeper problems of monetary and fiscal stimulus running ahead of supply capacity. In the short- to medium-term at least, very high sea freight costs will continue to put pressure on business profitability.

Geopolitical tensions are undermining confidence

On top of this, businesses with supply chains extending across multiple borders have found themselves exposed to international political disputes. In particular, Australia's trade with China has been affected in several sectors since the bilateral relationship began deteriorating in 2017.

This has had major impacts on Australian businesses selling to China across a range of industries, including coal, timber, seafood, beef and barley. The current tensions have increased the prospect of geopolitical risk for other industries. The precipitous drop in Australian investment in China suggests uncertainty is pushing businesses to reduce their exposure to China.⁴

Sporadic and more frequent crises are driving a rethink on resilience

What were considered once-in-a-generation disruptions to supply chains are likely to become more frequent. A 2020 McKinsey study predicted that disruptions that last longer than a month can be expected to occur every three to four years.⁵ This is driven by other trends, such as increasing weather-based catastrophes caused by climate change, geopolitical instability and shifts towards higher tariffs. Our survey of businesses with supply chains across Australia and Asia showed this uncertainty is hitting small business hardest, with 32 per cent of those surveyed reporting that restrictions on

“What were considered once-in-a-generation disruptions to supply chains are likely to become more frequent.”



business could threaten their operations, compared to 15 per cent of medium-sized businesses and eight per cent of large businesses.

Businesses have responded by prioritising resilience, with 87 per cent of supply chain professionals reporting that they are planning to invest in it.⁶ A key question for business is whether the increased costs required to ensure resilience are the new normal. Our survey showed that businesses are considering various strategies to improve supply chain resilience, with supplier diversification, investment in technology and stockpiling generating most interest.

Governments are also closely considering the role they should play in ensuring supply chains, particularly the responsibility to ensure access to essential goods, such as medicines and PPE, should markets fail. The Australian Government is seeking to define these essential goods and develop policy to support sovereign capability where it is necessary.⁷ It is looking beyond stockpiling and supporting domestic production to consider how strengthening the country's manufacturing base can support resilience as new and unpredictable shocks occur. It is also working with like-minded countries to reduce supply chain dependency on China.⁸

Retailers are boosting inventory to hedge against supply chain delays

Businesses, especially those caught out by product shortages and delays when COVID first hit, are boosting inventories to ensure ongoing supply.⁹ Australian retailers that have been able to respond to the shift in demand for consumer goods during lockdowns have reported strong profits.

These retailers believe that erring on the side of having too much stock to avoid having to scramble to secure product when supply and shipping remain uncertain. The Reject Shop sources 60 per cent of its goods from overseas and is keeping inventory levels high so that it can continue providing low-cost consumer goods. These goods saw high sales during the panic-buying at the start of the COVID-19 shock before demand shifted to craft, storage and kitchenware as Australians settled into the first lockdowns.

Building inventory as a supply chain resilience strategy can impose significant storage costs, which businesses must absorb on top of considerably higher prevailing freight costs. This problem is more acute for small players that cannot leverage scale or relationships with major sellers to secure supply. While high demand for consumer goods



may be softening the blow to the bottom line that these costs impose, as economies open and consumers begin to shift their spending back to travel, entertainment and hospitality, many retailers will face difficult trade-offs between the cost of an inventory buffer and the uncertainties of sourcing to sell quickly.

Businesses are considering onshoring to shorten supply chains

Since short supply chains are generally more flexible and responsive when disruptions strike, onshoring can significantly improve resilience for manufacturing businesses. While the full effect of recent shocks on businesses is yet to be seen, some are considering onshoring, which involves bringing operations back to the home country.¹⁰

Our survey found that onshoring is most attractive to Australian small businesses, with 30 per cent saying they are considering it to improve supply chain resilience, compared with 15 per cent of medium size businesses and eight per cent of large businesses.

However, onshoring will only be a viable solution for certain industries in limited circumstances where the domestic manufacturing capability exists. An example of this is the Australian and New Zealand printed circuit board (PCB) industry, which has suffered disruptions since moving towards offshore production in the last decade. PCBs are needed for every industrial product, from toasters to rocket ships. In 2000, there were 14 significant plants producing PCBs in 2000 in Australia and New Zealand but the industry had been nearly entirely offshored ten years later. Around this time, Circuit Labs in Auckland began operations and has gradually expanded its manufacturing capacity to serve customers in Australia and New Zealand.

Circuit Labs cannot compete on cost with Asian suppliers but has been able to grow by offering fast turnaround of prototypes and small manufacturing runs that can be delivered quickly. The company was well-placed to pick up a spike in orders when COVID-19 disrupted Chinese supply in early 2020 and was allowed to operate during New Zealand's lockdown to support the development of ventilators. It is now partnering with Melbourne-based contract electronics manufacturer Alfatron to commence PCB production in Australia in late 2021.¹¹

Asialink Business survey: Is your business considering any of these strategies to increase supply chain resilience?



Asialink Business survey: In the last 12 months, what have been your biggest supply chain concerns?



Governments are assessing their role in resilience and manufacturing policy

While business remains focussed on building flexibility into supply chains, governments must consider the national security implications of essential goods shortages. This has become more acute over recent decades for advanced economies like Australia as the transition from manufacturing-based to service-based economies has created greater reliance on imports, including essential goods like medical supplies.

While most governments stockpile supplies of essential goods to some extent, the limits of this approach were laid bare at the beginning of the COVID-19 pandemic. Essential goods like N95 masks are impractical for government stockpiling as they expire within a few years, making planning against a contingency like the COVID-19 pandemic expensive. When COVID-19 hit, countries reliant on imports were dependent on international supply lines remaining open or the rapid repurposing of industrial capacity to make PPE.

COVID-19 has spurred governments around the world into reconsidering what role it should have in securing sovereign capacity to produce essential goods.

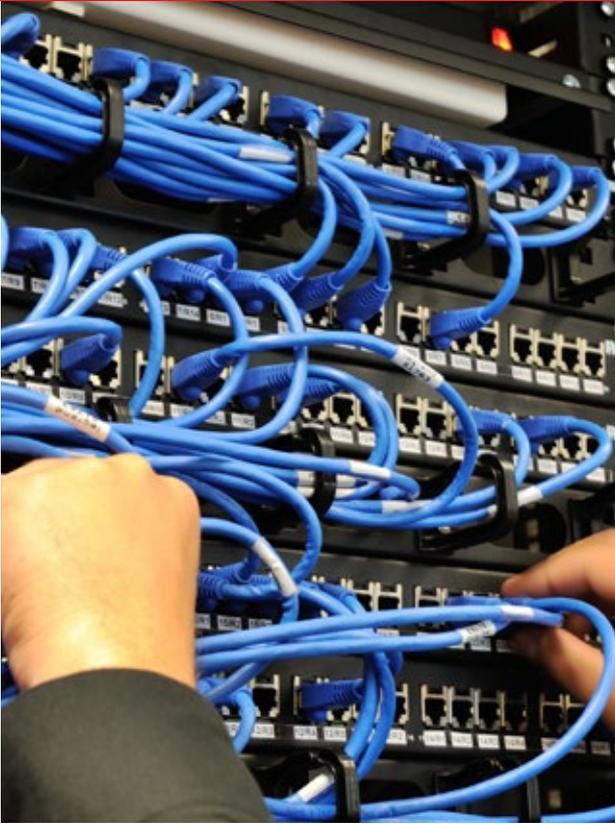
In Australia, the Productivity Commission examine where vulnerabilities exist in supply chains, where they impact the supply of essential goods, and what steps government can take to address them.¹² Its report reflects an emerging consensus that the supply chain challenges facing Australia in essential

goods are not serious enough or would not be improved by major stockpiling or directly subsidising domestic production.

Instead, the government is focusing its efforts on strengthening the resilience of essential supply chains by supporting industries and firms with the agility to shift to production in a crisis, and to some extent co-operate with like-minded countries to reduce reliance on China.¹³ This is occurring through initiatives such as the \$1.3 billion Modern Manufacturing Strategy.¹⁴ These programs seek to develop Australia's manufacturing base in sectors where it is globally competitive. In addition, the Australian Manufacturing Fund for PPE seeks to stimulate investment in new technologies and processes in the manufacturing sector.

Australia is not alone in recognising the need to consider resilience in manufacturing policy. Singapore's Economic Development Board coordinates assistance for business in managing the impacts of COVID, and provides a series of grants and schemes to maintain manufacturing capacity. It is also providing incentives to attract advanced manufacturing businesses that will diversify its production base.¹⁵

Singapore also links maintaining a skilled workforce to building resilience in the manufacturing sector. The Singapore government has established a new Advanced Manufacturing Training Academy to support policy of strengthening the manufacturing knowledge base in the country.



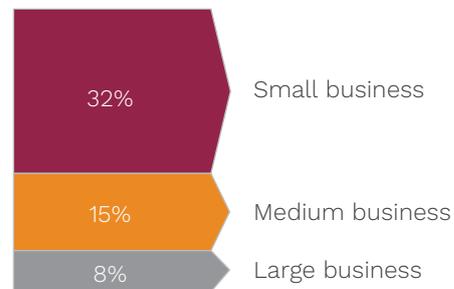
International co-operation has a role

Tensions in the region amid the shocks caused by COVID-19 brought Australia, the United States, India and Japan together in the Supply Chain Resilience Initiative, with a focus on reducing exposure to supply chains originating in China.¹⁶ Established in September 2020, the initiative focuses on reducing reliance on China in pharmaceuticals, semi-conductors, automobiles and telecommunications. Cooperation will involve efforts to improve trade in these sectors, including reducing protection and harmonising regulation.

The parties recognise that market forces have driven reliance on China in key sectors and that incentives to reorient supply chains will require targeted interventions to reduce dependence. Businesses, including lead firms, vendors, and distributors across various supply chains need to be compensated for migrating to locations less efficient than China.

