

A SNAPSHOT OF THE WORLD IN 2038

# ENTER THE DRAGON

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China is the dominant force in an increasingly fragmented world, with trade divided along geopolitical lines. Australia embraces the situation by treating exports as vital to its economy. Robots dominate supply chains, where automation and data-sharing are the norm. And thanks to the increased reticence of the world's leaders, businesses operate free from onerous climate regulations.

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PART TWO OF A FOUR-PART SCENARIO SERIES

# ENTER THE

**IN A NUTSHELL:** It is the year 2038. China asserts its dominance in a technologically advanced world. The sole superpower in Asia forms a symbiotic relationship with Australia: we strategically export enormous amounts of horticultural and agricultural products into Asia, and import record volumes of manufactured goods. We rely heavily on our Asian trading partners as a rise in geopolitical tensions leads to a tightening of trade barriers elsewhere. Automation controls all parts of a consolidated supply chain, which now sees little human intervention between the manufacturer and the customer's door, leading to a loss of low-skilled jobs. We have invested in advanced data management technologies, including blockchain, to keep things moving. The increasing need to move goods, combined with short-sighted policy-making, means urban congestion is worse than ever. Meanwhile, government inaction in the face of climate change means there is little pressure on businesses to invest in green measures.

**S**it back and have a drink: the machines are in charge now. (Not quite! But everywhere you look in 2038, the promise of automation has been fully realised.)

The robots do most of the manufacturing and are ubiquitous in factories. They are surprisingly cost-effective, and can be either owned or rented on an hourly basis. Of course, humans do the installation, and some supervisors keep an eye on things as they run; but otherwise, robots rule the workplace. Advanced manufacturing, including additive manufacturing (3D printing), nanotechnology and the use of advanced materials, is the new game in town. And it is huge.

Freight terminals, including intermodal and container terminals, are automated: you can get a container from the deck of a ship to the floor of a warehouse without human intervention. It's the same situation in logistics facilities, where the only humans hanging around loading docks are hiding from the boss. Orders are picked, packed and shipped at unmanned distribution centres, while many supply-chain processes are also automated.

Out in the real world, many truckies and posties are

out of a job. Autonomous and semi-autonomous transportation is widely used; people and packages are driven around in autonomous cars. Freight is often carried in driverless trucks up and down the highways, in trains without drivers, container ships without crews, and cargo jets without pilots. These fleets are remotely co-ordinated and supervised. Meanwhile, several autonomous delivery systems have taken responsibility for the last-mile delivery of goods, particularly in the big smoke. Lightweight, high-value packages zip overhead, attached to drones. Bulkier or less time-dependent parcels are delivered using autonomous 'hubs on wheels', unmanned vehicles that roam around the streets in much the same way a postie used to (but without complaining about sore feet.)

**A**ll this means that low-skilled jobs are a thing of the past. Be they manual or intellectual, low-skill and repetitive tasks are either automated or sent offshore. The jobs that are left go to people with higher skill sets, capable of conducting more complex tasks.

Shoppers are doing most of their buying online, but might occasionally pop into a bricks and mortar store. Buyers have come to expect 24/7,

# DRAGON

same-day delivery on pretty much everything, from groceries to furniture. And they want them delivered to their home, or work, or any place that's convenient to them. Hybrid click-and-mortar models are used extensively, along with multichannel and omni-channel.

In 2038, shoppers have very high standards. They want full visibility and traceability of the goods they are buying; concerned with fraud, substitution or adulteration, they demand answers on chain of custody and ownership, want a guarantee of provenance, and require end-to-end traceability of their goods.

**T**o thrive in this complex environment, supply-chain operators have had to embrace the digital revolution. Global data standards for freight and supply chains have been widely adopted, and huge amounts of high-quality data are collected by companies and governments. These data – about goods, vehicles, people and transactions – are shared extensively and used productively, while still respecting consumer privacy and commercial confidentiality.

Underpinning these transactions are distributed

ledger technologies, such as *blockchain*, which are widely used to track freight movements and financial transactions. These technologies have replaced paper-based documentation and regular databases, providing a permanent record that enhances end-to-end visibility.

