A SNAPSHOT OF THE WORLD IN 2038

THE RISE OF THE MACHINES

This is a world where technology dominates everything we do. Robots make our goods and bring them to our doors. Australia has all but done away with low-skilled jobs. Data is the #1 global currency. But beware: climate change is very real, and has a huge impact on the way we live. The world's population has soared, and there is growing inequality, leading to an increased threat of terrorism.

DEAKIN UNIVERSITY

CSCL Centre for Supply Chain and Logistics

PART ONE OF A FOUR-PART SCENARIO SERIES

THE RISE OF

IN A NUTSHELL: It is the year 2038. Australia has kept at the cutting edge of technological development, and is deeply involved in complex supply chains that require little human intervention. We rely heavily on advanced data management techniques, and technologies like blockchain, to get the job done. Robots control most of the manufacturing process, which – combined with an ever-growing domestic population and higher unemployment – puts downward pressure on labour costs as low-skilled roles disappear. This allows us to exploit our rich minerals base by manufacturing advanced products on-shore. Other countries have been unable to keep up, and find themselves with declining economies, a shrinking middle class and increased inequality. Australia is responding to the now-obvious impacts of climate change, partly through regulation and partly through consumer pressure. We find ourselves hampered by the short political cycle and tensions between state and federal governments. Intentional disruptions, such as terrorism and cyber-sabotage, remain a risk to global supply chains.

In 2038 the evidence that man-made climate change is worse than previously anticipated, in both its impact and speed, is overwhelming. There is immense public pressure to take decisive action to counter its progression and effects. A series of international initiatives – involving governments, industries and communities – seek to curb the negative effects of human activities on the environment. The world has seen a widespread adoption of renewable energy technologies, mainly solar and wind. Moving energy production to these sources, minimizing the use of fossil fuels, curbing greenhouse gas emissions, and reducing soil and water pollution now rank among the most pressing issues facing mankind, beyond partisan politics, and are widely seen as moral imperatives.

Fully supporting these environmental initiatives is necessary to stay in business. Gone are the days of short-lived and disposable products: goods are now expected to last a long time, and to be fully repairable, reusable, and recyclable. Most single-use products that generate unrecyclable trash have been banned altogether in developed countries. Sustainability criteria are given strategic weight in the design and operation of supply chains and freight networks. Packaging is also expected to be reusable and recyclable. Water and waste footprints of manufacturing and other industrial operations are expected to be minimal.

The price of fossil fuels has increased enormously. Carbon and other greenhouse gas emissions are taxed, capped and traded in global and local markets. Most supply chains and freight lanes are expected to achieve a carbon footprint of zero, by either reducing or offsetting their emissions. Hybrid, electric, fuel-cell and other alternative fuel engines are widely adopted in cars, trucks, trains, ships and even some planes. Their utilization is maximized: futile, empty and half-empty trips are reduced or eliminated.

Driven by the twin engines of big data and automation, a veritable technological revolution has taken place over the past two decades, sending shockwaves through the manufacturing and supply chain landscapes.

Automation was developed and adopted much faster and more widely than anybody expected. In manufacturing, the most visible sign of the automation revolution is robotics: a wide range of cost-effective and reliable industrial robots, owned or rented on an hourly basis, are used extensively in factories. Advanced manufacturing technologies – including additive manufacturing (3D printing), nanotechnology, and advanced materials – are now common.

The effects of automation have also been felt in freight

THE MACHINES

and supply chains. Autonomous and semi-autonomous transportation is widely used. Unattended children are driven around suburbs in autonomous cars. Driverless trucks – often travelling in platoons – carry freight along highways, and freight trains operate without drivers. Even container ships sail without crews and cargo jets fly without pilots. Autonomous fleets are remotely coordinated and supervised. Freight terminals, including intermodal and container terminals, are automated: a container can go from the deck of a ship to the floor of a warehouse without human handling.

Logistics facilities, such as loading docks and warehouses, are also automated. Orders are picked, packed and shipped at unmanned distribution centres. Many supply chain and business processes are also automated. Several autonomous systems have been developed for last-mile delivery of goods, especially in urban and congested areas. Lightweight, high-value parcels are delivered using autonomous aerial vehicles ('drones'). Parcels that are heavier or less valuable are delivered using autonomous 'hubs on wheels', that is, unmanned vehicles that drive around urban areas delivering packages to customers.

Data generation, sharing and utilization has exploded. Global data standards for industry, including for freight and supply chains, have been widely adopted, and huge amounts of high-quality data – about all aspects of business, freight and supply chains – are now routinely generated and collected by companies and governments. These data – about goods, vehicles, people, transactions – are then shared extensively and safely, and used productively, in ways that protect consumer privacy and commercial confidentiality.

