



Australian Transport & Logistics Trends

five trends driving the Australian Transport & Logistics industry



summary

Climate change, emerging technology and shifts in demographics have set the stage for a major period of disruption for the Australian transport & logistics industry. The private sector, governments and consumers are responding with new business models, legislation and personal choices.

It is vital that organisations understand and exploit technology efficiently to meet these seismic changes and enable their sustainable growth.

“The Australian Transport and Logistics sector is at an inflection point and will need to increasingly leverage technology-based solutions to address changing customer & passenger demands, rising costs, social & environmental obligations, and to exploit new infrastructure.”

- Tim Staley, Transport & Logistics Leader, NCS Australia

the trends

Rise of connected and autonomous vehicles

In Australia, many vehicles already have some degree of automation such as lane keeping, adaptive cruise control and park-assist.

Increased use of Intelligent Transport Systems (ITS)

As transport demand returns to pre-COVID norms, infrastructure owners and operators are turning to technology systems help keep our country moving safely and efficiently.

Increased adoption of Mobility as a Service (MaaS)

While the internet has changed booking habits for users in the last two decades, increasing internet and smartphone usage has made it possible for companies such as Uber to provide innovative mobility solutions.

Optimisation using big data

Big data and analytics are starting to play an important role in generating detailed insights on travel behaviour, predicting changes in demand and increasingly to optimise maintenance and upgrades.

A push for more sustainable transport options

Growing demand from customers and government for sustainable solutions has led to an increase in environmentally friendly practices in the logistics and supply chain sector.



rise of connected and autonomous vehicles

In Australia, certain levels of Connected and Autonomous Vehicles (CAVs) are already in mainstream use with some degree of automation such as lane keeping, adaptive cruise control and park-assist. While fully autonomous vehicles aren't yet on the roads, this reality isn't far off in certain use-cases. In the meantime, accelerated growth and considerations for automated vehicles will increasingly be added to regulations and infrastructure, while vehicles will become smarter and connected in other ways.

Machine learning for example is being used by several car manufacturers to monitor driver awareness. In a study conducted by The Transport Accident Commission in Victoria, it was estimated that 20% of all fatal car crashes involve a fatigued driver (1). Fatigue detection technology in vehicles is no longer just relying on forward facing cameras and sensors to look for signs of driving style and behaviour. Manufacturers like Bosch and Mercedes are now using driver facing sensors and machine learning to read drivers facial expressions, eyelid movements and detect microsleep.



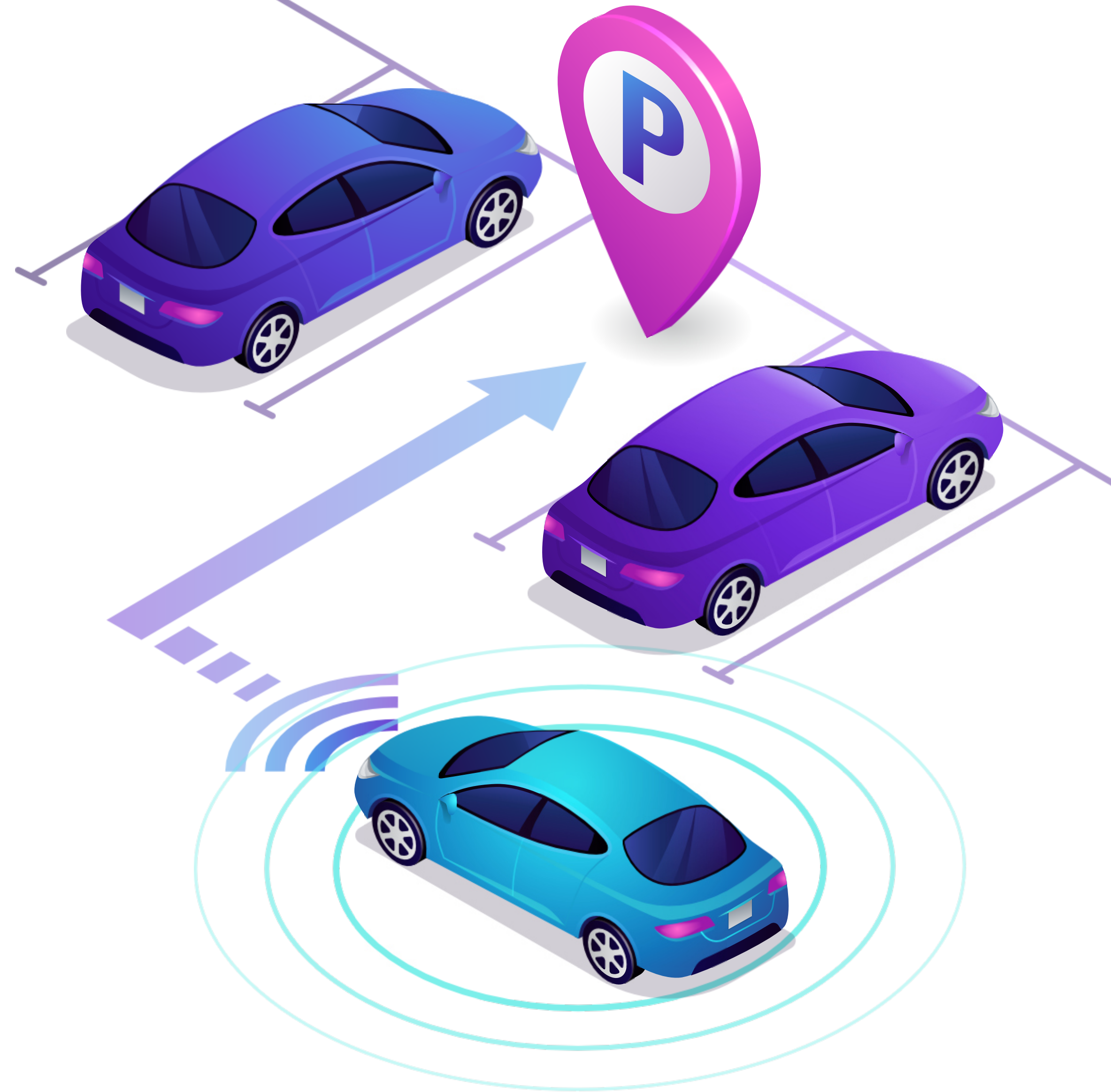
57.2%

of Australians surveyed by Budget Direct
thought autonomous cars were
a dangerous idea