In the business community, the need to diversify supply chains to avoid over-reliance on China has led to renewed discussion of “China Plus One” strategies. This term, which emerged in the late 2000s, recognised that while the Chinese market’s

Asialink Business survey: Are government restrictions one of your biggest supply chain concerns?



size might justify a singular focus on that market, the risks associated with regulations, intellectual property and the risk generated from political tensions need to be hedged. This justifies investment in understanding and building relationships in other markets, and eventually building supply chains in new markets or scaling up activity in existing markets. Some Asian governments, including Thailand, Malaysia and Vietnam, have picked up on this trend and introduced preferential policies for firms willing to invest.¹⁷

Government and business can reinforce each other by investing in resilience

For governments, ensuring that their communities have access to essential supplies in the next crisis will require innovative policymaking that rejects over-reliance on stockpiling and investment in import substitution and instead concentrates on supporting an industrial ecosystem that can be quickly re-purposed. In Australia, businesses need to strike a balance between cost efficiency and resilience. Too far in one direction risks unsustainable increases in costs of sourcing and storing goods, while the other direction risks large losses when the next disaster impacts supply chains.



CASE STUDY:

RIVERINA OILS AND BIOENERGY



P17

Building resilience through value-added produce and market diversification

DD Saxena
Founder,
Riverina Oils and Bio Energy

Riverina Oils and Bio Energy (ROBE), one of Australia's largest food processors, has been servicing the domestic market and exporting since 2013. Its founder, DD Saxena, explains how ROBE has built resilience into its supply chain by tailoring the approach to different markets based on business opportunity and customer needs.

Recognising a growing domestic and international demand for GM-free canola oil and the opportunity to build processing facilities near the canola farms of the Riverina district in New South Wales, Mr Saxena decided to build a \$150 million state-of-the-art fully integrated oilseed crushing and refining plant in Wagga Wagga. The edible canola oils produced by the plant now serve a booming domestic market and are exported to a range of markets, including the US and India.

The business has leveraged its natural advantages producing a high-demand value-added product and adopted a diversified approach across a range of markets. As the company is one of only two approved sellers in the US, it has prioritised meeting demand in that market through a 'stock and sale' hub. This facility in California is able to deliver anywhere in the country within 48 hours and means the business avoids potential delays associated with 'sell to order' approach.

In contrast, the approach in Asia is focused on building strategic alliances with big companies in key markets to build security of supply. ROBE has entered a strategic alliance with Wilmar, one of the region's largest agribusiness conglomerates, to bolster that organisation against price fluctuations and disruptions to its supply chain.

And in India, the business works with in-market distribution partners to sell its bulk edible oil products to consumers, drawing on the Australian origin and GM-free points of difference.

Saxena regards ROBE's success over the past eight years as an example of how Australian agriculture can be more profitable and achieve steady growth by moving up the value chain and developing a supply chain tailored to the needs of customers in different markets.

"When you are an exporter of a commodity, your business is subject to prevailing market prices – you're a price-taker," Saxena explains. "If you can add value with a functional element, success becomes tied to consumer trends. Our business has been able to tap into such a trend around GM-free canola oil and adapt the supply chain in different markets based on customer needs."

"If you can add value with a functional element, success becomes tied to consumer trends. Our business has been able to tap into such a trend around GM-free canola oil and adapt the supply chain in different markets based on customer needs."

CHAPTER TWO — Technology

P18

KEY POINTS

- North Asian economies, particularly China, have been early adopters of emerging supply chain technology such as the Internet of Things, artificial intelligence and cloud computing

- Chinese supply chain corporations are becoming more dominant across the region. Australian businesses will need to consider interoperability with Chinese systems when operating in Asia

- Australian businesses lag on technology adoption and would benefit from greater government incentivisation, particularly for SMEs



A number of technologies are coming together to revolutionise supply chain management globally. These technologies are solving some of the problems that beset supply chains, helping increase efficiency in production and logistics processes, and improving customer experience.

This is a global phenomenon, but adoption in North Asia is particularly rapid. Deep pools of capital, supportive policy environments and highly educated workforces favour rapid innovation in markets like China and South Korea. This creates opportunities in the region as more efficient and integrated supply chains open up markets.

This presents a dilemma for businesses in developed countries such as Australia with supply chains that extend into Asia. The rapid proliferation of technologies in our region promises new opportunities for business. But regional markets that are not as far along the technology adoption curve risk missing out on interoperability with more advanced supply chains in Asia if investment lags. This challenge is particularly pronounced for SMEs that lack the funds for technology investment.

Some Australian businesses are leading the way by investing in new technologies, but broader adoption is needed. Governments across the region should consider how North Asian governments are supporting supply chain technology adoption and whether any lessons can be applied to their domestic industry policies. Supporting small businesses to overcome barriers to adopting new technologies should be a particular focus.

Technologies are coming together to redefine supply chain management

New technologies are facilitating the evolution of the supply chain into digital ecosystems linking product development, manufacturing and distribution networks. The Internet of Things (IoT), artificial intelligence (AI) and cloud computing are transforming the way products are made, stored and transported, as well as the relationship between producer and customer.

The Internet of Things refers to networks of devices connected by sensors which can collect, send and receive data, including the temperature, humidity, light levels, movement, speed, handling and other factors in an environment.¹⁸ In the supply chain, IoT devices monitor the storage conditions of products

to enhance quality management. Devices also use GPS technologies, allowing businesses to track and authenticate products in transport and delivery.

As information that was previously collected by people is increasingly machine generated, inventory is counting itself and pallets are reporting if they end up in the wrong place¹⁹ As emerging technologies become more affordable in coming years, IoT devices could transform warehouses by replacing manual inventory recording with data collected by sensors connected to cloud platforms for storage and analysis.

Drawing on these vast data sources, AI applications can evaluate options faced by supply chain managers against dynamic and complex sets of risks and constraints. In logistics, this allows dynamic optimisation of routing, freight contracting and vessel sharing, which increases speed and reduces costs and environmental impact. In some sectors, AI can be used in procurement to integrate data with suppliers, allowing automated orders to optimise timing for storage considerations and price.²⁰

Our survey of Australian business showed that AI technology solutions are most popular among large companies, with 42 per cent of big business respondents indicating they were interested in investing in AI, compared with 27 per cent of medium sized businesses and 13 per cent of small businesses.

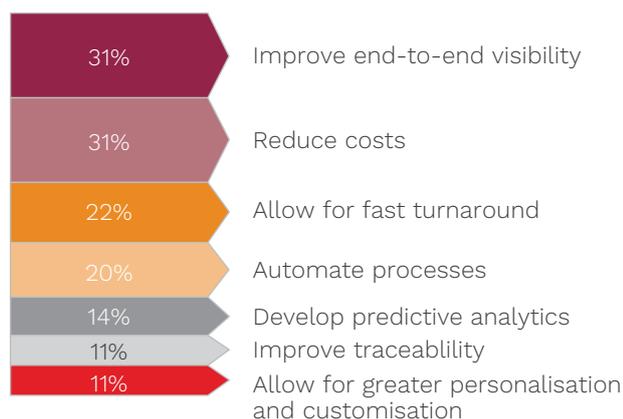
China leads the way in adoption of new technologies

While new supply chain technologies are being developed across the world, adoption is particularly rapid in North Asia. The stand-out is China's Cainiao, the \$13.4 billion logistics subsidiary of Chinese e-commerce giant Alibaba founded in 2014.

Chinese businesses are adopting the latest technologies to serve the world's largest e-commerce market. For instance, Cainiao is a global leader in warehouse automation, allowing it to serve Alibaba's enormous Tmall platform. Its IoT platform

“The Internet of Things (IoT), artificial intelligence (AI) and cloud computing are transforming the way products are made, stored and transported”

Asialink Business survey: How is your business using or planning to use these technologies to improve supply chain management?



integrates storage facilities with one of the world's largest fleets of autonomous vehicles, including shuttles for last mile delivery in several pilot cities. Cainiao also operates an open collaboration platform for 3,000 logistics partners, including 100 operating internationally. It uses cloud computing to reach into this vast network to optimise delivery. By leveraging all these capabilities, it can deliver a one-kilogram package anywhere in China in 24 hours for approximately 30 cents.²¹

Multiple forces power North Asian technology adoption

The rapid adoption of new supply chain technology in China and other advanced Asian economies can be explained by several compounding factors.

Very large corporations in Asia can leverage access to capital to invest heavily in infrastructure to grow quickly. As a subsidiary of the largest e-commerce platform in China's \$1.1 trillion e-commerce market, Cainiao is an example of this. Large corporations also operate in a policy environment that enables them to consolidate industries in the interests of creating efficiencies. Alibaba Group's ownership of Cainiao, TMall and Alipay allows it to consolidate consumer data across logistics, e-commerce and payment networks.

Larger forces are also putting pressure on North Asian economies to digitise and automate their supply chains. For the advanced economies in the region with rapidly ageing demographics, automation offsets declining labour market growth and rising wages.

South Korea, which is facing an acute contraction in its workforce, recognises the need for greater automation across its manufacturing base and its transport networks. With 868 robots per 10,000 workers, eight times the global average, South Korea is one of the most automated nations in the world.²² This density is partly a result of the government's efforts to incentivise automation to compensate for a rapidly ageing population.²³

As with China, South Korea's conglomerates play a leading role in the country's automation drive. Since 2015, Seoul has worked with Samsung to accelerate the deployment of robots in the manufacturing sector, targeting high-end consumer electronics. This investment is building South Korea's self-sufficiency to counter dependence on China. As Chinese wages rise and trade tensions create new uncertainties, automation is also helping South Korean industry become less reliant on extended supply chains.

China is driving supply chain modernisation in the region

While North Asia surges ahead, other parts of the region lag. Indonesia and India have seen rapid e-commerce growth over the past ten years, which has driven supply chain innovation. These economies, however, lack the deep pools of capital, ageing population and highly educated workforces that spur technology adoption in their northern neighbours.