Since visibility and traceability are now paramount in many supply chains, distributed ledger technologies – such as *blockchain* – are widely used in freight, supply chains and daily business operations, to track many physical and financial transactions. Due to security concerns, countries and some institutions demand complete visibility within certain supply chains, and require answers on chain of custody and ownership. Customers, concerned with fraud, substitution or adulteration demand a guarantee of provenance, and end-to-end traceability of their products. Blockchain and similar technologies have replaced paper-based documents and regular databases, providing a permanent and immutable record that allows end-to-end visibility to interested and authorized parties. The combination of automation and data has fuelled the 'Uberisation' of the economy (i.e. the shift from full ownership of assets to the renting or leasing of assets), which has continued unabated and expanded to areas other than cars and houses. The sharing economy has become the norm: the Uber model is now commonly applied to trucks, freight and distribution systems, while the Airbnb model is applied to warehouses and other facilities.

One significant upside of automation is that Australian manufacturing has made a comeback. Automated production facilities are not set back by high labour costs. It started with Australian-made batteries, manufactured in giga-factories for export. Australia's exports are now experiencing a golden age. A whole portfolio of high-value, innovative goods manufactured in Australia is routinely exported to markets in Asia, Europe and North America, where they command premium prices thanks to Australia's brand as an environmentally and socially responsible producer.

There are also significant exports of Australian minerals and agricultural products. Rare elements and metals, mined with high social and environmental standards, as well as grains, dairy, fruits, vegetables and seafood – all of them sold under Australia's brand as 'clean and green' products – are sold at premium prices in niche markets, particularly in Asia. On the low-value end of the spectrum, however, local manufacturing has continued to decline. For simple and cheap consumer products, Australia relies more than ever on imported goods.

The major downside of automation is unemployment: low-skilled jobs, both manual and intellectual, have been automated. While tens of thousands of specialist jobs have been created to install the robots and supervise production in these automated factories, tens of millions of menial and repetitive manufacturing jobs around the world have been lost to the machines. The same goes for desk jobs: low-skill business tasks, previously conducted by junior workers, are now done through automation, software and artificial intelligence. There are fewer jobs, and these go to people with higher skill-sets, capable of conducting more complex tasks.

Partly because of the reduced employment opportunities, and partly because of the negative effects of conflicts and global warming, there is increasing economic disparity

globally. The percentage of the world's population that falls into what could be called the 'middle class' is greatly reduced. Poverty levels – including extreme poverty – have increased dramatically. Within Australia, several millions now face the challenge of satisfying their basic needs without full employment. This creates political instability and social tensions, which are often expressed as intentional disruptions: sabotage activities, such as deliberate disinformation campaigns against brands or companies that are seen as putting people out of work, are not uncommon. These include cyber-attacks on their networks, and sabotage on products, vehicles and facilities. But they also take the form of malicious manipulation of social media to influence public opinion and change the output of critical events, including elections.

The population of Australia has grown faster than expected. Most Australians reside in urban areas, particularly in capital cities, which are now densely populated. As life expectancy improves, Australia has experienced a significant ageing of its population and workforce. Internationally, the populations of South East Asia, India, Latin America and Africa have grown at even higher rates. Australia remains an attractive destination for skilled migrants seeking residency. Population growth is happening in both major cities and rural areas. Within cities, additional housing is being built in already settled areas: new houses on the fringes, and large apartment blocks in the centres. As more people live in them than ever before, city centres are denser and more congested. Movement of people and goods into and around these urban centres is now more challenging. Ensuring that consumers have access to the products and services they require is not a trivial issue.

Although brick-and-mortar stores remain, most consumer demand now goes through online retail channels. For most goods – including groceries, and heavy or bulky items – consumers in urban areas have come to expect 24/7, same-day delivery of their orders, directly to their homes or to nearby pick-up sites. Hybrid click-and-mortar models are used, along with multichannel and omni-channel.

In part due to the high unemployment, the Australian population is increasingly apathetic towards government and distrusting of politicians, whose decisions are often perceived as made predominantly for political gain. Reaching bipartisan agreement for important decisions proves difficult. The short-term political cycle results in an equally short-term outlook and mindset, with little stability or ongoing ownership of the issues. There is uncertainty around long-term planning, because it seems that "every four years there is a flip-flop". Besides this, a fundamental problem concerning the distribution of power between the federal and state governments has become clear: both levels of government determine policy, yet have political goals and objectives that are often conflicting or in competition with each other. Balancing these competing federal and state interests has proven a roadblock for long-term planning. Moreover, a lack of coordination between federal, state and local governments has worked against long-term planning.