End-to-end tracking has also been made easier in the shipping industry as consolidation continues. Container ships and other vessels are larger than ever before. Significant consolidation has taken place in the logistics industry, too, and the players that remain are bigger and more powerful than ever. They are willing to take on more roles within supply chains, and to invest more in technology, facilities and people. Supply chains have fewer disconnects, and use a co-ordinated approach that includes sea, rail, road and air. For customers, it's now all one seamless, easy-to-use system with a single point of contact.

Australia, at the level of both government and citizens, increasingly sees exports as a matter of national importance and crucial to the nation's GDP. Governments (at all levels) have made it a strategic imperative to facilitate the timely and cost-effective movement of exports – mostly





agricultural, but also some manufactured goods and minerals – by sea and air.

Chief among those export priorities is food and agricultural exports, particularly to Asia. And it's not just the basics such as wheat, wool and meat, but fruit, vegetables and a range of high-end products such as fish, lobsters and other crustaceans. Our reputation as a 'clean and green' producer allows high-quality products to be sold at a premium price in niche markets. The Asian middle class has grown significantly on the back of Chinese power. Most other countries have experienced a similar trend, to different degrees. Population growth worldwide has plateaued, and inequality isn't considered the problem it once was. As a result, terrorism is less of a threat than it has been for a long time. Migration levels are very manageable.

**C**hina is now a major economic and political power on the world stage, a very close second to the United States, and is expected to become the dominant political and economic force within a few decades. It projects its geopolitical influence boldly across the Eastern hemisphere. China has strong land and maritime connections throughout South East Asia, the Middle East, Africa and Europe, and total authority over the South China Sea, now the world's most important waterway. China's domestic passenger and freight infrastructure also boosts its ability to get the job done.

As the global marketplace becomes even more competitive, Australia is manufacturing less at home and importing a lot more. Supply chains that were previously domestic now originate offshore, delivering directly to Australian ports. Products then travel less than 100 km to the point of consumption. Domestic and international freight flows mix routinely.

**A**ustralia's population has concentrated in the major cities, with plenty of apartment development in inner areas, and new houses on the fringes. This can pose challenges for the movement of goods around these urban centres.

Our short political cycle continues to frustrate. Voters are increasingly apathetic towards government, and distrusting of politicians. Short-term political gain seems to trump long-term planning, and there is little stability or ongoing ownership of issues. It is the general perception that there is an about-face every four years.

## THIS IS A WORLD CHARACTERIZED BY...

- Extensive use of data
- Distributed ledgers (e.g. blockchain)
- Autonomous transportation
- Automated facilities
- Advanced manufacturing
- Loss of low-skilled jobs
- Autonomous delivery
- Manageable environmental pressures
- Food and agricultural exports
- Less manufacturing, more imports
- Some growth of the middle class globally
- The rise of China
- Online retail, direct delivery
- Visibility and traceability
- Urban congestion
- Geopolitical fragmentation
- Short political cycle
- Exports seen as strategic
- End-to-end freight
- Consolidation of logistics and shipping

With a sharp rise in the political and military tensions among nations, old alliances are weakened or abandoned. Globally, nationalism and populism remain very much in the picture. Protectionism and stronger borders follow widespread scepticism about the benefits of globalisation and international collaboration. Many governments have turned to tariffs and duties to keep the voters happy, but these self-serving policies adversely affect other nations.

This nationalistic approach has also led to many of the world's leading nations largely turning a blind eye to the threat of climate change. Consumer expectations regarding environmental sustainability are in general not very high; most consumers are happy to buy reasonably sustainable products, as long as prices are affordable. Reflecting this public attitude, mandates from government and standards in industry in developing countries with respect to sustainability are equally tempered. Rules are designed to be pragmatic, and not slow down the progress of industry, while maintaining a reasonably low impact on the environment. ■

# NOTES

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**Disclaimer:** The present scenario describes one of many potential visions of the future. It has been designed as an aid to facilitate a strategic discussion of Australia's freight and supply chain strategy. The present scenario is not a forecast or a prediction, and should not be interpreted as a preferred or official version of the future.