Growing demand from these emerging economies, however, has provided an opening for Chinese investment in their supply chains. Firms like Alibaba that have scaled quickly in the Chinese market are well placed to expand across its borders. Unlike Amazon, which is focusing its global expansion on its branded marketplace, Alibaba is expanding its logistics network by piecing together subsidiaries to connect the region's e-commerce markets. Its global strategy is currently focused on investment in and expansion of its platform partners in Southeast Asia.

Regional governments also recognise that cooperation with Chinese companies can support their own modernisation agendas.²⁴ This suggests



that Chinese technology innovations will continue to proliferate in the region and that participation in supply chains across Asia will increasingly demand interoperability with Chinese standards.

Australia is in the middle and risks being left behind

While Australian businesses perform well on a global level on technology adoption, they are not moving fast enough to keep up with their North Asian neighbours.

According to a 2021 survey of supply chain and procurement executives, the lack of advanced digital and analytical skills amongst employees is the main challenge associated with new technology adoption.²⁵ Unlike North Asian economies, Australia lacks a workforce accustomed to rapid adoption of new technologies and consumers have been less exposed to the pace of change seen in markets like South Korea and China.²⁶

Another constraint on supply chain automation in Australia is the cost of implementation, particularly for SMEs. Although the price of advanced technologies has fallen considerably in recent years,

businesses require significant capital to establish and maintain autonomous systems. While the high upfront costs are eventually returned through increased efficiency and sales, such investments seem risky, particularly in an environment of capital constraints caused by the COVID-19 pandemic.²⁷

As a mature economy, Australian businesses also need to upgrade legacy infrastructure, which can be more expensive than green-field deployments in emerging economies. While these costs are daunting, especially for smaller businesses, the price of automation in the production process is coming down. Australian businesses operating in the region can also rely on international third-party logistics firms to keep ahead of technology trends.

Australian business recognises that adopting new supply chains can generate significant cost efficiencies. Respondents to our survey of businesses with supply chains across Australia and Asia nominated reducing costs as one of the top reasons to adopt new technologies. Big business respondents indicated that the greatest promise of new technology was improvement of traceability, while medium-sized businesses nominated faster turnaround and small businesses improvements in end-to-end visibility.

Some big Australian enterprises are leading the pack

Despite some of the hurdles holding back adoption of new technologies, some Australian business have pushed ahead with investments in automation.

In manufacturing, one of the largest bottlers of non-alcoholic beverages in the Asia-Pacific region, Coca-Cola Europacific Partners (CCEP), is embracing automation.²⁸ By introducing a range of physical and digital automation tools, CCEP has improved the efficiency of operations at its major distribution centres in Australia and New Zealand.

At its Auckland distribution centre, the CCEP team collaborated with logistics automation company Swisslog to implement a range of warehouse automation technologies, including voice-command picking, wireless communication and a single point of control system.²⁹ These technologies were designed to limit the need for multiple warehouses, reduce operating costs, and improve inventory management. As a result, pick accuracy at the Auckland centre is at an all-time high and fast, efficient inventory reads enable 99 per cent case fill of orders.



Government has a role in promoting supply chain modernisation

Recent investment in infrastructure such as intermodal terminals and automated ports underlines the importance of public investment in creating an ecosystem for new technologies. The Australian Government's \$2 billion investment in the Melbourne intermodal terminal will maximise the potential for inland rail to drive efficiencies in delivering agriculture produce to market over coming decades.

Innovation in supply chain technologies, however, has been predominantly driven by private investment. Adoption of new technologies, particularly in North Asia, has also been driven by large conglomerates. Even so, industry policies and incentive schemes are playing an important role in supporting technology adoption in North Asia.

Fundamental economic and policy differences mean there are limitations to what Australia can adopt from North Asia, particularly China. Despite this, we can still learn from these markets, particularly when it comes to incentivising SMEs to adopt new technologies. South Korea's small-scale but targeted support of SMEs to automate operations is a relevant example. This could potentially build on the Australian Government's Modern Manufacturing Strategy grant programs, including the Supply Chain Resilience Initiative and the Manufacturing Modernisation Fund 2, which also incentivise SMEs to adopt technology.

Government and business must also recognise that China's leading position in supply chain technology and its growing focus on partnerships with other regional markets will likely mean that Chinese standards will become increasingly common. Working with logistics partners in the region will be critical for Australian businesses to identify and take full advantage of new opportunities.

CASE STUDY:

FOODBUY AND CIPS



Technology can enhance supply chain resilience and sustainability

Andrew Brightmore
Executive Director,
Foodbuy Australia

The supply chain industry alongside professional bodies is collaborating to further uplift supply chain management technology and skills, particularly for small and medium-sized businesses.

As the leading industry body for the profession, the Chartered Institute of Procurement & Supply (CIPS) is working with its members to both advise government on pressing issues and to upskill the capability across organisations. CIPS has seen an explosion in businesses investing in procurement capability, training and development to boost knowledge and skills. Businesses are also transferring new talent into their procurement teams as a competitive differentiator.

Andrew Brightmore, a CIPS Fellow and the Executive Director of Foodbuy Australia, is passionate about boosting both the supply chain profession's skills and profile. "Foodbuy continues its focus in balancing the COVID-19 priorities to ensure continuity of supply to our Clients alongside supporting our SME partners who underpin the 90+ million meals the organisation supports each year," he said.

"We have a key responsibility to support and protect our Australian SMEs, Indigenous and Social Enterprise supply partners so they are able to weather the storm and continue to trade, employ staff and contribute to their local communities through the toughest trading conditions and restrictions they have experienced. These businesses have been hit hardest by recent supply chain disruptions and they may lack the scale, diversity in customer base and the efficient technology solutions of larger players."

Foodbuy provides its customers with the full range of food, beverage, retail and hospitality consumables and products. Sourcing from

Australian growers and manufacturers is paramount. When the pandemic hit the immediate focus was understanding the pressures on both domestic and imported supply, including personal protection equipment (PPE) and consumables not manufactured within Australia.

"Foodbuy's strength in securing supply and managing risk comes from our investment in our supplier relationships, our technology and data," said Brightmore. "Wherever possible, we integrate directly into partners' databases and currently collect over 3.5 million attributes of data every day to ensure that customers can purchase the goods essential for their operation and for their customers."

Foodbuy's investment in data analytics ensures that both their own team and their clients have unparalleled access, visibility and transparency into the supply chain. "This allows us to disaggregate the supply chain at every single step, understand the components of both cost and risk and to be able to work with clients in real-time to support their priorities."

This investment in supply chain visibility also allows Foodbuy to support its clients to meet the sustainability goals that customers and regulators are demanding. "Sustainability and the broader ESG agenda is no longer a differentiator but is a licence to operate. It's a critical commitment that will require massive and sustained supply chain investment," Brightmore explains.

For SMEs in particular, working with a procurement partner with this professional capability, alongside the technology and practices required to provide visibility of its supply chains in granular detail is increasingly critical to meeting community and regulatory expectations.

CHAPTER THREE — E-commerce

P24

KEY POINTS

- The growth of e-commerce and consumer expectations in Asia is increasing pressure on supply chains

- To remain competitive, businesses need to ensure that their supply chains can meet consumer demands for speed, convenience, traceability, personalisation and service

- Choosing the right partner to handle complex and evolving supply chain logistics will be essential for businesses to take advantage of e-commerce growth opportunities



E-commerce has transformed modern retail and brought significant benefits to consumers and businesses globally. The Asia-Pacific region leads the world in e-commerce growth and presents the largest opportunities for Australian businesses.³⁰

But the rise of e-commerce has also created significant challenges for supply chain operations. As e-commerce volumes grow and consumers' expectations for fast, convenient, and transparent order fulfilment evolve, traditional supply chains are being put to the test.

The opportunities for Australian businesses that can successfully adapt their supply chains to meet the changing demands of Asian consumers are significant. Investment in an agile, digitally connected supply chain is vital to succeed. Failure to adapt risks losing market share to competitors that can better fulfil consumer needs.

E-commerce in Asia is booming

E-commerce in Asia is growing at staggering pace. 62 per cent of all e-commerce sales in 2020 took place in Asia-Pacific compared with just 19 per cent in the US and 13 per cent in Western Europe.³¹

Whilst physical retail remains the dominant channel across Asian markets, e-commerce growth is outpacing bricks and mortar stores worldwide.³² Driven by rising incomes, growing internet and mobile penetration, and accelerated by COVID-19 lockdown measures, e-commerce value in Asia grew by \$254 billion to \$1.6 trillion in 2020.³³ This is forecast to grow to \$3.3 trillion by 2024.³⁴

COVID-19 has accelerated these trends. According to an IPSOS survey, 55 per cent of Vietnamese respondents increased their online shopping in 2020, as have 50 per cent of Chinese respondents. And a recent study found that 30 per cent of Southeast Asian digital consumers increased online spending in 2020.³⁵ This shift in consumer behaviour is expected to last, presenting significant opportunities for Australian businesses.

Although e-commerce is growing, there is considerable variation across markets. China is the largest market, accounting for 52 per cent of worldwide e-commerce retail as of May 2021.³⁶ It is projected to grow at CAGR of 7 per cent from 2020 to 2025.³⁷ Japan and South Korea are the next largest Asian markets accounting for 3 per cent and 2.5 per cent of global e-commerce in May 2021.³⁸



Whilst China, Taiwan, South Korea, Japan and Singapore are mature markets, India, Vietnam, and Indonesia are less mature but have higher growth. India is the world's fastest growing e-commerce market, worth \$55.8 billion in 2020.³⁹ Vietnam is projected to grow to almost \$12.2 billion and Indonesia to \$113 billion by 2025.⁴⁰ Malaysia, Thailand and the Philippines are less mature markets.⁴¹ Businesses considering e-commerce retail should consider the mix of mature and high-growth markets that would best suit their risk appetite and growth strategy.

In some markets, such as Singapore, Malaysia and the Philippines, cross-border e-commerce makes up a significant part of the overall e-commerce market. For example, in Malaysia cross-border shopping made up 49 per cent of total online sales in 2020⁴² with top online shopping vendors being China, Singapore, Japan, the United States and South Korea.⁴³ In Singapore, cross-border shopping made up 37 per cent of total online sales. In the Philippines it was 33 per cent.