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
- Food and agricultural exports
- Minerals and batteries
- Less manufacturing, more imports
- The 'Uberisation' of the economy
- Online retail, direct delivery
- Visibility and traceability
- Climate change impact
- Energy and carbon footprint
- Green as a requirement
- Some urban congestion
- Intentional disruptions
- Short political cycle
- Federal vs state conflicts
- Growing inequality
- Population growth
- Consolidation of logistics and shipping
- Complexity and collaboration in supply chains

The consolidation of the shipping industry continues. Container ships and other vessels are larger than ever before. Significant consolidation has also taken place in the logistics industry. The remaining logistics players are on average larger and more powerful. They are willing to take on more roles within supply chains, and to invest more in facilities, technology and personnel. End-to-end supply chains have become much more complex.

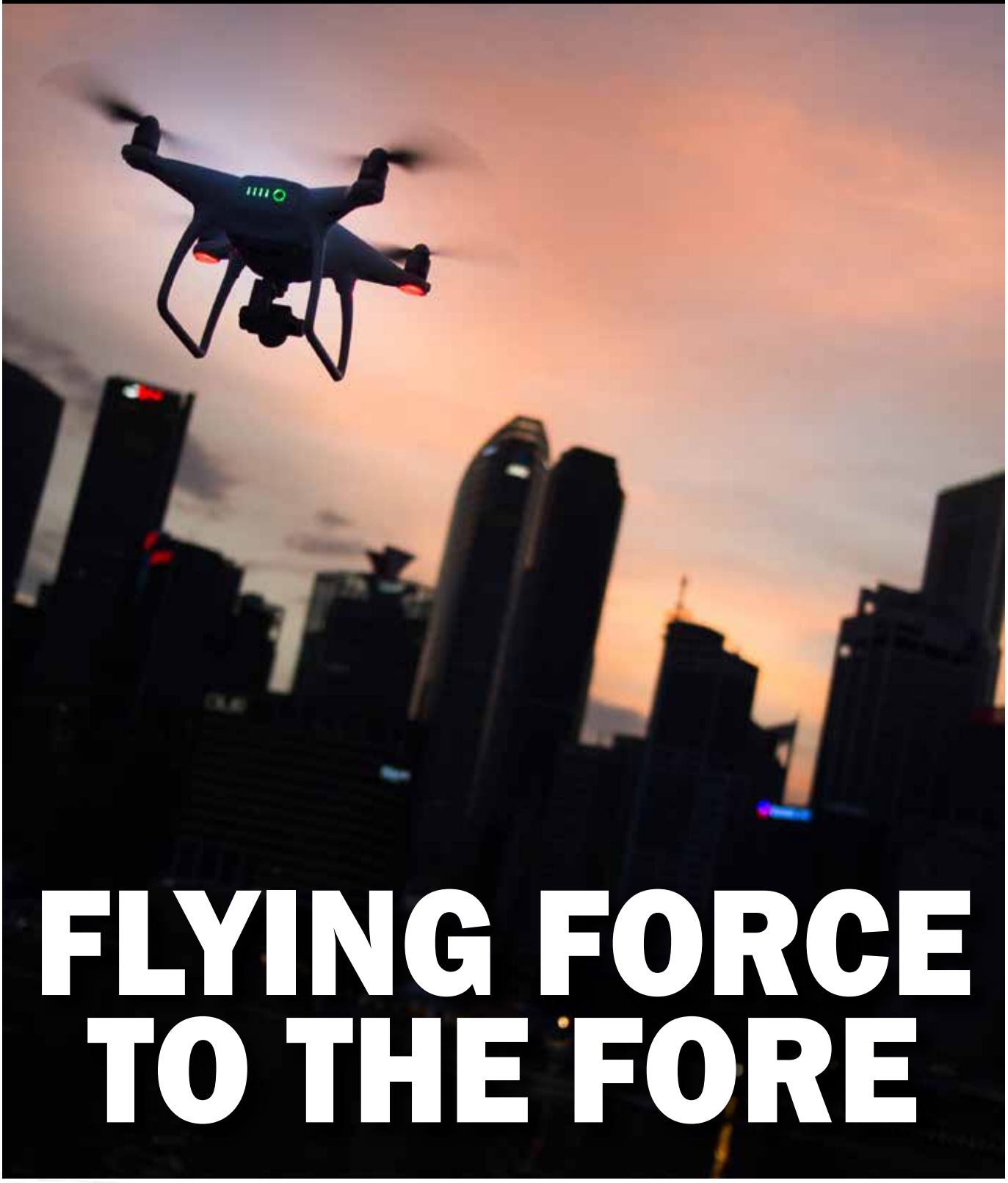
As their complexity increases, managing these supply chains requires a different employee skill set, including soft skills (e.g. strategic thinking) and hard skills (e.g. optimization). Algorithms are used extensively for optimization. On the up side, many opportunities for improved productivity are possible with industry leadership and genuine collaboration across the supply chain. ■

NOTES

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 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."

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.