# NEWS FROM 2038

**Big tick for drones and automated vehicles**



# FLYING FORCE TO THE FORE

NATIONAL Post has won regulatory approval for widespread use of two new automated delivery systems.

From next week, Australians will see the company's RoboPost delivery units trundling along footpaths and bike lanes, while drones will start delivering high-value items point-to-point.

The roll-out follows two years of trials in regional cities.

"It's a really exciting day for us," NatPost CEO Priyanka Shan said. "With the vast majority of shopping now being done from the lounge-room, this is a long-term solution to the problem of 'last-mile' delivery – how we get goods from retailers to buyers."

The approval is likely to be a final nail in the coffin for RubeSend, the struggling peer-to-peer delivery service rocked by rising costs and a series of adverse labour-law findings. It also puts NatPost back at the top of the delivery food chain after two decades of uncertainty.

"Automation is undoubtedly the best way for us to service customers," Ms Shan said. "And this dual approach allows us to deliver things in the way the customer wants. The customer can pay a premium and get drone delivery for an item they need urgently, while larger or less urgent items – for example a basket of groceries, or clothing – will be delivered via our RoboPost delivery vehicles."

"We had a great example from our Ballarat trial, where we heard from a single dad whose child was sick in the middle of the night.

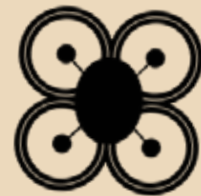
"After talking to an on-call nurse over the phone, he realised he

## HOW IT WORKS



**1** Customer buys online from any of the thousands of stores using NatPost as their preferred delivery service. Customers can choose to pay for fast delivery (size limits apply) or standard delivery

**2** For fast delivery, NatPost's computer system sends a drone to the store or warehouse to pick up the item, delivering it to the buyer's doorstep, usually within an hour. Buyers scan their phones to prove they are the authorised recipient before the drone will release the package.



**3** For regular delivery, NatPost logs the delivery in its system. The item will be picked up by RoboPost - a narrow-bodied, automated delivery unit that is authorised to run on footpaths and in bike lanes on suburban roads. These units do several pick-ups and deliveries throughout suburbs each day. Users scan their phones, opening an individual locker within the RoboPost unit that contains their items. RoboPost units are too heavy to steal, with NatPost staff alerted if they move off their planned route.

needed ear medicine. So rather than drag the child out of bed at 1am during a Ballarat winter to go to the 24-hour chemist, he ordered online and had one of our drones dropping the medicine to his front porch 20 minutes later.

"That's the kind of positive change we think we can bring about using these automated systems."

The change to full automation

also spells the end of the postie, an Australian institution for more than 200 years.

"We were struggling to find people who wanted to do the work anyway," Ms Shan said.

"Workers are increasingly looking for more stimulating roles that don't involve spending hours on their feet, braving bad weather and naughty dogs."

# INSIDE THE NEW ORDER

LAST century, it was the space race – the battle of the world's two superpowers, the USA and the USSR, for supremacy in spaceflight capacity. Today, the battle for world domination uses more traditional means: rails, roads and ships. As international tensions rise and the geopolitical landscape rapidly changes, countries are forging new allies, often based around the mutual benefits of major infrastructure projects. With the help of Dr Frank Roberts from Advance University, we take a look at how the big players are changing the world, one major project at a time.

## CHINA IN AFRICA

"China saw this coming long before anyone else," Dr Roberts says. "They could see that infrastructure was a way to influence foreign governments into doing what they wanted."

China's major infrastructure investment in the past 40 years has focused on three main supply chains.

In Africa, the Chinese have invested heavily in rail, finally completing the missing sections of the Cairo to Cape Town Railway, a concept first put forth in the 19th Century. "China loves Africa for two reasons: a vast wealth of natural resources within a poorly developed regulatory framework; and more than 50 favourable votes on the floor of the UN," Dr Roberts says.

"Unlike the colonial superpowers of the 19th century, the Chinese haven't gone into Africa and tried to replace existing regimes. Frankly, they don't care who is running the country. They just let their money do the talking."