Most consumers purchase goods via their mobile phones or through social media platforms.⁴⁴ Mobile commerce accounts for nearly 80 per cent of all e-commerce transactions in Asia and social

“62 per cent of all e-commerce sales in 2020 took place in Asia-Pacific compared with just 19 per cent in the US and 13 per cent in Western Europe.”

commerce (products bought through social media platforms such as wechat mini programs, Facebook shops or Instagram checkout) is growing.

Our survey of businesses with supply chains across Australia and Asia showed that China remains the focus for businesses that are investing in e-commerce, with 65 per cent of respondents indicating they were interested in expanding their presence in China.

To win in Asia, supply chains must support five key consumer requirements

E-commerce has changed the way consumers shop and disrupted the traditional retail fulfilment model. Supply chains have shifted away from the movement of bulk goods from warehouses to stores, to faster delivery models where orders are picked and packed in fulfilment centres and delivered to a consumer's preferred location.⁴⁵ Reverse logistics for the return of goods has increased complexity.

For Australian businesses to compete in this rapidly evolving landscape, they need to keep pace with evolving consumer preferences. The supply chain is the backbone of e-commerce and it must be capable of meeting growing consumer demands for speed, convenience, traceability, personalisation and service.

1. Speed

Consumers want their orders delivered quickly. According to a Google survey of APAC customers, 55 per cent cited long shipping times as a key disadvantage when shopping online.⁴⁶ Platforms are responding accordingly. Major players such as Amazon and JD.com have built extensive logistics networks to provide next day, same day and even within the hour delivery options. These services have raised consumers' expectations and redefined logistics standards.

As fast delivery becomes the norm, businesses must optimise their supply chains to reduce lead times by moving fulfilment centres closer to consumers or utilising stores to fulfil online orders. For example, Walmart in China uses its stores to offer one hour grocery delivery and Lazada in Singapore has partnered with 7-Eleven and Ninja Van to turn 350 7-Eleven stores into parcel collection points.

Businesses need an efficient partner for last mile delivery, which is one of the most time consuming and costly phases in the supply chain. Delivery drivers need to transport high volumes of smaller packages to hundreds of unique destinations. Last mile delivery is an important bottleneck to address as these deliveries are expected to grow by 78 per cent by 2030.⁴⁷ Data analytics can help optimise routes to deliver the largest number of items in the shortest time. Autonomous vehicles and drones also have potential to increase efficiency. These factors should be considered when assessing delivery partners' capabilities.

2. Convenience

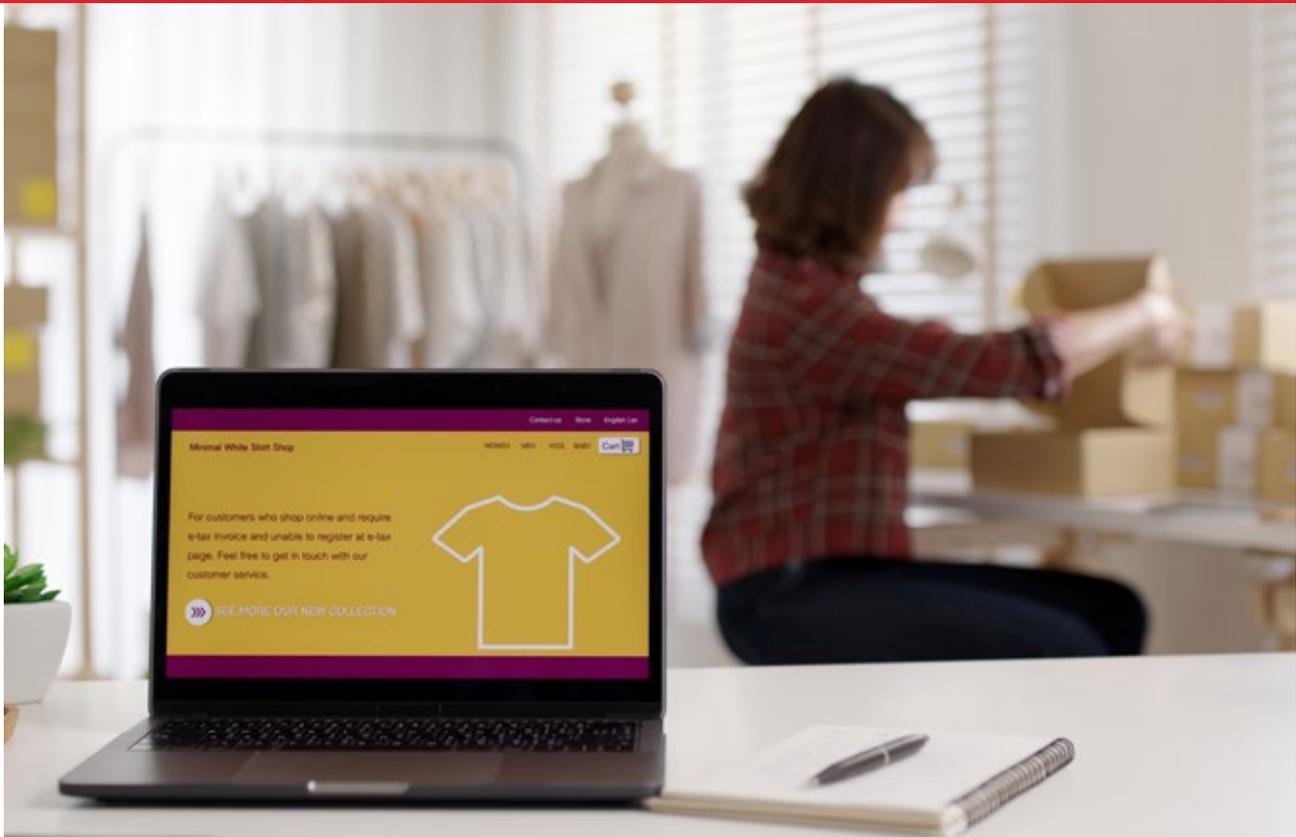
Consumer demand for a wide assortment of products, as well as a range of delivery and return options is placing increased strain on supply chains.

Availability of a range of products

Consumer desire for choice of products when shopping online has resulted in an explosion in the number of stock-keeping units (SKUs) offered by e-commerce sites.

The proliferation of SKUs increases supply chain complexity and costs, as greater inventory is needed to meet expectations for fast delivery. E-retailers must consider what SKUs should be warehoused, what should be carried online, and what to source directly from suppliers when orders come in. Real-time inventory and warehouse management is essential to avoid tying up capital in poor performing stock, running out of warehouse space, and to manage spikes in consumer demand, especially around promotional festivals. More SKUs also require labour-intensive pick and pack services to fulfil each order.

Businesses can outsource these warehousing and fulfilment operations to third party logistics (3PL) providers. 3PLs have the resources to invest in new technologies, such as machine learning to improve demand forecasting and inventory management, and automation to improve picking efficiency and reduce labour costs. Businesses with an interest in expanding their presence in Asia should carefully select an appropriate e-commerce platform or 3PL partner to ensure they have the capabilities, systems and reach across multiple markets to effectively manage inventory and meet consumer demand.



Multiple delivery options

As well as product choice, consumers want greater flexibility to choose delivery locations for purchases. E-commerce sites now offer multiple delivery options from home delivery, ship to store, ship to locker or another convenient location, and click and collect.⁴⁸ This creates a complex flow of products from fulfilment centres to stores, lockers or consumer's homes.⁴⁹ Businesses should partner with 3PLs and postal companies with excellent planning and last mile delivery services that can provide high quality fulfilment options.

Returns

Returns are another important aspect of convenience. With more online purchases returned compared with bricks and mortar stores, efficient and cost-effective reverse logistics are needed.⁵⁰

Returns have a significant impact on customer satisfaction and loyalty but are also costly. Logistics partners need to be capable of managing the reverse logistics flow and where possible merge forward and reverse logistics to increase efficiency and reduce operational costs.

3. Traceability

Business will need to adjust to consumer interest in knowing the origins and delivery status of products and track the delivery of purchased goods. Real time tracking can alleviate consumers' concerns about trustworthiness of sellers and reliability when shopping online, as well as reduce likelihood of failed delivery.

Consumers increasingly expect e-commerce sites to be communicative especially around delayed deliveries. Most large e-commerce players now offer track and trace capabilities to meet this demand. However smaller providers often do not have good visibility over their supply chains and can struggle to capture this information.

To remain competitive, e-retailers are investing in new technologies such as Radio Frequency Identification and other sensors that can collect real-time data that they can share with consumers on websites and app platforms.



4. Service

As e-commerce becomes widespread, offering superior customer service becomes more important. Good service means different things across Asia and requires businesses to take a nuanced approach to their supply chain strategy.

For example, good service during last mile delivery in markets like India and the Philippines will require cash-on-delivery services. The professionalism of last mile couriers also influences consumers' perception of e-commerce service. Where couriers are late or impolite, this can change consumers' perceptions of an e-commerce site and reduce their loyalty or the likelihood of further sales.

5. Personalisation

Personalisation of the e-commerce experience is a growing trend across Asia. Brands are looking to create a unique shopping experience for consumers at various touchpoints. Personalised product packaging, especially for higher value purchases is one area where brands are looking to add value and give customers a memorable unboxing experience. Businesses should check to see if 3PL partners offer personalised packaging services.