CLIMATE CARNAGE PROMPTS RADICAL CHANGE

THE GREENS will form Government for the first time after Australians delivered a shock result in yesterday's Federal Election.

Spurred by a drastic deterioration in the world's climate during the past two years, voters yesterday delivered a result that seemed impossible just 12 months ago.

But a string of natural disasters at home and shocking reports from overseas have led the electorate to draw a line in the sand and deliver power to Prime Minister-elect Hannah Morris-Townsend.

The Greens victory comes on the back of a year of dire consequences for the global climate, which led to Green victories in both the United Kingdom and Germany, joining the long-standing Green Scandinavian cohort.

"The big-ticket item was the complete thawing of the Siberian permafrost," leading climate scientist Daisy Li said. "That caused the world to sit up and take notice; it released unimaginable amounts of methane into the atmosphere, and that's a gas that has 20 times the global warming impact of carbon dioxide.

"The Pacific island nation of Kiribati is almost gone, a victim of rising sea levels. It hasn't rained in South Sudan for three years. But it's now that climate change has really started having a big impact on the G20 nations and their trading partners that people have really stood up and taken notice. China, Indonesia and the Philippines have all suffered massive crop losses from acid rain, while the United States is still picking up the pieces from Hurricane Jerry, the worst hurricane they've ever seen over there.

"The huge drought that hit Spain really brought the problems home to Europeans. Spain has become Europe's food bowl and produces a disproportionate amount of Europe's fresh produce, and last year's drought really proved how reliant countries such as Germany, France and the UK are on Spanish agriculture.

"Twelve months ago it seemed voters saw Australia as being a bit isolated from all this havoc and were unlikely to make a major swing towards the Greens. But I think the electorate has really come to understand over the past year that world events can have a massive impact on us."

Political analyst Benjamin Lopez said Australians faced a period of uncertainty while they came to understand how the Greens policies were going to affect them. "We're in for a period of unprecedented policy adjustment," Mr Lopez said. "How quickly will we see the policy shift? Well, that will depend on how Hannah Morris-Townsend's government functions when it takes power.

"But we should assume that this won't be business as usual. Shifting from a Labor government to a Liberal one, or vice-versa, rarely brings about a seismic shift in government policy. Shifting to the Greens, we're likely to see some really big changes ahead.

"Don't get me wrong – I think the electorate knew what it was doing. I think voters have embraced the need for change. But that doesn't mean that it's going to be easy."

Entire city takes a giant leap towards sustainable energy future

ALBURY-Wodonga has become the first major regional centre in Australia to entirely move to renewable energy, thanks to rapidly developing Australian battery technology.

Using a mix of solar, hydro and wind technology, the twin cities have broken their reliance on coal-fired generators and controversial coal seam gas.

The Albury and Wodonga city councils have partnered with Australian battery manufacturer AIBN to become a world leader in renewable energy. "We've always had the ability to generate energy, it was just a matter of storage," Albury mayor Oscar Himmel said.

"We have more sunshine hours than Queensland, so solar technology is reasonably easy to install. We've got direct access to the hydro and wind generators up at Khancoban, and our own smaller-scale hydro generators here at Hume Dam. Producing enough energy, averaged out over a 24-hour period, wasn't the problem. The hard part was storing it so we could respond in peak periods, or when conditions were against us."

Enter AIBN. The Australian start-up sources raw materials from miners in Western Australia's Pilbara and Great Southern regions, and manufacturers its lithium batteries on the outskirts of Perth. It's an operation the naysayers said would never be possible.

"We were told the cost of labour would be too high. That the only viable way to make lithium batteries was to dig the stuff out of the ground in WA and then ship it off to China or Indonesia to be put together," AIBN founder Emma McGrath said.

"My response to that was to strip the labour costs away."

AIBN's factory is like something out of a science-fiction movie. Robots do all the work. Driverless carts zip around the factory transporting materials. Only a handful of humans are on site, overseeing the process should anything go wrong.

"Manufacturing in Australia made sense," Ms McGrath said. "The sourcing of lithium and associated products is a huge problem for the battery industry. South American countries currently control nearly 50 per cent of the world's lithium supply, but dealing with those less developed markets can mean political instability, and a lack of transparency around labour and environmental issues.

"So by sourcing and producing here, we can guarantee the integrity of our supply chain. But, of course, access to labour in this country is hard, and getting harder by the day."

Australia's ageing demographics mean that there aren't enough fit, younger workers to go around, and the ones who are available don't want to spend their time doing repetitive manual labour. So the AIBN model works twofold; the robots do the jobs no-one else wants, and the supervisory team can consist of older workers rich in knowledge, but lacking the stamina for back-breaking labour.

