



TAFE NSW

ENTERPRISE



THE EVOLUTION OF SKILLS IN TRANSPORT & LOGISTICS

THOUGHT LEADERSHIP REPORT



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KEY TAKEAWAYS

- **Significant reskilling will be required across the sector as workers transition from hands-on tasks into systems management roles.**
- **The complexity of many roles will increase, requiring new and cross-disciplinary skills.**
- **Strong change management programs will be needed to develop and execute plans to transition workers into new delivery models and with skills acquisition.**

INTRODUCTION

FASTER, CHEAPER, BETTER

Of all the industries to face disruption from the confluence of emerging technologies and consumer trends, none has been subject to the same level of speculation as the transport and logistics sector. The introduction of autonomous and aerial vehicles has raised many questions regarding the long-term impact on existing jobs and the skills that will be required to manage these new transportation methods.

The transport and logistics sector has already experienced significant change thanks to the emergence of ecommerce and the result increase in parcel delivery volumes. The Pitney Bowes Parcel Shipping Index released in August 2018 showed parcel volume in Australia grew 8 per cent last year to 841 million parcels, up from 778 million in 2016, with Australians receiving an average of 34 parcels each year¹.

This change has placed pressure on logistics businesses to improve their warehousing, fulfilment and distribution capabilities, including uplifts in customer service, as what was once a B2B industry becomes more consumer-facing. One outcome is an increase in soft skills training to boost customer service levels.

Another area of investment has been in optimisation and automation of warehousing and delivery, including the introduction of robotic picking and packing. The deployment of Internet of Things sensors within the supply chain is providing better tracking capabilities, while the data these technologies generate has in turn been used to feed data analytics systems that further optimise processes and provide better forecasting capabilities.

Further change will come through the introduction of autonomous vehicles and aerial drones. If these technologies experience widescale deployment, they will drive a requirement for the retraining of drivers and other delivery personnel in skills related to the operation and management of autonomous fleets.

Autonomous vehicle technologies must still overcome numerous technical hurdles, and their adoption is pending both regulatory approval and consumer acceptance. But their projected benefits in terms of improved safety and cost reductions suggests some level of adoption is inevitable. Transport and logistics companies need to start considering now how these technologies might be integrated into existing systems, and what training might be required to support them.

The sector has also witnessed the introduction of numerous consumer-facing delivery services, such as Uber Eats, Drive Yello and Deliveroo, utilising casual workers in a 'gig economy' model. The growth of the gig economy has led to an expansion of non-standard employment including part-time, casual, self-employed and contractor roles in the transport sector. Contract workers may seek skilling through a range of short courses in business, marketing and finance.

¹ The Pitney Bowes Parcel Shipping Index, August 2018. www.pitneybowes.com/us/shipping-index.html



The skills challenges presented by the digitalisation of the transport and logistics sector are significant, and impact almost all existing roles. Hard skills will require augmentation with soft skills, such as problem solving and systems thinking as logistics networks become more complicated. This trend can be seen already in the introduction of highly automated warehouse environments, where managers are required to understand the interconnectedness of systems and quickly interpret and resolve problems.

Meeting these challenges will begin with raising the digital skills of numerous worker cohorts who, to date, have had limited professional interaction with digital technology. These skills will be essential if the sector is to be increasingly managed by digital systems, and as eLearning emerges as a core tool for ongoing skills development.

Data-driven, customer-facing

The ability to analyse and utilise data already plays a key role in the design and optimisation of supply chains. The introduction of artificial intelligence (AI) and machine learning (ML) technologies is enabling the creation of distribution systems that can respond to changes in the physical environment in real time, while some networks are evolving from linear chains to a value web model (which connects communities of suppliers and partners for mutual benefit). Further, Blockchain distributed ledger technology has also attracted interest as a means of managing complex supply chains where provenance and transference of custody are critical, such as those for HACCP (Hazard Analysis and Critical Control Points) scenarios.

All of these changes are creating demand for professionals who are skilled both in supply chain design and management, and in data analytics and software development, to develop and finetune models and algorithms. The growth of Blockchain-based implementations particularly will lead to skills challenges due to the relative newness of the technology.

The growth of consumer parcel deliveries in Australia has meant that many companies in the transport and logistics sector are having to consider the end consumer into their service delivery models. This has been most apparent for courier companies, where delivery drivers who once picked up and collected from commercial premises are increasingly delivering to residential addresses. Training is therefore required in customer service, sales, and installation and servicing.

Manufacturing on demand

While much of the transport and logistics sector is focused on moving goods from one place to another, there is high likelihood that future scenarios will see a greater proportion of manufacturing taking place in situ using technologies such as 3D printing and micro-factories. To date 3D printing has commonly been most used either for low-end purposes using consumer-grade equipment (such as the printing of small single-part items or prototypes), or for high-end specialist applications where light weight and high-strength are essential, using advanced 3D manufacturing processes such as selective laser sintering (such as for aircraft components).

The declining cost and increasing sophistication of this technology will see the use cases expand significantly. As the outputs from 3D printing become more sophisticated this will drive demand both for combined skills in advanced software-based modelling and materials engineering in product development roles, while the operation and management of the equipment will require new mechatronics skills.

Australia's growing problems of rubbish removal and recycling may also lead to growth in the use of micro-factories, which are able to operate on sites as small as 50 square metres and convert waste products into industrial-grade ceramics or plastic filaments for 3D printers. These facilities will require new skills in machine operation and management.