Businesses can work with supply chain partners to build effective supply chains

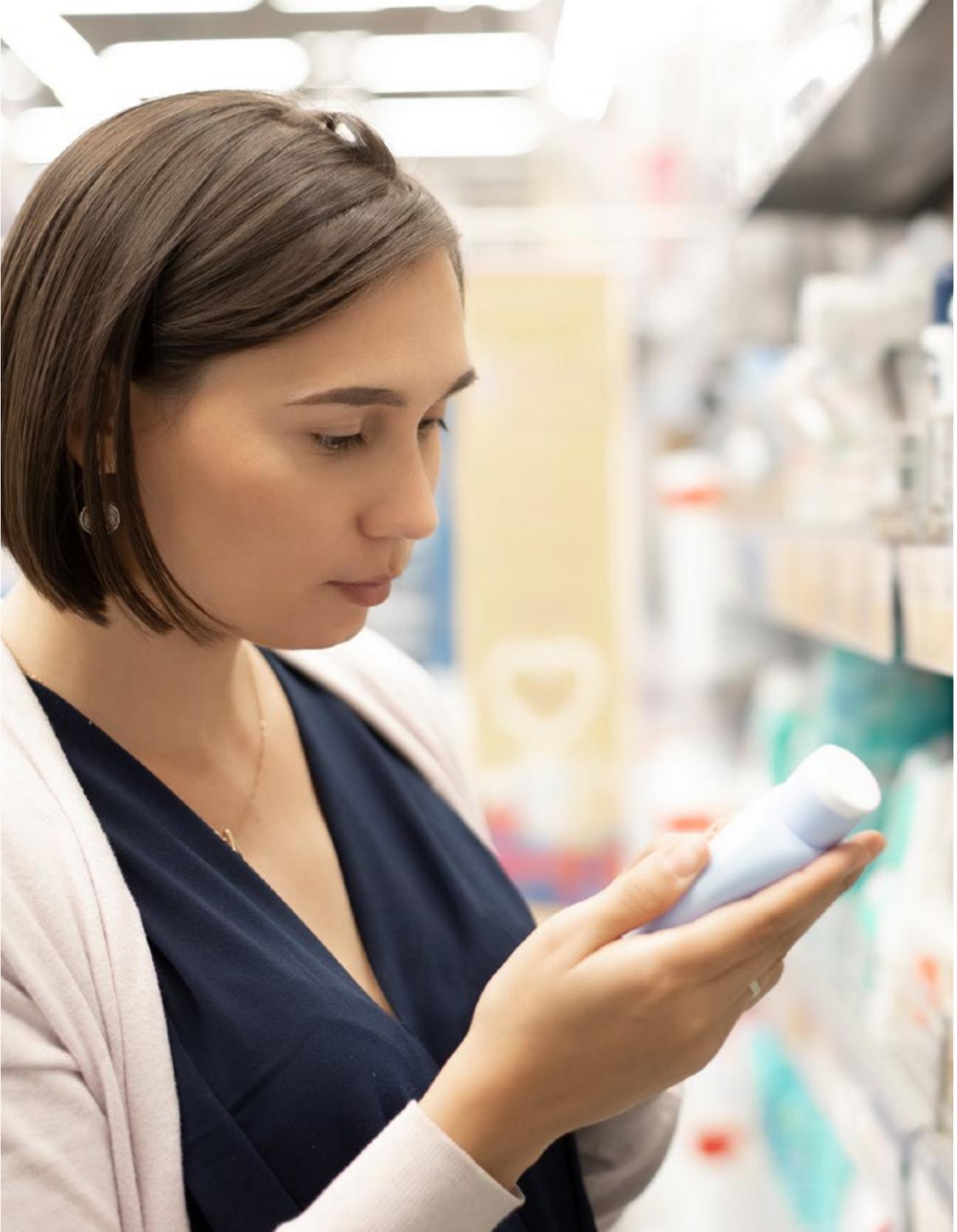
Businesses must adapt their supply chains to meet rising consumer expectations. If not, consumers will move to other channels that offer a better experience. For small and medium businesses, the priority will be working with partners such as e-commerce platforms that have in-house logistics operations or 3PLs that have the systems and capabilities to provide efficient warehousing, transport logistics and fulfilment services.

Local partners are well suited to responding to diverse challenges across different Asian markets. On the ground partners understand the challenges in each market - whether it be digital or transport infrastructure, population density or difficult geographies - and have built services accordingly. Partners can also help manage regional supply chain challenges such as navigating customs and regulatory requirements across different markets.

The right partners allow businesses to manage supply chain complexity and variation across Asia, meet consumer need and take advantage of the high growth potential of Asian markets.

What e-commerce platforms are you currently using?

CHINA	Alibaba	26%
	Xiaohongshu	8%
	JD	7%
	Suning	3%
	Kaola	2%
INDIA	Amazon India	7%
	Flipkart	5%
JAPAN	Rakuten	3%
	Amazon Japan	3%
SOUTHEAST ASIA	Bukalapak	2%
	Tokopedia	2%
	Lazada	4%
	Shopee	3%
	Qoo10	2%



CASE STUDY:

VITALITY BRANDS



P31

Finding the right distribution partner is key to keep up with e-commerce trends

Angeline Lopes
International Executive,
Vitality Brands Worldwide

Vitality Brands, best known for selling Cancer Council’s sunscreen products, has traded via e-commerce in Asia for 10 years. The company began with China and over time has expanded into Southeast Asian markets.

Angeline Lopes and Vicky Chen, International Executives, have seen first-hand the challenges that changing e-commerce trends pose for a company’s supply chain.

As e-commerce sales boomed in Asia’s 2020 summer season due to the economic rebound of COVID-19, the business strived to keep up with consumer demand. With air travel cut, Vitality had to prioritise sea freight, which affected customer fulfilment and supply chain planning.

“Success depends on working closely with the distributor to forecast and meet demand. We also had to work closely with our suppliers so that they could increase production,” Angeline said.

Vitality now works on longer planning timeframes for both its distributors and suppliers. The business is also investing in a new supply planning platform and is increasing staff resources to keep ahead of trends.

In future, Vitality hopes that closer integration of its data systems with both suppliers and distributors will help it better plan for spikes in production. The organisation sees the potential for real time data, rather than relying on monthly or quarterly reports from suppliers and distributors, to better predict demand and align production.

Increasing consumer demand for detailed product information has also impacted the business. Vitality finds that consumers are increasingly interested in product information such as hero ingredients and shelf life. It’s essential that their distributor partner is equipped to provide this information on e-commerce platforms.

Thanks to its many years of experience, Vitality now has an established approach to evaluating potential new distributors. Angeline says picking the right distribution partner is key to success.

“Make sure to do your research before you enter a market. A distributor may seem suitable, but you need to carefully consider their brick and mortar and eCommerce capabilities and be confident in their omnichannel strategies before you decide,” she said.

“Make sure to do your research before you enter a market. A distributor may seem suitable, but you need to carefully consider their brick and mortar and eCommerce capabilities and be confident in their omnichannel strategies before you decide.”

CHAPTER FOUR — Sustainability

P32

KEY POINTS

- Customers in Asia and Australia increasingly expect businesses to demonstrate the environmental and ethical sustainability of their supply chains

- New technologies can help businesses provide greater visibility and enable greater compliance with sustainability best practice, but further adoption is needed

- Governments can support sustainable supply chain practices by establishing regional knowledge-sharing partnerships and frameworks



Sustainable production and distribution practices along the supply chain are becoming more important to consumers across the region. Businesses are increasingly under pressure from customers to demonstrate that their suppliers and logistics partners conform with these demands, requiring an additional layer of oversight to achieve transparency.

Increased scrutiny is also creating new opportunities for businesses that can distinguish themselves by demonstrating ethical practices. Businesses that integrate sustainability into their supply chain design, partner with organisations to improve transparency, and apply new technologies, can both reduce costs and improve their reputations.

COVID-19 has increased cost pressures on businesses but choosing to prioritise sustainability in the supply chain is an opportunity to engage with consumers and realise savings at a time when logistics costs are rising.

Customers and regulators are expecting more from business

For most businesses, supply chains account for the bulk of their social and environmental impact. The supply chain of a typical producer of consumer products accounts for more than 80 per cent of its greenhouse emissions and more than 90 per cent of its impacts on air, land and water.⁵¹ Since the 1960s, customers in developed economies have sought greater transparency on pollution from production processes, and punished companies that have defied regulations or caused disasters.

Consumers in emerging Asian economies are increasingly concerned about environmental impacts of supply chains. A 2020 McKinsey study reported over 75 per cent of respondents in eight major Asian markets were motivated to shrink their environmental footprint. Chinese, Indian and Indonesian consumers were most concerned about air and water pollution and indicated that they take this into account in their purchasing decisions.⁵²

While still far from mandating the level of environmental compliance required by Australian, European and North American governments, governments in emerging Asian economies are slowly tightening environmental protection rules. This has been most marked recently in China, where rising costs of compliance and stronger enforcement are pushing high polluting companies out of the market.⁵³

In addition to improving environmental rules, some governments are increasingly focused on labour practices in supply chains. An estimated 25 million people across the Asia Pacific region are subject to labour conditions that render them effectively enslaved.⁵⁴ In 2019, Australia passed the Modern Slavery Act, which requires businesses with revenue



over \$100 million to report against risk criteria for slavery across their supply chains. This law pushes businesses to be more transparent and provide consumers with benchmarks to inform purchasing decisions. Even though modern slavery legislation is a recent development, 71 per cent of businesses with supply chains across Australia and Asia we surveyed believe it is a significant concern for their customers.

Companies with experience in labour practice due diligence have been best able to adapt to new legislative requirements. Big W, which is part of the Woolworths Group, for instance, has incorporated human rights due diligence within its supply chain based on an approach developed over decades to identify risks and audit suppliers.⁵⁵ It was able to respond quickly to manage risks to workers in its garment supply chain in Bangladesh early in the COVID-19 pandemic. Woolworths instituted virtual site visits to ensure safety standards were being met, provided care packages to support people working from home and reduced payment terms for suppliers to 30 days.

Greater transparency needs create challenges for business

Business is responding to consumer expectations by pledging greater transparency but it can be difficult to monitor practices.⁵⁶ Most companies, however, do not deal directly with all the firms in their supply chain nor have contractual ties with the suppliers of their suppliers. Moreover, one



“Businesses are increasingly incorporating sustainability principles into corporate strategies”

company’s business may represent a small portion of their supplier’s revenue, limiting their ability to influence when the supplier’s bigger customers have differing standards. A 2018 McKinsey study of the supply chains of three multi-national companies considered to be ‘sustainable leaders’ found that all ten lower tier suppliers in China and Taiwan had marginal environmental practices, dangerous working conditions and chronic overtime issues. Even in countries with more developed regulatory frameworks like the US, low tier suppliers were found to have sustainability and safety issues.