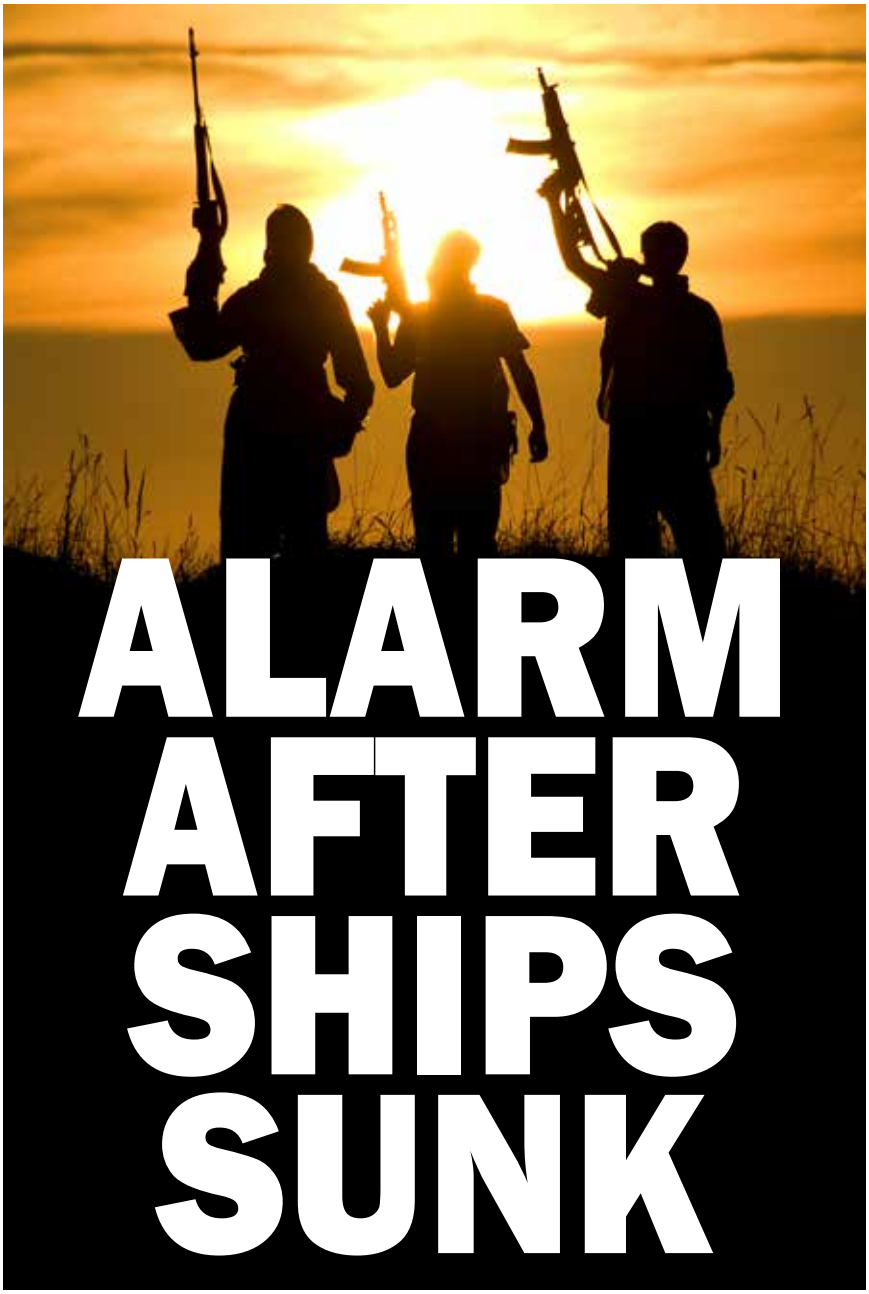
The Albury-Wodonga project is something of a trial for AIBN. Its core market, until now, has been batteries for cars, or units capable of providing a home or warehouse with 24 hours of backup should the mains system fail. But in Albury-Wodonga, the company has installed several battery banks.

"The technology allows us to scale these things up and down as required," Ms McGrath said. "Banking the batteries together makes for easier maintenance and supervision, but there's also a safety advantage to not having all our eggs in one basket; in the event of a natural disaster, we can isolate parts of the network and make sure the power stays on."

The company sees this as the start of something big, with export markets firmly in the business plan.

"There was a school of thought 20-odd years ago that Australia would never again be a great manufacturer; you were more likely to run into a barista than a machinist on the street," Ms McGrath said.

"I think that view is changing. Old-fashioned labour is expensive compared with Asian and African economies; but if we're smart, we'll design factories that don't need blue-collar workers. We've got the raw materials. We've got the trusted supply chains. We can be part of a real Australian manufacturing renaissance."



ALARM AFTER SHIPS SUNK

AUSTRALIAN supply chain managers are on high alert after a series of terror attacks on key Asian shipping routes.

Four container ships have been sunk in the past eight weeks as terror organisation JIDA looks to disrupt the Western economy.