KEY AREAS OF DISRUPTION

Not just the last mile: autonomous vehicles and drones

Autonomous vehicle technology has the potential to be the most disruptive factor to impact the transport and logistics sector, but its ramifications are difficult to predict. The technology for controlling ground-based or aerial vehicles must still overcome numerous technical hurdles relating to reliability in all situations, and will also require new regulatory frameworks to govern its operation. Most importantly, it must win widescale acceptance from the general public.

Autonomous vehicles are already in operation in pilot programs at numerous locations, including the NSW Government's two-year trial of an automated passenger shuttle at Sydney Olympic Park. The aged care provider Illawarra Retirement Trust (IRT) is trialling a driverless vehicle at its Kangara Waters retirement village in Canberra.

The Executive Director at Australia and New Zealand Driverless Vehicle Initiative (ADVI), Ms Rita Excell, expects by 2025 the use of autonomous vehicles in specified locations would be commonplace, but numerous hurdles would need to be cleared ahead of widespread deployment on the open road, not the least being consumer acceptance.

"Having assurance that the system will never fail is a complex task, and no computer system is 100 per cent fail proof," Ms Excell said. "So we need to make sure we know how the system might fail and that it will fail safely. This may mean that we have to rethink how we redesign our roads and

roadsides and how we repurpose roadside parking and also rest areas in regional areas to support the new transport solution."

Should that day come, one of the first commercial implementations of driverless vehicles on the open road will be for interstate freight movements. Significant efficiencies can be gained in freight movements through the introduction of higher levels of automation, with delivery times shortened through the revisiting of permitted driving hours, where the task of driving is taken over primarily by a driving system that does not experience fatigue. In the longer term the weight and environmental impact of vehicles can be reduced through the removal of the driver's cabin and the transition to zero emission freight vehicles using hydrogen or electricity. The first implementations of this model will be in the form of truck platooning, where several autonomous vehicles are connected through vehicle-to-vehicle communication to the lead human piloted vehicle and follow in close proximity.

A fast follower is the introduction of driverless taxi fleets in urban environments, where the removal of the driver can not only take significant costs out but consequently provide services to areas where traditional business models for taxi services do not stack up due to lower usage volumes, such as in regional areas. The same economics may also lead to the introduction of autonomous courier vehicles.





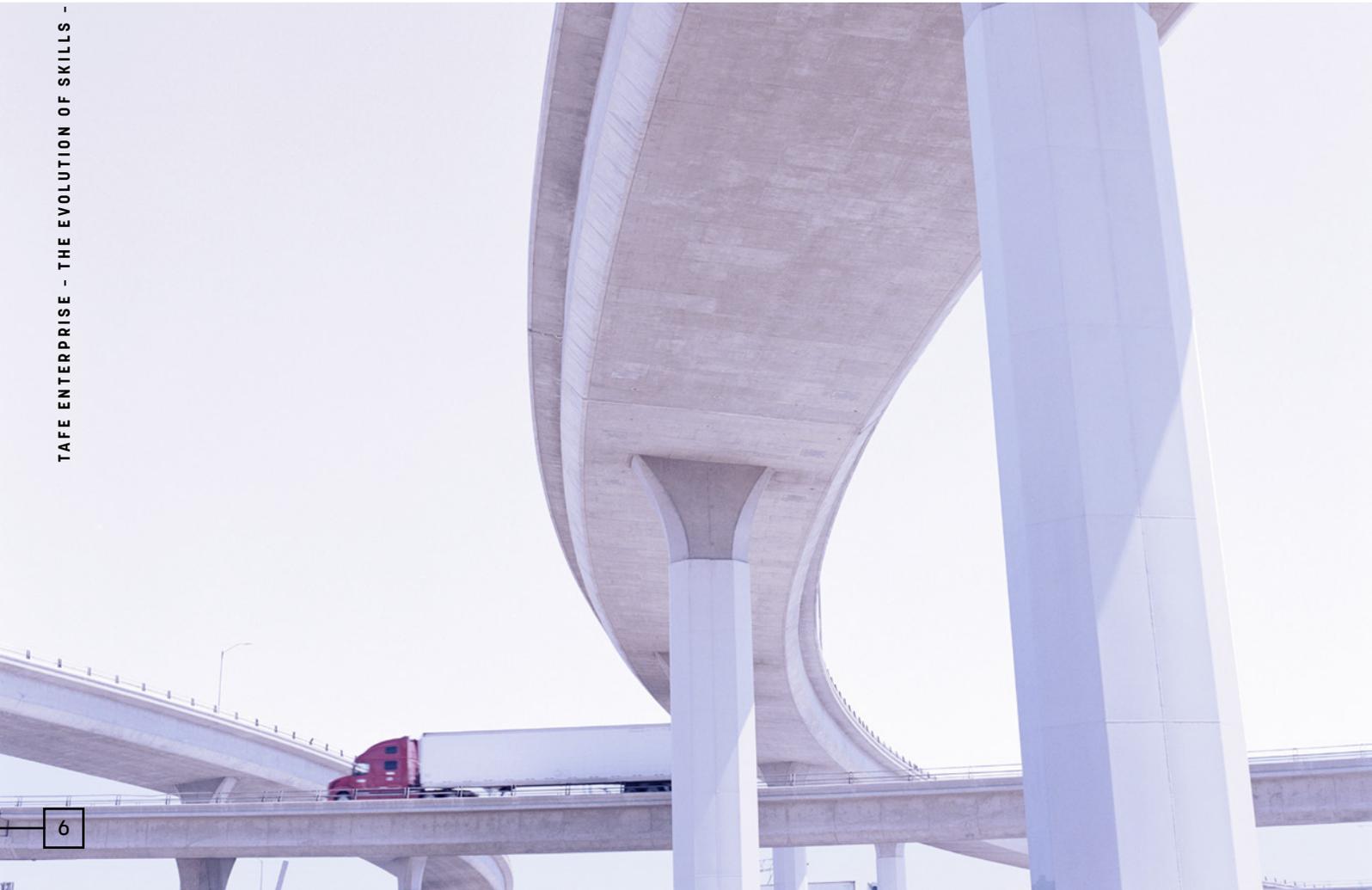
Autonomous vehicles create new job opportunities, and with that bring skills challenges in terms of the need for retraining of existing skills in relation to vehicular movements. Drivers who are co-piloting mostly autonomous vehicles will require training for one or more vehicles in a platoon model. Drivers might also be retrained for fleet monitoring, maintenance and management tasks from a remote management facility.