Companies’ inability to track their supply chains is a common cause of non-compliance with regulations and reputational damage. A survey by the Sustainability Consortium reported that less than 20 per cent of respondents had a comprehensive view of sustainability along their entire supply chain.⁵⁷ Better supply chain visibility and a willingness to impose standards are needed if businesses want to meet evolving consumer demands.

Some businesses are paving the way on sustainability

Despite the challenges, some companies have shown how to simultaneously achieve greater transparency, ensure sustainable practices and achieve greater efficiencies.

Uniqlo, a Japanese clothing retailer and one of the best-known Asian mainstream fashion brands, has focused on reducing carbon emissions in manufacturing through filtration technology to make polyester fibre from recycled plastic bottles. This process generates approximately one third of the emissions used when polyester is produced from crude oil.⁵⁸

In 2018, Unilever reported that their ‘Sustainable Living Brands’ grew 69 per cent faster than their other brands, delivering 75 per cent of their overall growth.⁵⁹ These brands focus on environmental or social purpose, with products that contribute to achieving the company’s ambition of halving its environmental footprint.

Small businesses are also embedding sustainability considerations throughout their extended supply chains. Outland Denim, an Australian company that was established in 2011 to provide employment opportunities to vulnerable people in Cambodia, won the Thompson Reuters Stop Slavery Award in 2020. The company established a program to identify and resolve instances of unsafe working conditions and exploitation in its cotton farm suppliers in Turkey. Its ethical approach has been proven to deliver profits.⁶⁰

Business should prioritise sustainability when designing supply chains

Businesses are increasingly incorporating sustainability principles into corporate strategies. More businesses are recognising that they can lower a supplier's environmental footprint and generate cost savings by increasing minimum order quantities, consolidating transport loads and engineering reverse logistics solutions. The location of suppliers can also influence the carbon footprint of a business. Sourcing in the home country or nearby countries can have carbon positive effects while also increasing resilience and responsiveness. Shorter, more responsive supply chains have the added benefit of requiring a smaller inventory buffer, freeing up cash flow and reducing storage costs.

Converting waste is an activity where businesses can work with suppliers to improve efficiency. Many of Australia's largest FMCG manufacturers, including Mars and Ingham, have recognised the financial benefits of adopting a 'zero waste to landfill' policy and are pursuing more sustainable waste disposal methods. Ingham has partnered with PRC Recycling to convert plastic bags into polypropylene plastic products such as safety hard hats.⁶¹

Partners can help achieve greater efficiency and transparency

Businesses can also improve supply chain transparency through partnerships. For instance, the Carbon Disclosure Project (CDP) helps companies manage their environmental impacts. CDP's work on supply chain management has reduced carbon emissions by more than 3.5 million tons, with suppliers saving an average of \$1.7 million per emissions-reduction initiative. Half of

Southeast Asian companies that report through CDP are integrating processes for identifying and managing climate-related issues in their overall risk management.⁶²

Partnerships can also improve efficiency while delivering sustainability outcomes. The Reusable Transport Packaging (RTP) framework enables reusable pallets and totes to be moved between the warehouse and end distribution point at a reduced impact to the environment and lower cost to business. Managing this process internally can be capital intensive, so businesses often use 3PL providers for RTP maintenance and retrieval. A 3PL provider can also reduce the occurrence of empty miles from return trips, as RTP is incorporated into a larger route, thereby reducing energy wastage and total freight costs.

A start-up ecosystem offering expertise and services to support sustainability has also evolved over the past decade. Australian start-up Beanstalk, for example, offer services to agri-food companies and industry groups across Asia Pacific to help build environmentally resilient and ethical food production systems through innovation and new agriculture technologies.

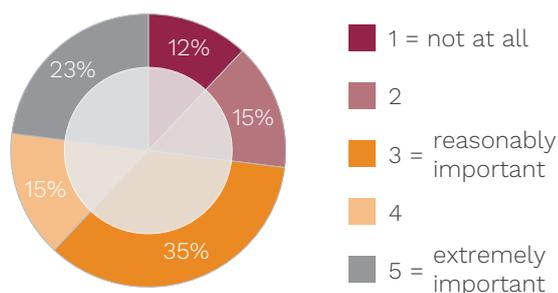
New technologies support sustainability

New technologies can be used to increase transparency for business along their supply chain as well as cut costs, waste and resources.

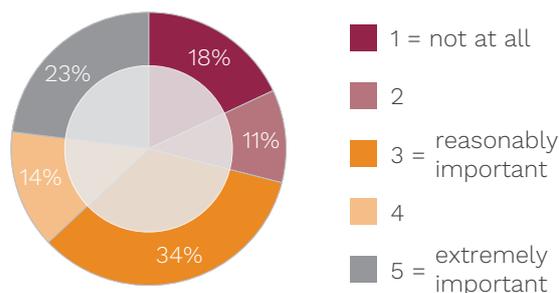
Blockchain technology can be used to trace the carbon footprint, recyclability and history of products. Blockchain technology stores data in immutable form, making it hard to manipulate. Blockchain-based product labelling can assure consumers of the transparency and reliability of information, increasing brand loyalty. Samsung recently demonstrated the potential application of blockchain with a supply chain tracking system.⁶³ The service provides a processing history of the shipping and distribution of marine products for Korean seafood companies.

Analysis of blockchain data from transportation emissions can also be used to develop efficiency measures. However, scalability and interoperability remain a limitation to widescale implementation of blockchain technology. Since different suppliers in a supply chain may not use the same blockchain platform for their business, data transfer is a challenge.

On a scale of 1 to 5, how important is reducing carbon emissions in the supply chain to your customers? (1=not at all, 3=reasonably important, 5=extremely important)



On a scale of 1 to 5, how important is the issue of modern slavery to your customers? (1=not at all, 3=reasonably important, 5=extremely important)



The Internet of Things (IoT) allows businesses to quickly detect defects that occur along the supply chain. This enables businesses to reduce loss of resources and energy based on data analysis from different devices.⁶⁴ IoT also allows for real-time visibility of products from their point of origin to final destination, and can reduce loss, theft and damage.

China Mobile's recent partnership with agritech company LinkDotter and a Beijing strawberry farm shows how connected devices can improve efficiency and quality in horticultural supply chains.⁶⁵ Greenhouses were equipped with IoT sensors to collect data about the environment, air and leaf moisture. Crop analytics allowed for adjustments that doubled crop size and accelerated growth.

Analytics can be used to support sustainable sourcing, reduce emissions from fleet operations and minimise manufacturing waste and packing. Portcast, a Singapore firm that predicts the arrival times of cargo and demand between ports, shows how cloud technology can be used to cut logistics costs. Portcast's models analyse weather data, such as wave height, wind speed and cyclone intensity to predict when a ship will arrive. This allows trucks to be at the dock on time, avoiding port fees as well as meeting growing consumer expectations of fast delivery (see *Technology*).

Government can promote regulatory development in the region

Australia is a global leader in implementing modern slavery legislation, though it lags the EU and other countries in some aspects of environmental regulation, including carbon emissions. Even so, Australia's environmental frameworks are more established than many of our trading partners in the region.

The Australian Government should establish a regional partnership, including key trading partners to share knowledge about legal and regulatory frameworks that enhance supply chain sustainability. Australia has a strong record with providing technical assistance for the development of law and regulation with partners in the Asian region and can leverage existing relationships to help build the capacity of regulators in markets that Australian business rely on for products and inputs.

CASE STUDY:

SUPER RETAIL GROUP



P37

Working with suppliers to improve sustainability

C.K. Ho
Senior Vice President for China,
Super Retail Group

As one of Australia's leading retail groups – with brands including Supercheap Auto, rebel, BCF and Macpac – ASX-listed Super Retail Group (SRG) has made working with suppliers on sustainability a priority.

As SRG sources most of its products from China, it has a local team to help implement its Responsible Sourcing and Modern Slavery commitments.

C.K. Ho, Senior Vice President for China, oversees implementation of SRG's responsible sourcing program. He says Chinese factories are increasingly willing to participate in audit processes when it comes to safety, working conditions and wages.

Stricter requirements from global big-box retailers like Walmart are pushing Chinese suppliers to demonstrate their responsible labour credentials at trade shows and other industry events. Ho suggests businesses can check databases that list the suppliers for these global companies to assist their own identification of responsible Chinese suppliers.

SRG applies a risk-based evaluation process for its suppliers, with factories that score

lower subject to increased audit frequency. It also uses a third-party provider to deliver e-learning modules to improve capability in its supply chain. Modules cover topics such as health and safety, working hours, worker's rights and social insurance. In FY21, representatives from 164 factories completed online training.

Ho acknowledges that working with suppliers on environmental sustainability is the next big challenge. "Sustainability is a relatively new concept and one that requires a partnership with our suppliers," he said.

SRG has committed to making all its private brand packaging reusable, recyclable or compostable by 2025. While this commitment may result in cost pressure on suppliers accustomed to using traditional packaging, such as Styrofoam, Ho confirmed it as the right step forward.

"If businesses want to achieve their sustainability objectives then they will need to work closely with suppliers, particularly to improve their capability," he said.

"If businesses want to achieve their sustainability objectives then they will need to work closely with suppliers, particularly to improve their capability," he said.

RECOMMENDATIONS

P38

To understand the challenges and opportunities business faces in managing their supply chains in Asia, we identified and examined four major trends driving change: resilience, technology, e-commerce and sustainability.

Major disruptions to supply chains in recent years have been caused by geopolitical tensions, the COVID-19 pandemic and high cost of sea freight. While some of these factors may recede in the medium term, geopolitical and economic trends suggest that disruptions will become more frequent in coming decades.