Terrorism experts say the attacks are likely to be the tip of the iceberg for an organisation that has a strong membership, is well armed, and seems particularly incensed by Western-style consumerism.

JIDA is strongest in the Philippines, but has an increasing foothold in parts of Indonesia. Both countries abut key Australian export routes, with freight headed to Singapore or China's eastern seaboard particularly vulnerable.

Murray University academic Professor Chloe Elliott said JIDA's main game seemed to be inflicting damage on consumer-driven supply chains.

"So far we've seen them hit ships, but it's entirely conceivable that they'll also go after trucks, trains, ports, airports … they'll find the most vulnerable part of the supply chain and go for it," Dr Elliott said.

"This differs from traditional piracy because they are not interested in getting their hands on the goods, or even on a ransom.

"Much like the al-Qaeda attacks in the earlier part of the century, this is about inflicting damage on the Western way of life. They oppose the rise of the middle class in places such as China and Indonesia, and the associated consumerism that flows from that."

Authorities and shippers are particularly fearful of JIDA given the weapons used in the recent attacks.

"These aren't homemade devices," Dr Elliott said. "These guys seem to have a good supply of military-grade equipment, possibly flowing to them from the previous conflicts in Syria and Afghanistan. The weaponry might be on the older side, but it is still very effective. It can bring down all but the most modern of ships."

Domestic security expert Paul Davis said there was no evidence of JIDA cells in Australia – yet.

"We haven't seen anything but you'd be crazy to assume there wasn't something happening under the surface," Mr Davis said.

"These cells have an ability to operate very quietly until they are called into action, and despite the authorities' best efforts, sometimes you don't know these people are on the march until it's too late."

Mr Davis said Australia's supply chain network was so large as to have innumerable weak spots.

"We've got thousands of kilometres of rail and road, we've got enormous ports where only a tiny percentage of containers are inspected. That sort of infrastructure is always going to be vulnerable.

"These guys have shown a willingness to do whatever it takes to get their message across. They poisoned a water supply in the Philippines to wipe out swathes of crops. They are sophisticated in their organisation, but are willing to use very blunt instruments when it comes to causing damage."

Supply chains are keeping it casual

ASK Ava Zafon what's in Warehouse #13 in Sydney's outer west, and she looks around the room.

"Over there we've got a stack of menswear for a major department chain," she says.

"Behind that there are some groceries for one of the big supermarkets. And behind that we've got computers, although they're moving out tonight and will be replaced by some mixed hardware."

Ms Zafon does not have a photographic memory. She's wearing smart glasses, which tell her exactly what's in every one of the bays in every one of her warehouses. She needs them, because the turnover here is fast.

Ms Zafon is Inventory Manager for Warehouses Inc, which has become one of the biggest players in the Australian supply chain industry.

It's kind of like a self-storage facility, but on a much grander scale, and represents the growing "uberisation" of the industry.

Warehouses Inc rents space to anyone who needs to stage deliveries – by the hour if necessary. The company has more than 40 warehouses set up across Australia's mainland capital cities, often housed in facilities abandoned by the very companies now leasing them back.

"A lot of the big retailers decided that owning warehouses didn't make sense. They sit on valuable land, are expensive to maintain, and even more expensive to upgrade. And they were rarely using the full capacity of the site," Ms Zafon said.

"Our model maximises use of the space. It's like the Airbnb of warehousing; they log onto our system,

book the number of bays they need, tell us what time it'll be arriving, and what time it'll be leaving. By maximising the use of every bay, we're maximising the value of the warehouse."

And there's every chance that when the loads do leave the warehouse, that they're going out on a truck booked on a single-trip contract.

Trucking companies are increasingly using Uber-style technology to deliver for clients.

Erskine Corp managing director Alex Brookmyre has embraced the technology, which allows an inventory manager for, say, a supermarket chain to put the details of a load onto an app, and wait for the offers to come in from trucking companies with the capacity to deliver.

"The term uberisation suggests something a little more immediate than what we do, but the general vibe is right," Mr Brookmyre said.

"At first we were worried. We thought that it would diminish our long-term contracts and lead to us having drivers sitting around just waiting for a call to come, like the old days of the taxi industry.

"But what we've found is that our contracts are more base-level, and we supplement that with single-contract trips. It helps us to use up spare capacity, because in the same day you might get a request to move gear to two different supermarkets, say 2km from each other, that's being stored in the same multi-hire warehouse. In the past, that would've been two different trucks picking up at two different warehouses, because the supermarkets were each contracted to different trucking companies."

SHOPS ROAM

GETTING 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."

Community leaders call for a fresh approach to democracy

START AGAIN

A GROUP of high-powered Australians has come together in an audacious bid to reform the country's political system, which they say is outdated and inefficient.