While the Cairo to Cape Town project is an impressive feat in itself, its real value lies in its connections to Dar es Salaam, Port Sudan and Djibouti, which connect China's African interests to the rest of the world. "The Chinese have significant mining investments in Africa, but for many years were hampered by the inefficient and often dangerous pathways to get the supplies out. But they now have a significant degree of control over the operations of these railways, which has led to a far more robust supply chain. This has led to China coming to value African resources far more than its relationships with other resource-rich states such as Australia."

## CHINA IN ASIA

China's African investment goes hand-in-hand with its signature Belt and Road policies – forging freight links into Europe. The Belt – a land-based network of rail and road links through Central Asia, Iran and Turkey into Europe – particularly captured people's imagination earlier this century. But it's more likely the Road – the sea routes linking China to Indonesia, Malaysia, Singapore, Bangladesh, Africa's east coast and Europe – that will lead to long-term benefits. "It might seem counter-intuitive, but the sea lanes are the more nimble supply chain," Dr Roberts says. "China can move resources out of Africa, back to their manufacturing bases at home or in Bangladesh, then easily transfer those manufactured goods to consumers around the world."

## THE US IN NORTH AMERICA

"The US was slower on the uptake when it came to infrastructure diplomacy," Dr Roberts says. "The Trump presidency was all about building walls at a time China was trying to break them down. But subsequent administrations saw the value of the assets they had in Central America, right in their back yard."

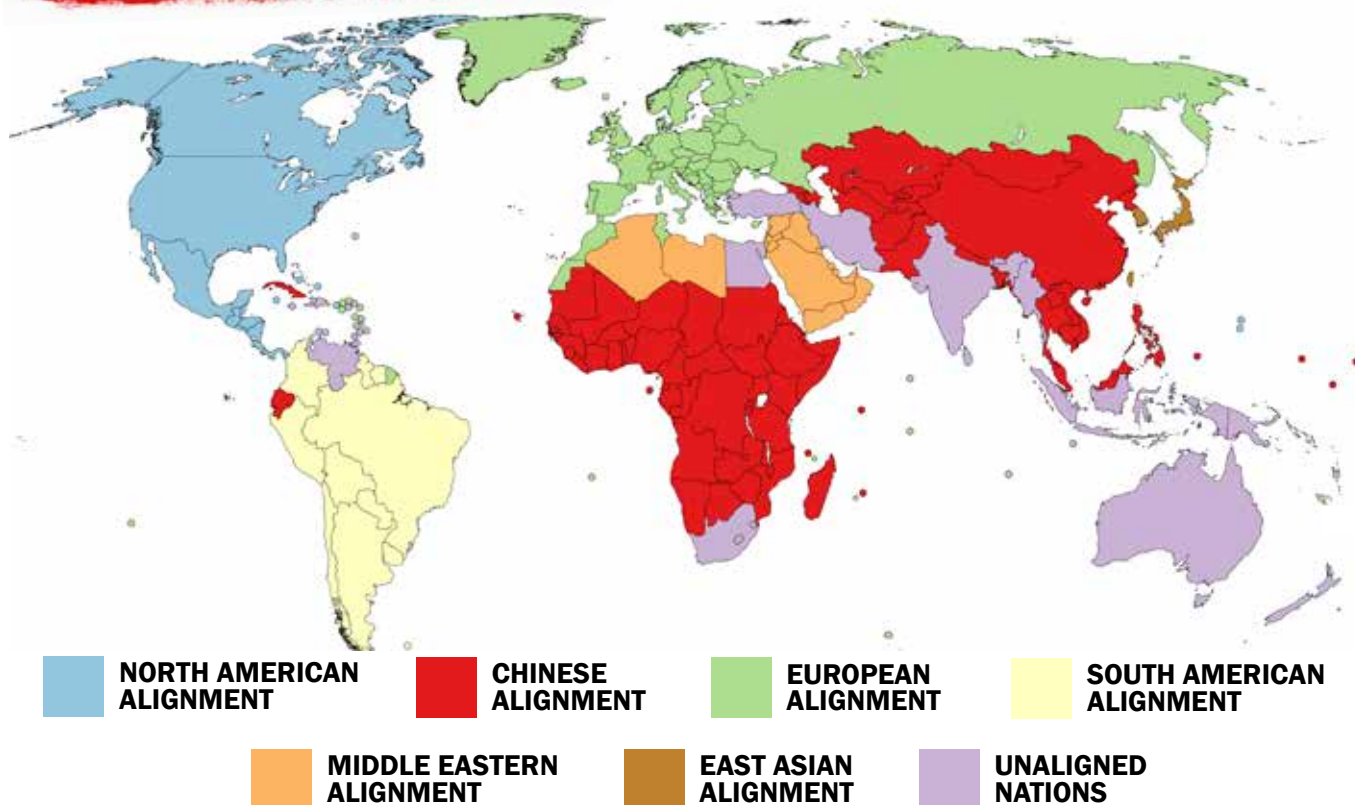
Unwilling to rely on China but unable to afford its own manufacturing industries, the US looked south and started investing heavily in the Pan-American Highway. Once little more than a series of local roads linking Central American cities, the US has pumped millions of dollars into creating a reliable supply chain. "That road, combined with strong shipping lanes between Panama and US ports on the Gulf of Mexico, forms the backbone of manufacturing for the US and Canadian markets," Dr Roberts says. "The flow of people and goods through Central America has had a significant impact on living standards in the region, buys the US influence that it let slip during the Trump era, and solves a lot of economic problems for them as well."