Asian economies will continue to rapidly adopt new technologies. As China continues to expand its e-commerce platforms and supply chain infrastructure across the region, Chinese standards will become more influential. For Australian businesses, understanding and being able to work with new technologies will become a critical part of operating in the region.

The ability to meet the evolving consumer expectations will also affect the success of businesses in Asia. Consumers expect greater convenience and speed in purchasing goods, but are also concerned about the environmental and labour practices embedded in their production and distribution and will increasingly reward greater transparency.

Based on these findings, we have developed six key recommendations for business and government:



1.

Businesses need to transform supply chain management, develop new business models and adopt innovative technology so they can better manage disruptions. As the disruptive effects of the COVID-19 crisis recede, declining profitability will put pressure on business to scale back resilience measures like inventory buffers and onshoring initiatives. Disruptions, however, are expected to become more frequent. Businesses will need to transform their supply chain management and relationships with customers and suppliers in order to balance resilience with cost considerations. Technology innovation will also play an important role.

2.

Businesses should ensure they are working with regional supply chain partners that can keep up with rapidly evolving technology and standards. As supply chains in the region evolve – particularly for e-commerce – it is essential that businesses work with partners that are responsive to consumer trends and can improve transparency. Businesses also need to select partners on their ability to understand and adopt evolving standards in the region – including around automation – which are substantially driven by the expansion of Chinese supply chain infrastructure.

3. Business should partner with organisations that can help improve supply chain transparency, including through technology innovation.

As consumers and regulators increasingly demand greater accountability for the environmental and labour practice impacts of supply chains, businesses need to ensure the greatest possible transparency. Large and small businesses can work with specialist organisations to improve internal practices, select and audit suppliers. New technologies, such as blockchain, offer considerable potential to improve transparency.

4. Government should consider expanding support for SMEs in competitive manufacturing sectors to adopt new technologies through supply chain resilience initiatives.

Our survey data shows that SMEs identify themselves as most exposed to the effects supply chain disruptions can have on their operations. The Australian Government's Modern Manufacturing Strategy includes programs which provide financial support for SMEs to adopt new technologies to improve their supply chain resilience. Singapore and other regional governments have similar schemes to encourage reshoring of SMEs in key manufacturing sectors. Governments should continue this support and consider expanding it.

5. Government should develop collaboration and knowledge-sharing initiatives in the region on supply chain sustainability.

Governments across the region should establish initiatives to bring together government, business and civil society to collaborate and share knowledge on best practices in supply chain sustainability. In Australia's case, this kind of initiative would leverage its existing efforts on sustainability, with a focus on modern slavery, climate change and the environment.

6. Government should work with industry bodies and universities to assess and, if necessary, support the development of supply chain management skills in the workforce.

While government focus on supply chain resilience is welcome, new technologies and processes can only be implemented by an appropriately skilled workforce. Government should work with professional supply chain organisations, industry bodies and universities to assess supply chain management skills across the workforce. Based on this assessment, government, industry and universities should partner on relevant education and capability development programs.

ACKNOWLEDGEMENTS

P40



We are incredibly grateful to Toll Group for supporting this report, making available experts from the business, and reviewing drafts.

We are grateful to the following individuals who contributed to the developed of this report, including Dr Vikram Bhakoo from University of Melbourne, Luke Heilbuth from BWD Strategic, Tarandeep Singh Ahuja from McKinsey & Co, Sharon Morris from the Chartered Institute for Procurement and Supply ANZ.

REFERENCES

A report by Asialink Business

P41



- 1 Remko, V, 'Research opportunities for a more resilient post-COVID-19 supply chain – closing the gap between research findings and industry practice', *International Journal of Operations & Production Management*, 40(4), 2020, p.341–355, <<https://doi.org/10.1108/IJOPM-03-2020-0165>>
- 2 Ibid.
- 3 Reserve Bank of Australia, 'Supply chains during the COVID-19 pandemic', May 2021, <<https://www.rba.gov.au/publications/smp/2021/may/pdf/box-b-supply-chains-during-the-covid-19-pandemic.pdf>>
- 4 Wilson, G, 'Australia is divesting from China', *Australian Financial Review*, 9 May 2021, <<https://www.afr.com/markets/equity-markets/australia-is-divesting-from-china-20210509-p57q8b>>
- 5 McKinsey and Company, 'Risk, resilience and rebalancing in global value chains', McKinsey Global Institute, 6 August 2020, <www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains>
- 6 Sodhi, M and Tang, S, 'How to prepare supply chains for the next global shock', *Barron's*, 8 April 2021, <<https://www.barrons.com/articles/how-to-prepare-supply-chain-for-the-next-global-shock-51617887181>>
- 7 Department of Industry, Science, Energy and Resources, 'Sovereign manufacturing capability plan: tranche 1', <<https://www.industry.gov.au/data-and-publications/sovereign-manufacturing-capability-plan-tranche-1/building-supply-chain-resilience>>
- 8 Hurst, D, 'Australia to discuss critical supply chains with Japan, India and US as China relationship frays', *The Guardian*, 3 October 2020, <<https://www.theguardian.com/australia-news/2020/oct/03/australia-to-discuss-critical-supply-chains-with-japan-india-and-us-as-china-relationship-frays>>
- 9 Mitchell, S, 'The Reject Shop stocks up, cuts costs to hedge against disruption', *Australian Financial Review*, 19 August 2021, <<https://www.afr.com/companies/retail/the-reject-shop-profit-rebounds-as-costs-fall-20210818-p58jxu>>
- 10 Amtil, 'Survey finds Australian manufacturers gearing up for re-shoring', 13 April 2021, <<https://amtill.com.au/pros-australia-re-shoring-manufacturers-amtil/>>
- 11 Alfatron, 'PCB fabrication coming to Australia in 2021', <<https://www.alfatron.com.au/index.php/pcb-fabrication-in-australia/>>
- 12 Productivity Commission, 'Vulnerable supply chains: Productivity Commission interim report' March 2021, <<https://www.pc.gov.au/inquiries/completed/supply-chains/interim/supply-chains-interim.pdf>>
- 13 Hurst, D, 'Australia to discuss critical supply chains with Japan, India and US as China relationship frays', *The Guardian*, 3 October 2020, <<https://www.theguardian.com/australia-news/2020/oct/03/australia-to-discuss-critical-supply-chains-with-japan-india-and-us-as-china-relationship-frays>>
- 14 Department of Industry, Science, Energy and Resources, 'Make it happen: The Australian Government's modern manufacturing strategy', <<https://www.industry.gov.au/data-and-publications/make-it-happen-the-australian-governments-modern-manufacturing-strategy>>
- 15 EDB Singapore, 'Gains through growth', <<https://www.edb.gov.sg/en/how-we-help/incentives-and-schemes.html>>
- 16 Palit, A, 'The resilient supply chain initiative: reshaping economics through geopolitics', *The Diplomat*, 10 September 2020, <<https://thediplomat.com/2020/09/the-resilient-supply-chain-initiative-reshaping-economics-through-geopolitics/>>
- 17 Hsu, S, 'Which Asian nations can benefit from the 'China Plus one' strategy', *The Diplomat*, 11 June 2021, <<https://thediplomat.com/2021/06/which-asian-nations-can-benefit-from-the-china-plus-one-strategy/>>
- 18 Blume Global, 'How the Internet of Things is transforming supply chain management', <<https://www.blumeglobal.com/learning/internet-of-things/>>
- 19 Butner, K, 'AI is reshaping the supply chain', <<https://www.ibm.com/thought-leadership/institute-business-value/report/cognitive-supplychain>>
- 20 McKinsey & Company, 'Succeeding in the AI supply-chain revolution', 30 April 2021, <<https://www.mckinsey.com/industries/metals-and-mining/our-insights/succeeding-in-the-ai-supply-chain-revolution>>