The Australians for Constitutional Reform group includes business leaders, community figures and even a couple of ex-politicians, pushing for "modernisation" of the country's democratic institutions.

The group isn't tinkering around the edges: it wants major change, now, to ensure Australia remains relevant in the second half of the 21st century.

ACR is looking to the public for reform ideas, and is urging people to start with a "completely clean slate."

"We are currently operating under a model introduced in 1901; the first Model T Ford hadn't even been produced. And we're trying to apply that model to the digital age? Ludicrous," ACR chairman and entrepreneur Syd Mandelbaum said.

"No wonder the population has switched off from politics."

Dr Mandelbaum said two issues went to the heart of the malaise: short political terms, and the three-tiered system.

"First of all, the three-year terms for the Feds. Seriously? My executives present me with 20-year plans for their businesses, but these guys in Canberra can barely see past the end of next week. They've only just been elected and they're out pork-barrelling to make sure they're re-elected," Dr Mandelbaum said.

"And if one mob actually does make a decision, the other mob just gets in and changes it all anyway. They disagree for the sake of disagreeing. How can you operate a business in that environment?

"Secondly, three tiers of government. The Americans aside, we must be the most over-governed mob in the world. And they can't even work out who's responsible for what. Each one of them wants to have their own say on health, on education, on transport, on social policy.

"Many of the state governments have upper and lower houses. Why? To snipe at each other? To further complicate decision-making?

"Meanwhile, try doing business either side of a state border. My operations on the Gold Coast require more administration than anywhere else, simply because sometimes my people cross into Tweed Heads. We have a community split up the middle thanks to a line drawn on the map in the 1850s by people who had never even been there."

Despite his personal opinion – "the states are pointless. They need to go." – Dr Mandelbaum said ACR was yet to settle on a preferred model of change.

"There is no point to a bunch of old people sitting around in a room and saying 'this is how it must be'," Dr Mandelbaum said.

"We bring a certain level of knowledge to the table, certainly. But doing it without engaging the electorate just brings us back to the untenable position that we now find ourselves in."

The group is inviting public submissions on the reform process at submit@acr.org.au.

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 blockchain 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.

FACT V FICTION? SOME OF

Court told of an

THE Federal Court has heard sensational claims on the first day of a landmark cybercrime case between two dairy companies.

Fern Valley Family Dairy has launched a claim of injurious falsehood against competitor Vincentia Farm Products, claiming a sustained period of 'fake news' attacks on the company.

Fern Valley lawyer David Robertson QC told the court that Vincentia had engaged the services of an offshore digital outsourcing company to systematically damage his client's online reputation.

Among the claims tendered on the first day of the trial, Mr Robertson claimed that Vincentia hired a Kazakhstan-based outsourcing company to:

• Trawl online review sites and post negative reviews of Fern Valley products, using thousands of false identities made to look like real Australians;

• Circulate falsified videos and pictures of animal cruelty on farms linked to Fern Valley, some of which went viral on social media and were picked up by mainstream news sites;

• Write negative, SEO-optimised articles about Fern Valley that showed up high on search engine searches;

• Create a false network of bloggers to share the articles, boosting their search engine ratings;

• Have false online identities claim to be former employees, telling stories of racism and sexism in Fern Valley's factories;

• Pay social media influencers to support Vincentia products and subtly knock Fern Valley's lines;

• Use 'blackhatting' techniques to have Fern Valley's own sites pushed down the search engine rankings;

• Create memes that mocked Fern Valley's attempts at gaining positive media coverage, and;

• Create social media posts purporting to be from Fern Valley that portrayed the company as attempting to profit off last year's King Valley bushfires.

The court heard Fern Valley suffered millions of dollars in lost sales and contracts as a result of sustained negative reviews, and was on the brink of collapse.

"This was a deliberate, malicious campaign of corporate terror against my client," Mr Robertson told the

THE ALLEGED SOCIAL MEDIA

internet of sins

court. "These techniques were well advanced. The articles were measured enough to be believable to the casual observer. They asked questions that planted thoughts in readers' minds, rather than making outright accusations against Fern Valley.

"The online reviews were never completely negative; some were even given two stars.

"Whereas one single course of action would have been obviously the work of a saboteur, this was an orchestrated, long-term plan to bring down a rival company using death by a thousand negative reviews."

Prominent lawyer Natalie Christensen said that if the court eventually ruled against Vincentia, it could open the door for a suite of extra claims by other affected businesses.

"It's entirely conceivable that if Fern Valley is successful, then the trucking company contracted to them could make a claim for loss of business, given they were directly affected," Ms Christensen said.

"Supermarkets that stock Fern Valley products and struggled to move them might be involved. Fern Valley's suppliers could weigh in. This is a case that could seriously reverberate for some time."

Marketing expert Quentin Burg said the case showed the power of online reputation.