New skills are also required for the remote piloting and management of aerial drones, which are expected to play a greater role in last mile delivery services, unencumbered by existing surface factors such as traffic. Numerous consumer goods companies have already experimented with drone delivery, and in April 2019 Google's sister company Wing announced it had received approval from the Civil Aviation Safety Authority (CASA) to commence a world-first commercial air delivery business in Canberra's north, delivering food and small items to homes via drone.

Drones are proving popular across a range of applications, such as farm management, where sending a drone to inspect a remote

location can save farmers significant time and fuel costs and provide a clearer picture of farm operation. In Queensland, Seqwater has launched SAMMI (Seqwater Autonomous Motorised Monitoring Instrument) developed in conjunction with the Queensland University of Technology's Institute for Future Environments to conduct routine tests in hard-to-reach locations on lakes and waterways. The drone boat uses GPS tracking and obstacle detection sensors to navigate through waterways to collect samples, easing the process of water quality monitoring for Seqwater staff.

The growth of drone usage is creating an immediate need for skilled drone pilots. The use of drones in Australian airspace is strictly regulated by the CASA, with drones used for commercial purposes and weighing more than 2Kg needing to be controlled by the holder of a remote pilot licence (RePL). Additional qualifications are needed for variations on standard operating conditions, such as operating drones outside of line-of-sight. Improved reliability has meant the drone startup Airobotics was able to receive the first approval to operate pilotless drones beyond visual line of site (BVLOS) in Australia in January 2019.



Fulfilling expectations: warehouse automation and distribution

Ecommerce in Australia is growing rapidly, with Australia Post predicting in its 2018 report *Inside Australian Online Shopping* that by 2020 one in ten items would be bought online². At the same time, rising expectations for customer service and fulfilment are placing greater pressure on retailers to ensure items are delivered in a timely manner. Customer expectations are being fuelled by the news of same-day and even one-hour delivery services, such as Amazon's Prime Now service now being offered in New York, London and Paris.

Before any item can be delivered it must first be picked and packed, and the need to do this quickly and accurately is fuelling investment in Industry 4.0-style technologies within warehouse environments, including partial and full automation of picking and packing services.

This trend can be seen at its fullest extent at the Chinese ecommerce company JD.com, which in 2018 opened a warehouse that uses only robotic machinery and can fulfil 200,000 orders per day with just four staff. In Australia the online variety retailer Catch Group has commissioned its second automation facility to reduce staffing costs and improve service levels, and in 2018 Woolworths announced it was investing \$562 million in a new automated distribution centre in Melbourne. In 2019 Coles Group also announced a 20-year lease for two automated distribution centres to be built at Redbank in Brisbane and at Kemps Creek in Western Sydney. Coles Group will spend \$950 million on the centres over the next six years, which will employ racking systems, high-speed conveyors, and automated sorting and packing systems.

With land costs continuing to push large scale warehouses to the city fringe or rural locations, the need to fulfil orders quickly is also leading to the development of new distribution models, including use of local hubs and existing retail locations as repositories for high volume goods.

The Wing drone delivery service in Canberra's Gungahlin region for example uses a depot in the nearby suburb of Mitchell to accumulate items from multiple retailers. In future the use of drone-based systems may see the establishment of networks of delivery hubs close to customers, in industrial estates or even at fuelling stations.

The skills challenges of these changes start with the digital upskilling of warehouse workers. While the move to semi-automation poses minimal new skills requirement for workers on the warehouse floor, a significant challenge is emerging in terms of the combination of domain expertise and digital and engineering skills needed to operate and maintain automation equipment. These roles require deep knowledge that is often specific to the equipment deployed and not easily transferred from other domains. Significant training will also be required for managers in organisations that are deploying semi or fully automated warehouse solutions, to understand the interplay between the various hardware and software systems.



² auspost.com.au/content/dam/auspost_corp/media/documents/2018-ecommerce-industry-paper-inside-australian-online-shopping.pdf

Refining the backend: logistics systems management

The need to fulfil orders faster is generating new investment not just in facilities and robotics, but also in the software systems that manage them. This includes everything from the improvement of stock management systems through to use of predictive analytics systems to better predict sales volumes.