## RUSSIA IN EUROPE

"The rise of China forced Russia to play nice with its European neighbours," Dr Roberts says. "The Russians



# CARVING UP THE GLOBE



realised that they were becoming more and more isolated as China exerted its dominance in Asia and Africa.”

Russia, in the Putin era, had seen value in developing a loose network of support within the Arab world. But the constant tensions and unpredictability of that region forced it to look to the west to maintain relevance. “While China and the US have top-down relationships with other countries in their blocs, the Russia-EU relationship is more symbiotic,” Dr Roberts says.

“Ditching the rouble and switching to the Euro broke down so many trade barriers. Could we one day see Russia as a full member of the EU? Well, 40 years ago it would’ve seemed fanciful but today, not so much.”

Again, infrastructure has helped bring Russia into the tent. The EU and Russia have both worked hard to raise the standard of Eastern European rail and road infrastructure, which decades after the fall of the iron curtain was still a long way behind the West. “Both parties saw that they needed to unlock the capacity of the Eastern states,” Dr Roberts says.

## BRAZIL IN SOUTH AMERICA

Brazil would like to see itself as the South American version of a superpower, but currently lacks the economic clout to follow the lead of the US and China. “South America is a difficult case,” Dr Roberts says. “There’s no single dominant player that can provide the

investment necessary, and it’s so geographically isolated from the other major markets. The US has shown limited interest in investing down there, because it’s got the balance right with its Central American economies.”

## UNALIGNED NATIONS

The new colonisation has left a handful of major players without a true economic alignment. India and Indonesia remain too wary of their neighbours to meaningfully break down barriers. Australia’s value as a source of minerals for China has been usurped by Africa, leaving it to rely on agriculture to compete in the global marketplace. Japan, South Korea and Taiwan have formed closer ties amongst themselves, but remain outsiders, with no allegiance to other major players. And despite having physical links to Chinese-backed projects, South Africa, Egypt and Turkey refuse to completely buy into the Chinese way of thinking.

“Being out on your own isn’t necessarily bad, if you play it right,” Dr Roberts says. “It’s all about positioning yourself to be useful to anyone at any time, and having the diplomatic skills to remain friendly with all the big players.

“If you do, say, one thing well, but it’s something that no-one else is capable of doing to the same degree, then you become strategically important on the world stage.

“The flip-side to that, though, is that if a particular well dries up, then you’re out on your own with no means of support. It’s a difficult balancing act.”

# SHOPS ROAM



**G**ETTING your groceries “off the back of a truck” is usually an admission that you’re up to no good.

But now, it might be an indication that you’re part of a growing trend towards “around-the-corner” shopping.

Grocery giant Colworth is embarking on a radical plan to introduce autonomously driven mobile stores to Australia’s capital cities, which could revolutionise the way we shop.