"Google is the new word of mouth," Mr Burg said. "More than 95 per cent of shoppers use and are influenced by online reviews. Sixty per cent of people are influenced by three or less reviews. Most just look at the star rating and don't even bother reading the comments.

"But there is so little in the way of vetting on these sites. Essentially, you have to prove that a review is false to get it taken down, but the laws around fair comment are fairly liberal; you can get away with a lot in the name of a review.

"What the law hasn't done is keep up with the reality of life online, and that is, that you don't even know whether you're dealing with a real person. Is the review coming from a genuine customer, a disgruntled competitor, or some bot in a country far away?

"The industry is watching this case very closely."

The case continues.

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.

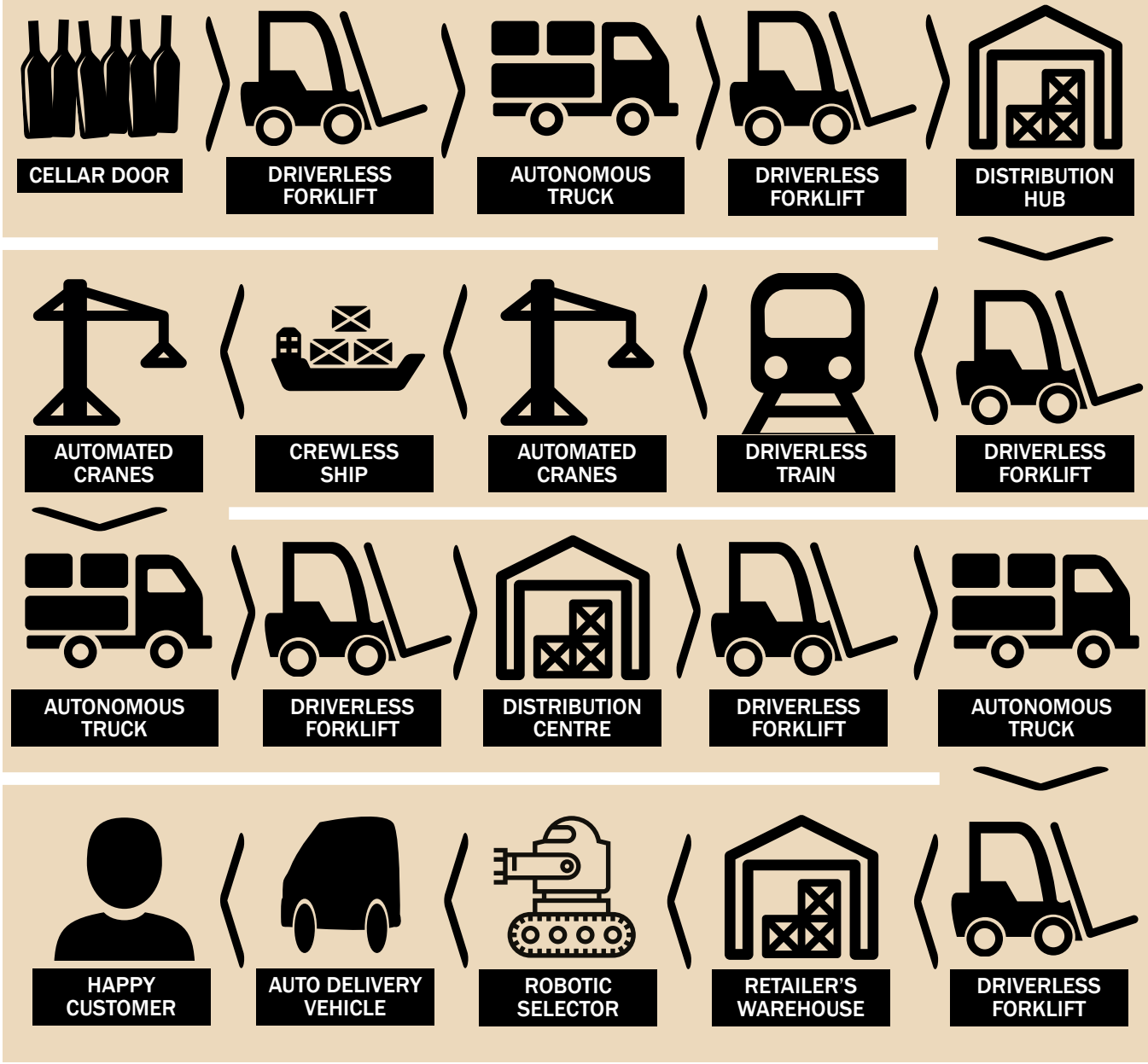
"But the technology has come a long way now. We're seeing ships safely navigate the East China Sea, and it won't be long before we see them sailing through waters such as the Strait of Malacca or Panama Canal."

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



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.

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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