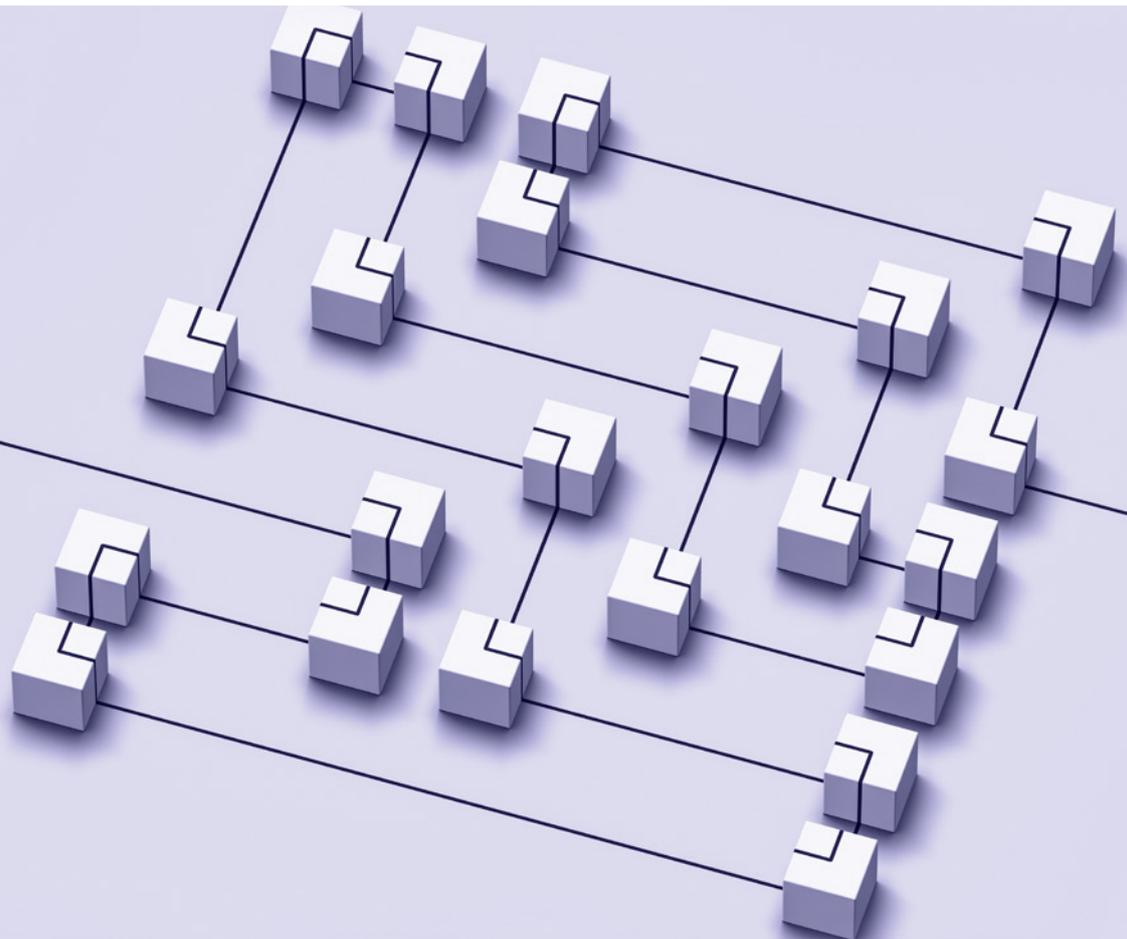
According to the Head of Fulfilment at the Australian online retailer Catch Group, Mr Richard Whetton, significant changes can be expected to be seen in the enterprise resource planning (ERP) and warehouse management systems (WMS) software used by companies such as his, including greater use of machine learning capabilities.

“Today they primarily still concentrate on collating and providing information to managers so they can make decisions,” Mr Whetton said. “The next wave will start making a lot of those decisions for you, and the skillsets that you’ll need to understand and work with that system are therefore quite different to the skillsets that have been required in the past. It is going to be more and more about design and flow management and process management than it has been previously.

“That means better analysis skills, better data-driven decision making, and everything that goes along with that.”

Further investment is being directed into managing supply chain fulfilment, with artificial intelligence more commonly used to calculate the fastest and most economical routes for delivery. These models often consider real time data relating to weather and traffic conditions, and through Internet of Things technology can monitor the performance of the delivery network and optimise it in real time.

All of these developments will drive greater demand for software development and artificial intelligence skills within the logistics sector, to create optimised, algorithm powered systems.



TRANSPORT FOR NSW

Core challenges

- **Systems engineering to understand interoperations across the entire network.**
- **Mechatronics skills to manage and operate machinery requiring both mechanical and electronics skillsets.**
- **Digital and systems literacy.**

A journey to the future

The spread of digitalisation into all workplaces can be clearly seen in the Sydney Trains agency in Transport for NSW. Over the next ten to 15 years, the deployment of digital train control systems will effectively remove existing visual track side signalling infrastructure and transfer this function into the driver's cab.

The impact of this transformation will be felt across the entirety of Sydney Trains' 10,000-strong workforce, and especially for the signal electricians who currently maintain the infrastructure, the signal and network controllers who manage the train system, and for the drivers themselves; all of whom will require extensive retraining. New traffic management systems will also lead to much greater interaction between different systems, including passenger information systems and digital train communication systems, boosting the need for staff with systems thinking skills who can understand the interconnected and integrated functioning of the entire network.