Resembling a modern tram, the stores will be stocked with everyday goods such as bread, milk and juice, “feel-good” products such as chocolate, and a range of frozen foods.

Based on the ground-breaking Moby mobile stores in Shanghai, there will be no staff; the vehicle will navigate

the streets using autonomous navigation and artificial intelligence, and store access and purchases will be driven by mobile technology.

“More and more, people are living hyper-locally,” Colworth CEO Jack McArthur said.

“The idea of the suburb has almost regressed, in a way, in that people are spending more time close to home than ever. Driving to a mega-mall is something they only do occasionally, and even heading to a major shopping strip is a less frequent event. People are harking back to the old days of the corner store or milk bar being a huge part of their daily lives.”

The trial is partly a response to two separate retailing challenges. High-yield apartment developments are increasingly gobbling up inner-suburban space, pushing out low-margin commercial operators. Meanwhile,

# THE SUBURBS



ARTIST'S IMPRESSION

extreme traffic congestion in new outer suburbs discourages residents from “just popping out to the shops”.

“We already have trucks on the road carrying groceries; in a way this concept just cuts out the need for items to be taken off a truck and put onto a shelf, and then removes the need for the customer to come into a fixed-position store,” Mr McArthur said

“We see this as complimentary to our existing home-delivery service. Our prediction is that people will do the bulk of their weekly shop online, and have it delivered to their door. But there’s still an appetite from consumers to browse and look at real products that they can see and touch, as opposed to just looking at groceries on their mobile phones.

“What we actually stock in the mobile units will ultimately be driven by customer demand.”

Mr McArthur said the mobile stores would initially keep a regular schedule, with potential shoppers able to track movements on their phones.

The biggest difficulty at the moment is finding somewhere to park. “We’re working with local governments to make sure each locality has an appropriate place to set up. At the moment, we have had some success with councils giving us permits to park in certain spots at certain times on a 24/7 roster,” Mr McArthur said.

If successful, Mr McArthur sees other businesses in the stable picking up the idea. “It could be that the Colworth bus pulls out and the Big K bus pulls in, with the Mastings bus coming later,” he said. “The idea of locally delivered hardware might sound far-fetched, but with the right product mix, we feel it could be a viable option down the track.”

# AUSSIE WINE

**Local breakthrough more than just a (good) drop in the ocean**

LOVINGLY crafted by hand using century-old techniques; shipped half-way around the world by robots.

Welcome to the rapidly evolving world of Australian exports.

A group of winemakers from Victoria's Goulburn Valley has become part of a landmark distribution chain which has sent wine directly from their vineyards to Chinese consumers with no human intervention.

In a world first, winemaking co-operative GVWines has moved a shipment to China's eastern seaboard using an entirely automated supply chain.

"It's quite amazing to think that no-one handles this between the cellar door and a Shanghai apartment block," GVWines chairman Sophia Russo said. "Automation has been rapidly growing throughout the supply chain industry for years, but we reckon this is the first time that all the parts have come together into a seamless chain."

The outcome was part forward thinking, part good luck. GVWines never set out to revolutionise the supply chain world; its members were just looking to reduce their overheads.

The winemakers offer a better-than-average drop, retailing in Australia for around \$18-\$30 a bottle. And while the growing Chinese middle class provides plenty of opportunities to sell wine, price remains an important factor.

"More traditional wine drinkers associate different bottle prices with different qualities of wine. That distinction isn't as clear in emerging markets such as China, where buyers are more likely to be swayed by unit price," Ms Russo said.

"We're competing with cheaper, mass-produced wines from Europe and the US, so we had to strip as many costs out of the distribution chain as we could. We knew that once people got a taste of our wines they would appreciate them; but we had to offer that taste at a competitive price point."

The winemakers already had a degree of automation in the process. The 2022 Northern Autonomous Truck Trial meant that the region's food and wine manufacturers were already using self-driving rigs to take their products to a regional rail-side distribution centre in Shepparton.