- 21 AJOT, 'Cainiao smart logistics network shaves off delivery times with new investments in global logistics infrastructure', 24 June 2020, <<https://ajot.com/news/cainiao-smart-logistics-network-shaves-off-delivery-times-with-new-investments-in-global-logistics-infrastructure>>; Campbell, C, 'China's Cainiao is revolutionizing how goods get delivered. Will the rest of the world follow its rules?', Time, 23 November 2020 <<https://time.com/5914173/cainiao-logistics-alibaba-china-trade/>>
- 22 International Federation of Robotics, 'Robot race: The world's top 10 automated countries', 27 January 2021, <<https://ifr.org/ifr-press-releases/news/robot-race-the-worlds-top-10-automated-countries>>
- 23 Kim, S, 'South Korea's robots are both friends and job killers', Bloomberg, 11 November 2019, <<https://www.bloomberg.com/graphics/2019-new-economy-drivers-and-disruptors/south-korea.html>>
- 24 Post & Parcel, 'Cainiao establishes a direct Malaysia-China e-commerce logistics service', 23 September 2020, <<http://postandparcel.info/127045/news/e-commerce/cainiao-establishes-a-direct-malaysia-china-e-commerce-logistics-service/>>
- 25 Kingsley, J, 'Supply chain evolution: A strategic perspective', Economist Intelligence Unit, 9 April 2021, <<https://eiu.com/content/dam/eiu/strategy/leadership/supply-chain-evolution-strategic-perspective>>
- 26 Dychtwald, Z, 'China's new innovation advantage', Harvard Business Review, May-June 2021, <<https://hbr.org/2021/05/chinas-new-innovation-advantage>>
- 27 Gardner, A, 'Four challenges for companies in the face of COVID-19', AMP Capital, 24 June 2020, <<https://www.ampcapital.com/au/en/insights-hub/articles/2020/june/four-challenges-for-companies-in-the-face-of-covid-19>>
- 28 SSI Schaefer, 'Coca-Cola Europacific partners Australia', <<https://www.ssi-schaefer.com/en-au/sector/food-beverage/coca-cola-europacific-partners-australia-820300>>
- 29 Swisslog, 'Coca-Cola, Australia: 264,000 cases in 24-hours', <<https://www.swisslog.com/en-us/case-studies-and-resources/case-studies/2016/07/coca-cola>>
- 30 Griffith, W and Birmingham, A, 'APAC leads the world in e-commerce growth', Which-50, 15 July 2016, <<https://which-50.com/apac-leads-world-ecommerce-growth/>>
- 31 UNCTAD, 'COVID-19 and e-commerce: A global review', 2021, p.45 <https://unctad.org/system/files/official-document/dtl-stict2020d13_en_0.pdf>
- 32 Inside Retail, 'FedEx boosts APAC capacity to service online boom', 4 December 2020, <<https://insideretail.asia/2020/12/04/fedex-boosts-apac-capacity-to-service-online-boom/>>
- 33 Euromonitor, 'Asia-Pacific E-commerce market size'.
- 34 Inside Retail, 'FedEx boosts APAC capacity to service online boom', 4 December 2020, <<https://insideretail.asia/2020/12/04/fedex-boosts-apac-capacity-to-service-online-boom/>>
- 35 Yendamuri, P, Keswakaroon, D and Lim, G, 'How COVID-19 is changing Southeast Asia's consumers,' Bain & Company, 26 June 2020, <<https://www.bain.com/insights/how-covid-19-is-changing-southeast-asias-consumers/>>
- 36 Von Abrams, K, 'These are the top global ecommerce markets', Insider Intelligence, 14 July 2021, <<https://www.emarketer.com/content/top-global-ecommerce-markets>>
- 37 Euromonitor, 'Retail in transition: Future e-commerce opportunities in Asia Pacific and Australasia'.
- 38 Von Abrams, K, 'These are the top global ecommerce markets', Insider Intelligence, 14 July 2021, <<https://www.emarketer.com/content/top-global-ecommerce-markets>>
- 39 Rapyd, 'Asia Pacific e-commerce and payments guide 2020', 2020, <<https://www.rapyd.net/resource/asia-pacific-ecommerce-and-payments-guide/>>
- 40 Bhatla, S, 'Why you should invest in Vietnam's e-commerce industry', Dezan Shira & Associates, 11 December 2020, <<https://www.vietnam-briefing.com/news/why-you-should-invest-vietnams-e-commerce-industry.html/>>; Statista, 'Annual gross merchandise volume of the e-commerce market in Indonesia from 2015 to 2020 with a forecast for 2025 (in billion US dollars)' 25 May 2021, <<https://www.statista.com/statistics/1117608/indonesia-gmv-e-commerce-market/>>

41 Bain & Company, 'The future of retail in Asia-Pacific: How to thrive at high speed', 2020, p.3 <https://www.bain.com/contentassets/fccef5fee07048c3b58eb94e805222ac/bain-brief_the-future-of-retail-in-apac.pdf>

42 Euromonitor, 'Sales of cross-border e-commerce by category'.

43 US Department of Commerce, 'Malaysia e-commerce', 19 August 2020, <<https://www.trade.gov/country-commercial-guides/malaysia-ecommerce>>

44 McKinsey & Company, 'Meet your future Asian consumer', 28 July 2021, <<https://www.mckinsey.com/featured-insights/future-of-asia/meet-your-future-asian-consumer>>

45 Y, Y, Wang, X, Zhong, R and Huang, G, 'E-commerce logistics in supply chain management: implementations and future perspective in furniture industry', December 2018, p. 2263, <<https://www.emerald.com/insight/content/doi/10.1108/IMDS-09-2016-0398/full/pdf>>

46 Think with Google, 'Understanding APAC shoppers: 3 surprising findings from the latest research', August 2021, <<https://www.thinkwithgoogle.com/intl/en-apac/consumer-insights/consumer-research/research-on-apac-shopper-behavior>>

47 World Economic Forum, 'The future of the last-mile ecosystem', January 2020, p.6 <http://www3.weforum.org/docs/WEF_Future_of_the_last_mile_ecosystem.pdf>

48 Kearney, 'The future of e-commerce: creating a competitive advantage with supply chain', <<https://www.au.kearney.com/article/?a/the-future-of-e-commerce-creating-a-competitive-advantage-with-supply-chain>>

49 Deloitte, 'The shed of the future e-commerce: its impacts on warehouses', 2014, <<https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/consumer-business/ch-en-cb-deloitte-the-shed-of-the-future.pdf>>

50 Shopifyplus, 'The plague of e-commerce return rates and how to maintain profitability', 25 August 2021, <<https://www.shopify.com.au/enterprise/ecommerce-returns>>

51 Bove, A and Swartz, S, 'Starting at the source: sustainability in supply chains', McKinsey Sustainability, 11 November 2016, <<https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains>>

52 McKinsey & Company, 'Sustainability in packaging: Consumer views in emerging Asia', <<https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/sustainability-in-packaging-consumer-views-in-emerging-asia>>

53 Pang, P, 'China's evolving environmental protection laws', Mondaq, 18 June 2020, <<https://www.mondaq.com/china/clean-air-pollution/955486/china39s-evolving-environmental-protection-laws>>

54 McGregor, A, 'Modern slavery act: What businesses in Australia need to know', Norton Rose Fulbright, August 2020, <<https://www.nortonrosefulbright.com/en/knowledge/publications/06a565ee/modern-slavery-act-what-businesses-in-australia-need-to-know>>

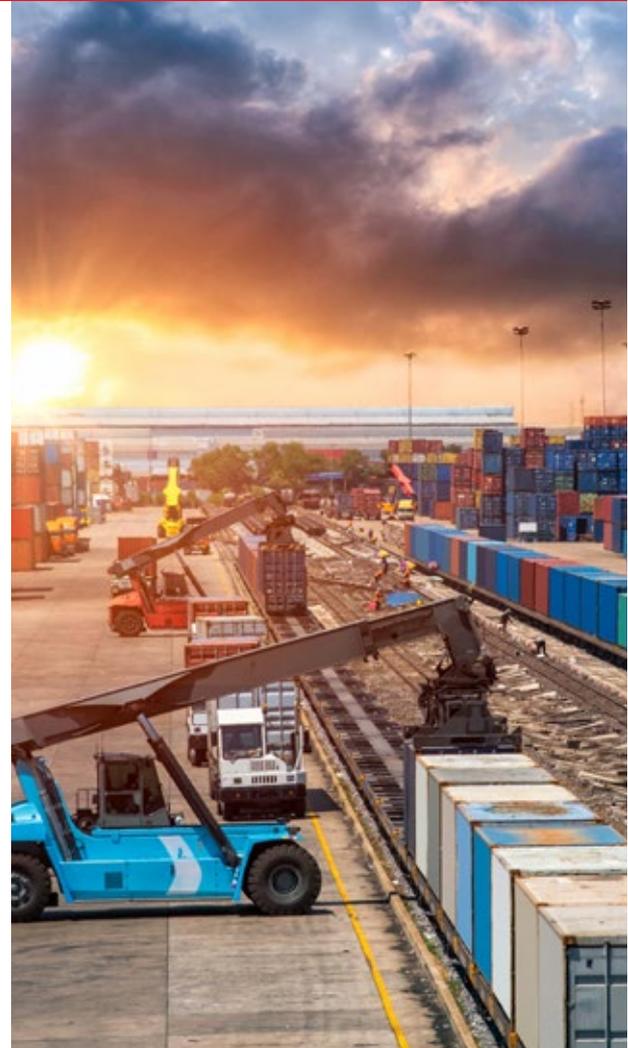
55 Woolworths Group, 'Modern slavery statement 2020: Respecting human rights', <<https://www.woolworthsgroup.com.au/content/Document/ASX%20announcements/2020/2020%20Modern%20Slavery%20Statement.pdf>>

56 Bove, A and Swartz, S, 'Starting at the source: Sustainability in supply chains', McKinsey Sustainability, 11 November 2016, <<https://www.mckinsey.com/business-functions/sustainability/our-insights/starting-at-the-source-sustainability-in-supply-chains>>

57 Sustainability Consortium, 'Greening global supply chains: From blind spots to hotspots to action', 5 June 2016, <<https://www.sustainabilityconsortium.org/tsc-downloads/greening-global-supply-chains-from-blindspots-to-hotspots-to-action/>>

58 Uniqlo, 'Clothing made from plastic bottles', <https://www.uniqlo.com/jp/en/contents/sustainability/planet/sustainable_clothing/special/recyclepolyester/>

59 Unilever, 'Brands with purpose grow – and here's the proof', 16 June 2019, <<https://www.unilever.com.au/news/2019/brands-with-purpose-grow-and-here-is-the-proof/>>



60 Bates, K, 'Social progress and responsible business practice: A study on outland denim's cut and sew facility in Cambodia', 2019, <<https://cdn.shopify.com/s/files/1/0098/3669/1535/files/2019-Nottingham-Case-Study-Final.pdf?v=1602721148>>

61 Ingham's, 'Turning plastic bags into hardhats', 26 October 2020, <<https://ingham.com.au/turning-plastic-bags-into-hardhats/>>

62 CDP, 'Companies in Asia Pacific show high awareness of climate-related issues, but more actions needed to achieve Paris agreement targets', 13 March 2020, <<https://www.cdp.net/en/articles/media/press-release-companies-in-asia-pacific-show-high-awareness-of-climate-related-issues-but-more-actions-needed-to-achieve-paris-agreement-targets>>

63 Samsung, 'Samsung SDS leads logistics innovation with blockchain and intelligent process automation', Samsung SDS, 11 March 2019, <<https://www.samsungsds.com/en/news/Samsung-SDS-leads-logistics-innovation-with-Blockchain-and-IPA.html?referrer=https://www.google.com/>>

64 Boualam, M, 'How IoT, AI and blockchain can create a sustainable supply chain', SCM Globe, 28 March 2021, <<https://www.scmglobe.com/how-iot-ai-and-blockchain-can-create-a-sustainable-supply-chain/>>

65 GSMA, 'How China Mobile is harnessing IoT big data solutions to create value in strawberry production', <<https://www.gsma.com/iot/wp-content/uploads/2019/09/China-Mobile-Case-Study-BC-1.pdf>>