The Associate Director of Engineering and Digital Programs at Transport for NSW, Ms Fiona Love, likened the role that drivers will take to being akin to that of aircraft pilots.

"There will be much more system monitoring in the cab," Ms Love said. "Their problem-solving analytics skills really need to be there to be able to very quickly join the dots and work out why certain events might be occurring."

Solutions

- **Commencing preparation for operational readiness at the beginning of projects, rather than as they are nearing completion, to ensure a smooth transition for staff.**
- **Increasing digital literacy as a precursor for introduction of eLearning, including distribution of smart devices for communication and training purposes.**
- **Shift to learner-centred training to enable staff to acquire new skills at their own pace.**

Ms Love said Transport for NSW believed preparation for operational readiness needed to commence at the beginning of a project, not as it neared completion, and so was already in the early stages of creating the skills development program for digital train control. It had also taken a digital-first approach to training as a core pillar of its change management strategy, and has been building digital literacy within its workforce, including deploying iPads to drivers. This approach helped staff to visualise the changes that were to come.

"Training is where the projects come to life, because training is where our people acquire the skills and competence to integrate these new requirements and technologies into the delivery of services," she said.

A foretaste of the training task is currently taking place through the introduction of an automatic train protection safety system (ATP) within Sydney Trains. This system uses communication between track-based infrastructure and the train itself to prevent drivers from over-speeding by applying a predefined speed for the area and applying the brakes if necessary.



For this project, Ms Love said Transport for NSW had taken a student-led approach to the task of training drivers on the new system, using a mixture of eLearning modules on the iPad and attendance at simulators. This combination was able to reduce what had originally been forecast as a four-day training exercise down to two days. The use of simulators also created a real-world context for the training that enabled drivers to go straight back into passenger service without the need to practice on empty trains, with no compromise to passenger safety.

Ms Love said this exercise had provided valuable lessons that will be applied when training staff for the new digital train control system project.

“Everything we are doing is moving the responsibility for learning back to the professional,” she said. “That is really important and translates to a responsibility for them to engage with the technology in a constructive manner.”

“When eLearning is linked to simulators you can go straight into a relatively realistic, tactile environment you are familiar with, so you can immediately exercise that underpinning knowledge from the eLearning.”

The success of this approach is likely to see Transport for NSW adopt newer technologies such as virtual and augmented reality to provide simulated environments for the digital train control system project.

Ms Love said Transport for NSW would experience an increasing need for people who could balance hard and soft skills, incorporating deep technical specialisation while being able to interact and collaborate with people with very different specialisations.

“For many of our roles, systems engineering and systems thinking is already a core capability,” Ms Love said. “Systems engineers are the future, because the interrelationship of systems is what delivers outcomes and services. Degrees like mechatronics engineering are very attractive to us because they have that blend of mechanical and electronic skills.”



CATCH GROUP

Core challenges

- **Systems engineering to understand the interplay between different systems in the automated warehouse environment.**
- **Deep specialisation in new automation equipment.**
- **Familiarity with digital technology for warehouse floor workers.**

Automatic for the people

While much of the focus on changes in transport and logistics has concentrated on the transportation element, an equally impressive revolution is taking place behind warehouse doors. Automation technology is seeing physical robots augmenting and even replacing some tasks normally performed by humans, accelerating the speed and accuracy of picking and packing and creating a significant change in supporting skills.

The Australian online retailer Catch Group operates a semi-automated picking facility using technology from Austrian manufacturer KNAPP that can hold 35,000 totes, which uses robotics to bring items to packers.

Catch Group's Head of Fulfilment, Mr Richard Whetton, said investments such as this pointed the way forward for the Australian logistics industry.

"The idea is you are removing the non-value-added time," Mr Whetton said. "If you think of a traditional pick face, people are walking from location to location with a trolley and putting products into one box or more on the trolley. It is much more efficient to bring the goods to the person."

Mr Whetton estimated this goods-to-person model enabled an employee to fulfil between 400 to 800 lines per hour depending on the profile of the orders, compared to 55 to 100 lines per hour in a manual environment.

Solutions

- **Identifying and upskilling internal resources for new capabilities.**

The introduction of to-person picking has resulted in little need for staff skills development, beyond the ability to perform some troubleshooting on screen. Most of Catch's warehouse staff have completed the Certificate III in Warehousing Operations, and managers also having undertaken Certificate IV training. Catch also invests in staff training in areas such as OH&S, conflict resolution and working with external suppliers.

Mr Whetton said to-person automation had, however, resulted in the need for people with software and data analysis skills who understood how everything worked together, and could think analytically when problems emerged.

"We need a lot more capability in-house than we would have ever needed before," Mr Whetton said. "So we have electromechanical technicians on site that are capable of doing both preventative maintenance and dealing with breakdowns. You wouldn't have had those people in a traditional environment. And as more and more warehouses become automated those people are like gold dust. It is very difficult to source good people with those skillsets."

He said one of the difficulties in building a skillset around the automation equipment was the requirement for them to be a fully qualified electrician.