At a similar time, the Victorian Government converted the under-utilised Shepparton rail line to standard gauge and included it as part of its driverless train pilot. Goods from Shepparton were routinely being loaded by automated forklifts onto driverless trains and taken directly from the distribution centre to the Port of Melbourne. There, automated cranes would lift the containers from the quayside rail sidings, and put them straight onto the waiting ship.

It's at this point the GVWines story becomes unique. While most goods were being loaded onto traditional-style ships with up to 40 crew aboard, Chinese shipping giant CNSC has been quietly trialling crewless vessels in and out of Shanghai. By sheer coincidence, the GVWines shipment ended up aboard the first crewless vessel heading back to Shanghai from Melbourne.

Autonomous ships have been through extensive trials in Europe, but this was the longest return trip from an Asian seaport to date.

"It's undoubtedly the way of the future," maritime expert Hugh O'Dwyer said. "Crewless ships mean fewer overheads for shipping companies, and you can fit more containers on because you don't have to allow room for crew facilities."

"They were seen as a bit of a fantasy when they first started doing basic back-and-forth operations over short distances in the sheltered fjords of Norway in about 2017."

"But the technology has come a long way now. We're seeing ships safely navigate the East China Sea, and it won't be long before we see them sailing through waters such as the Strait of Malacca or Panama Canal."

Upon arrival at Port of Shanghai – the world's biggest container port – things started working in reverse for the Australian wine delivery. Robotic cranes took the containers from the ships and put them onto autonomous trucks to be sent to regional distribution centres for unpacking by autonomous forklifts. From there, the packages go their separate ways – again, via Shanghai's extensive autonomous truck network - with the GVWines consignments going to its supplier's fully-automated suburban warehouse.

"Shanghai is a world leader in last-mile automation," warehouse manager Wang Yong said. "We have had



# OF THE TIMES

## HANDS-FREE TECHNOLOGY



CELLAR DOOR



DRIVERLESS  
FORKLIFT



AUTONOMOUS  
TRUCK



DRIVERLESS  
FORKLIFT



DISTRIBUTION  
HUB



AUTOMATED  
CRANES



CREWLESS  
SHIP



AUTOMATED  
CRANES



DRIVERLESS  
TRAIN



DRIVERLESS  
FORKLIFT



AUTONOMOUS  
TRUCK



DRIVERLESS  
FORKLIFT



DISTRIBUTION  
CENTRE



DRIVERLESS  
FORKLIFT



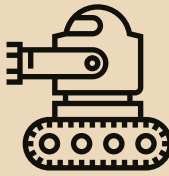
AUTONOMOUS  
TRUCK



HAPPY  
CUSTOMER



AUTO DELIVERY  
VEHICLE



ROBOTIC  
SELECTOR



RETAILER'S  
WAREHOUSE



DRIVERLESS  
FORKLIFT

automated delivery vehicles working the streets for nearly 20 years now. The computer system finds a customer's ordered items in the warehouse, boxes them, and then delivers them to the door. No human involvement required."

And so, dozens of bottles of wine made their way from a cellar door in Victoria to an apartment door in Shanghai with no direct human intervention. For now, the delivery involved an element of luck. But in the near future, there's a good chance it becomes normal practice.



**Government intervention opens new markets for Australia**



# EXPORTS SOAR

AUSTRALIAN exports have hit a new high on the back of a push to ensure value for overseas buyers.

Exports accounted for 40 per cent of Australia's economic output in the past financial year, highlighting the key role they play in the country's ongoing prosperity.

Federal Trade Minister Jack Fitzpatrick welcomed the move, saying the outcome was the result of government policy that viewed exports as being of strategic importance.

"Overseas buyers love our products," Mr Fitzpatrick said. "We are clean, green and reliable; people trust that our minerals are sourced ethically, our agriculture grown sustainably, our manufactured goods of the highest quality.

"But we're kidding ourselves if we think price isn't also a factor. We're increasingly battling against tariffs and trade blocks, particularly in the North American and Asian markets."

Mr Fitzpatrick said the government had concentrated on three key parts of the export supply chain: reducing costs, increasing speed, and improving reliability.

"We found that moving things

around the country was just too expensive," he said. "An exporter faced charges for rail access, road access, port access, airport access – all that was passed on to the buyer.

"So we've implemented policies that remove or greatly reduce those charges for exporters."

Another driving force was the relocation of Melbourne's container port to Cocoroc, about 50km south-west of the CBD and closely aligned to Avalon Airport.

"In Melbourne, we had the busiest container port in Australia, wedged in between apartment buildings and surrounded by commuter traffic," Mr Fitzpatrick said.

"But now we've got one of the best import-export facilities in the world. Export goods can come in by either rail or road, and then get diverted to either the seaport or the airport, depending on what the customer requires.

"That's had a huge impact on the whole country's export efficiency."

Mr Fitzpatrick said the government was developing a second phase of its export strategy, with a focus on infrastructure.

"We want to designate key parts of the export chain as being of national importance, to give them federal protection from encroachment and other inappropriate development," Mr Fitzpatrick said.

"That could extend to ports, airports, railway lines, highways ... we're agnostic about the actual means of transport, so long as it makes a vital contribution to Australia's export trade.

"We're also looking for ways to separate freight rail from passenger movements. Some states have done this better than others. I think it's ridiculous to have containers and commuters on the same pair of tracks."

Mr Fitzpatrick said the government was also willing to consider grants or tax breaks for port operators to invest in infrastructure updates, or for freight companies to invest in intermodal hubs.

"If a company can show that its actions are going to make a genuine impact on the speed, cost or reliability of the freight network, then we'll consider ways to reward that investment."



**App helps consumers track their food from paddock to plate**

# OPEN SOURCE

AUSTRALIAN consumers are being offered unprecedented access to information about the origins of their food.

The Australian Government has launched an app called Origins, which allows consumers to discover more about their products.

Participating manufacturers hope the app will allow more transparency and strengthen Australia's standing as one of the world's greenest and most ethical food producers.

Consumers use the app to scan a product's barcode. They can then see where the ingredients – and packaging – came from.

One of the technology's early adopters is NSW pie-maker Constables. Scan the barcode of, for instance, a packet of the company's frozen steak and onion pies, and you'll see that the beef was sourced from producers in either the Tamworth or Bathurst regions of NSW; the wheat sourced from farms in the Riverina district; dairy ingredients sourced from two suppliers on the NSW south coast; onions from south-west Victoria; and sugar from Queensland.

Constables CEO Alexandra Johns said making origin information available to consumers wasn't a huge leap.

The company has used block-chain technology for several years to keep track of its suppliers; the tracking system allows faster supply chain management when things go right, but also permits a quick response if a problem arises.

"It's information we had anyway, so all we had to do was allow the Origins technicians to tap into our supply chain APIs," Ms Johns said.

"Transparency has become so important to consumers. Buyers are smarter than ever. They want to be sure that the cattle producers we use raise their animals in the right way; they want to be sure that the wheat producers we use are kind to the environment; and they want to be sure that we're using environmentally sustainable packaging as much as possible.

"Transparency is also very important in the export side of the business. We export to Japan, and yes, you can get cheaper frozen pies in Tokyo.

"But where has the beef come from? Was the water source clean? Are the factory workers treated ethically?"

"By opening up our supply chain data, we're answering those questions. Not only can you see where the beef comes from, but you can click through and find out that those farms adhere to the industry's best practice; you can see that our wheat-growers are pesticide-free. The idea is full end-to-end transparency that keeps customers informed, and keeps everyone in our supply chain accountable."

The push for greater transparency is partly a response to recent international supply chain controversies. Last year, Chinese authorities cracked down on traders who were labelling locally produced goods such as beef, plums and asparagus as "imported" in a bid to improve profit margins. World beef markets have also suffered at the hands of meat adulteration, where unscrupulous operators inject or add water or an aqueous solution to meat to increase its weight.

This scenario is one of four prepared by the Centre for Supply Chain and Logistics at Deakin University, as part of a scenario planning project for the Department of Infrastructure, Regional Development and Cities, to inform Australia's National Freight and Supply Chain Strategy. The PDF for this and the other three scenarios can be downloaded from <http://cscl.space/scenarios>

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