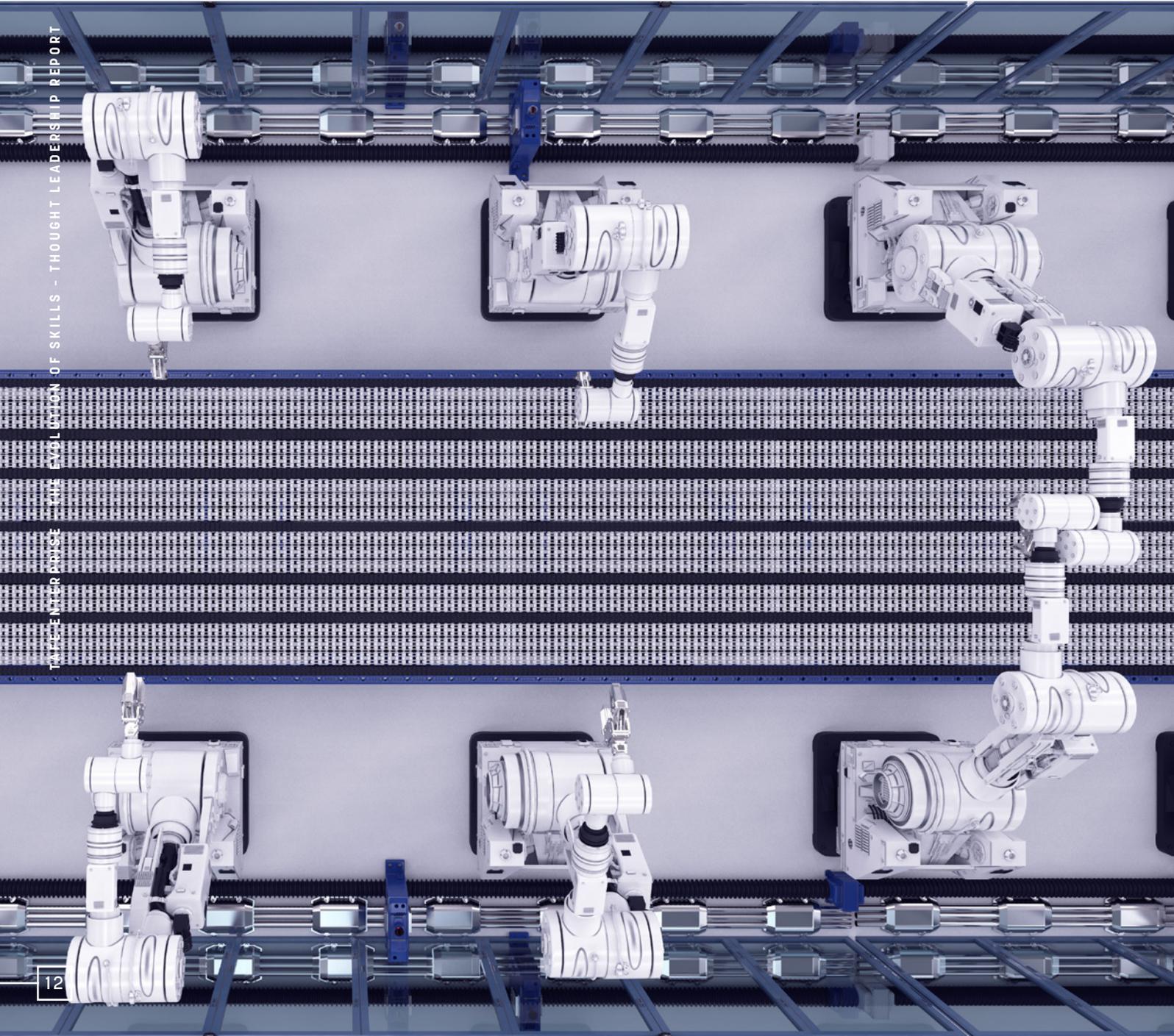


"We've definitely got to focus on trying to develop talent internally and finding people that work with us already that have the right aptitudes, and then fund training for them," Mr Whetton said. "Becoming a fully certified electrician is quite a long journey. But it is very difficult to recruit those people externally."

Mr Whetton believed that while Catch was ahead of its competition in the adoption of automation, the growth in Australia's ecommerce sector would drive others to follow suit. He said those organisations that invested now would be better placed from a skills perspective, as market demand tightens. For Catch, its ability to take on the KNAPP system flowed directly from the skills developed using a previous automation system.

"As more and more warehouses become automated the skill sets required will change," Whetton says. "The technical skills, the software skills, the analytical skills, they become more and more required as you go down the automation path. In 10 years' time in Australia there is going to be tremendous demand for people with those skill sets."

"Organisations that don't invest in skills now are in danger of being left behind. The companies that are biting the bullet and stepping into the future may not always get an immediate ROI, but you've got to take a strategic long-term view."



SYDNEY METRO AIRPORTS

Core challenges

- **Training pilots for RPAS (Remotely Piloted Aerial Systems).**
- **Preparing for a future involving greater movements of autonomous aircraft.**

The future of flight control

The aviation sector has already undergone significant transformation thanks to the computerisation and automation of many aspects of commercial flight. The next major disruption will take that trend one step further, with autonomous and remotely controlled aircraft (often called drones) poised to become a much larger component of Australia's civil aviation landscape. This trend poses significant challenges to airport operators in terms of how drones will be integrated into its existing business models, and for pilot training.

Sydney Metro Airports is the operator of Sydney's Bankstown and Camden general aviation airports. These airports accommodate around 270,000 movements of mostly single and twin-engine piston aircraft each year, much of which is in relation to flight training.

Sydney Metro Airports CEO, Ms Lee de Winton, said those numbers would rise significantly as airlines around the world worked to keep abreast of the rapid growth in passenger volumes, creating a global shortage of pilots. According to the US aircraft manufacturer Boeing's *Pilot & Technician Outlook 2018-2037*, the world will require 790,000 new civil aviation pilots over the next 20 years, with 261,000 required in the Asia Pacific region³. As a result, Ms de Winton estimated that aircraft movements at her airport would grow by up to 60,000 to reach 330,000 in the next 20 years, as pilot training schools increased their student numbers.

While Sydney Metro Airports was already planning how to accommodate these extra aircraft movements, Ms de Winton was looking further ahead to a world where automation played a much bigger role.

Solutions

- **Creating dedicated areas for drone training.**

"We are already flying giant computers in the sky," Ms de Winton said. "My opinion is that we may be seeing the last generation of conventional manned passenger transport aircraft. The technology is available now for the aircraft to fly itself, or to be flown remotely, and from the other side of the world. Defence has been doing this for years. The question is whether the paying public will have the confidence to get onto an aircraft in those circumstances."

It may be some time before that question is answered, but if the public is comfortable with pilotless aircraft this would have a major impact on pilot training.

Her next challenge was planning how to accommodate the increase in drone flights on the airports. Drones operate under significant restrictions to eliminate interaction with manned flights, but drone training is a growing industry and already exists at a low level at Bankstown, in a restricted closed-off area.

"I see drones as being an integral part of business," Ms de Winton said. "I don't refer to the very small drones that are available from some stores, but to medium-sized vessels that require a landing surface or some portion of a runway. And the training for that may need to be accommodated at a general aviation airport. We need to be ready for that."



³ *Pilot & Technician Outlook 2018-2037*, Boeing. www.boeing.com/commercial/market/pilot-technician-outlook/

PREPARING FOR CHANGE

It is important that organisations start now to plan for how their service models will evolve over the next five to ten years, based on customer demands and the availability of supporting technology, and begin to map out the skills they will need to meet these new requirements.

Numerous examples already exist, such as the automation of warehouses, and the emergence of remotely controlled and autonomous delivery options. Extrapolating the evolution and impact of these technologies over the next five to ten years can provide a roadmap for skills development and investment.

A starting point is upskilling in digital literacy across the board, as few roles will be unaffected by the deployment of digital technology over the next decade. At Sydney Trains, a proactive effort has taken place to equip train drivers with iPads to increase their familiarity with the technology. This has proven essential as the organisation moves towards learner-led training with a heavy emphasis on eLearning. By making drivers comfortable with the training mechanism and allowing them to progress at their own pace, learning outcomes have improved without significant disruption to their working lives.

Raising digital competency at Sydney Trains has also enabled the deployment of simulator-style training in relation to the rollout of an automatic train protection system. Simulation training has proven effective in accelerating learning and enabling drivers to transition back into an active working environment without the need for an on-track test run. Sydney Trains is likely to use augmented reality and virtual reality in simulations for future training requirements, especially as the network implements a digital train control system across the next 15 years.

Digital simulations will also play a key role in the training of drivers for semi and fully autonomous vehicle scenarios, and in many ways will mirror the actual experience of controlling an autonomous vehicle from a remote location. TAFE NSW has already partnered with Volvo to deliver simulated truck driving training in response to the shortage of professional drivers.

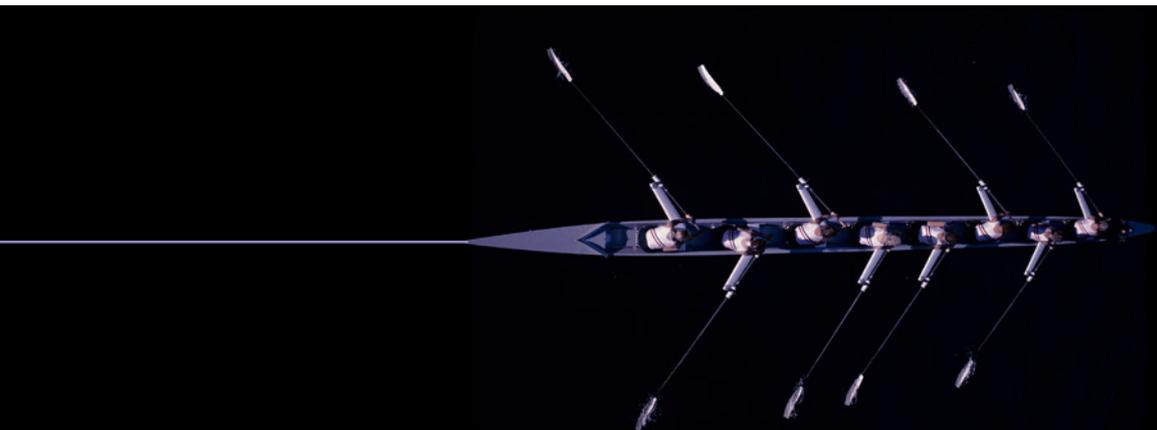
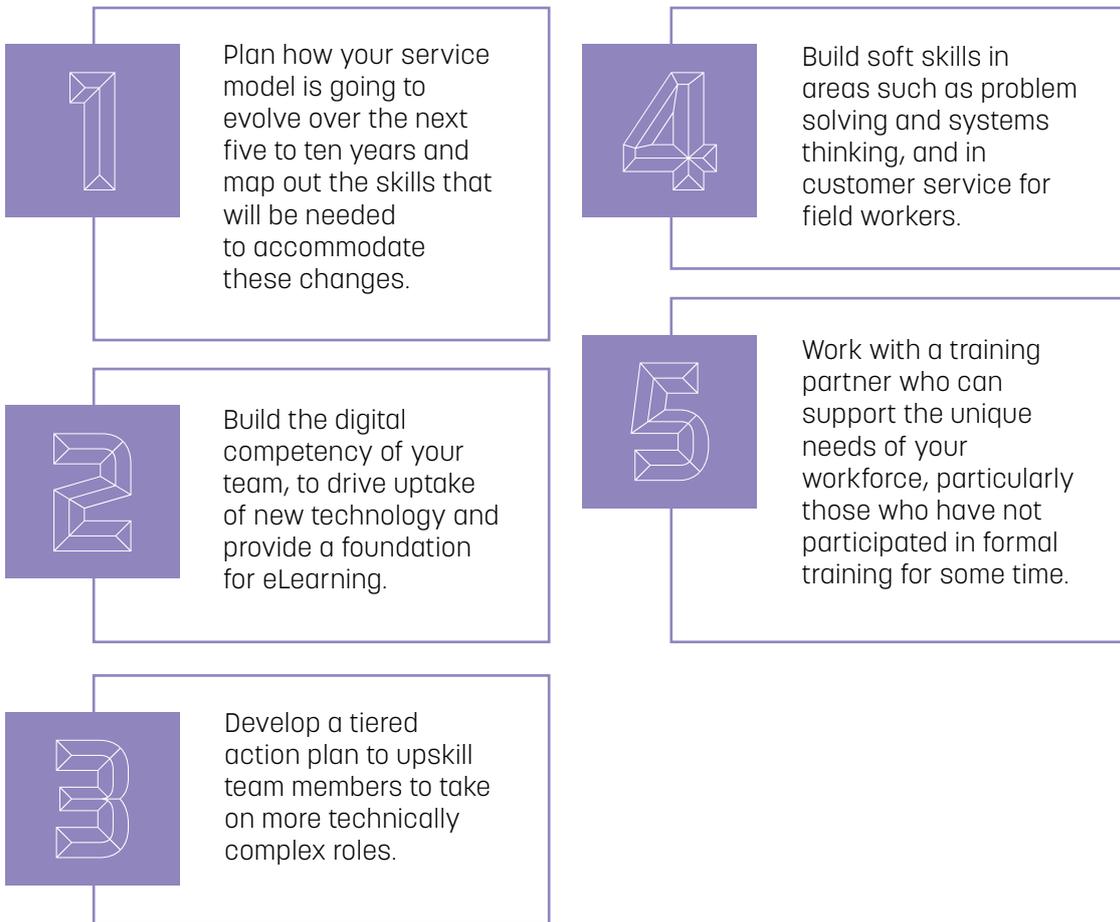
Similar strategies might also be employed as a precursor to digitalisation within warehouse environments and other roles within the supply chain. Workers impacted by the growth of automated warehouses may require retraining to gain higher-level analytical and troubleshooting skills to perform roles within the automated facilities. Raising digital competency as a starting step will also facilitate that deployment of training-on-demand and enable micro-credentialing for incremental skills advancement.

The current shortage of skills in higher value roles, such as automated warehouse management, requires an immediate plan of action in the form of identifying suitable candidates for retraining with the existing workforce. The breadth and depth of skills required for these roles, such as blending warehouse management skills with specific technical capabilities in electronics and engineering, are unlikely to be supplied by the market, and may take months or years to develop internally. Hence an action plan is required well in advance of the business's intention to adopt such systems. Australian Industry Standards is developing cross sector units of competency to reflect the technological transformations in this area, with new units in the Transport and Logistics training package on employing, monitoring and complying with digital supply chains including the Unit of Competency on Establish Blockchain in a supply chain.

Drone training is already available through numerous providers, including through TAFE NSW via the Statement of Attainment in Drone Essentials as well as the Certificate III in Aviation (Remote Pilot – Visual Line of Sight). Australian Industry Standards are developing the new qualifications Certificate IV in Aviation (Maintenance Controller) and Diploma of Aviation (Remote Pilot) to meet the expansion of drone and remote piloting activity.

Around one in four transport workers are over the age of 55 and generally have fewer post-school credentials than workers in other sectors. The impact of technology-driven changes, such as the gig economy and automation, may impact future job opportunities for these workers who may find the return to formal training a difficult prospect. Training providers such as TAFE NSW can support this cohort to upskill and reskill in emerging and automated technologies by working with businesses to offer recognition of prior learning (RPL), short courses and workshops to minimise time away from work.

ACTION PLAN





Australian industry has entered a period of unprecedented change. These changes are inevitable, but how employers respond to these changes is what will determine future success.

TAFE Enterprise offers on-site, off-site and online training options that will help make your business future ready. To transform your business into a leading, talent-first organisation visit tafensw.edu.au/evolution-of-skills/transport-and-logistics or call **1300 045 737**.



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