journey to a self-driving future

As consumers embrace new vehicle technologies in their life, their confidence in fully automated cars is gradually increasing, with 47.2% of Australians Surveyed by Budget Direct saying that they would personally ride in an autonomous car (2) although that might change as Australia strengthens its infrastructure and roads in preparation for self-driving automobiles.

Australia's already in a strong position for automated vehicles, due to the high availability of satellite signals, enabling accurate and reliable positioning. This will continue to improve with a focus on increasing GPS accuracy in areas of Australia with access to mobile coverage (3). Over the coming years there will be more trials of automated vehicles on our roads, which require less reliance on human control and more investment into digital and physical infrastructure necessary to support these technologies (4).



paving the way

The Victorian government led a two-year trial of semi-autonomous vehicles on Melbourne's EastLink, which involved partial automated technology. The aim of the trial was to inform the development of regulations and infrastructure for self-driving technology. It follows a \$1.2 million investment from the Victorian Government to build its own vehicle with self-driving capabilities in partnership with Bosch, TAC and VicRoads (5)

Other car manufacturers such as Mercedes-Benz have also been testing their next generation of autonomous driving technology on Australian public roads this year (6).

Another sector to benefit from automated vehicles would be public transport. In Australia, public transport was still the most frequently selected segment within the mobility market in 2021. With the current 15.2 million users, projected to increase to 18.8 million users by 2026.

There is no doubt we will start to see driverless vehicles enter public transport fleet, with driverless shuttles already being tested on public roads in Australia. How organisations manage their fleets of semi or fully autonomous vehicles will become a challenge as they scale up from small pilots to larger programs.



18.8 users of public transport by
MILLION **2026**

increased adoption of Mobility as a Service (MaaS)

While the internet has changed booking habits for users in the last two decades, an increase in internet and smartphone usage has made it possible for companies such as Uber to provide innovative mobility solutions. The next phase of the transport and mobility sector is characterised by shifts from ownership to usership, transportation to mobility (7).

The demand for MaaS in Australia is there, with up to 46% of the Australian population willing to adopt MaaS (8). However users are not likely to relinquish the ownership of private motor vehicles just yet, due to the strong preference for convenience and flexibility. MaaS is more of a multi-modal option for users during weekends or social outings rather than daily or work commute (9)

The rise of MaaS

It is estimated that car-pooling will dominate the mobility service industry, with the ride sharing market projected to reach USD \$218 billion by 2025. (10)

With the Australian Government creating programs to enable innovators and start-ups to collaborate directly, it is likely we'll start to see more combined technology within the MaaS industry. As well as different transportation methods, intelligent road systems will continue to grow, helping to improve the journey experience for users. Benefits of these systems include real-time traffic data, updates about road disruptions, linking one-to-one ride sharing services with public transport and increased recommendations of environmentally friendly routes (11).



increased adoption of Mobility as a Service (MaaS)

Micro mobility, is it here to stay?

A trend that has continued to grow within MaaS is the use of micro-mobility. Although banned from public roads in NSW and ACT, Australia still saw a rise in rental micro-mobility, and this is expected to grow by 100% in fleet size from January 2022 to December 2022 (12).

Within the micro mobility sector, we're also likely to see dock less systems remain popular due to their flexible parking features. Battery swapping technology is also likely to remain a key market trend, where riders replace discharged batteries at dedicated swapping centres. (13)

We see that e-scooters will likely to continue to be a part of the MaaS industry. In the coming years, we can expect to see new technologies being introduced to the industry. An example of this are remotely controlled e-scooters which can be redistributed, without the need for employees to roam the city in rental vans. This will improve overall road safety and on-demand scooter availability (14).



optimisation using big data

Micro mobility report estimates that more than 70% of Australian transport and logistic companies invested in new digital technology during COVID-19 (15). Amongst the emerging technology being embraced by this sector, big data and data analytics stand out the most.

Big data and analytics have been widely used amongst the industry in three ways:

Optimisation - Big data and data analytics are becoming more popular in the logistics sector, allowing businesses to determine the potential shortage in future supply, busy periods, fuel consumption and route optimisation while being able to make better decisions and reduce cost (16).



optimisation using big data

Predictive analytics - By applying emerging tech such as Internet of Things (IoT), big data and AI to produce innovative solutions such as digital twin to virtually replicate each part of the delivery process, third party logistics (3PL) businesses can now identify potential pain points and costly processes (17). It's no wonder that 9 out of 10 shipping companies and 98% of 3PL firms believe data driven decisions are important to their success, and more than 8 out of 10 of these companies expect big data analytics to become a vital part of future supply chains (18).

Real-time data - The streaming and capture of sensor data from operational assets (trains, trucks, buses, cars) enables immediate identification of potential problems and planning of emergency maintenance at convenient times, reducing the impact on active services. As the dataset builds over time, it will facilitate more accurate planning and coordination of maintenance activities, potentially extending service intervals and part life, justifying warranty claims, and reducing over-maintenance. For this reason, there will be a battle between operators and manufacturers for control and ownership of this dataset.

A data driven framework

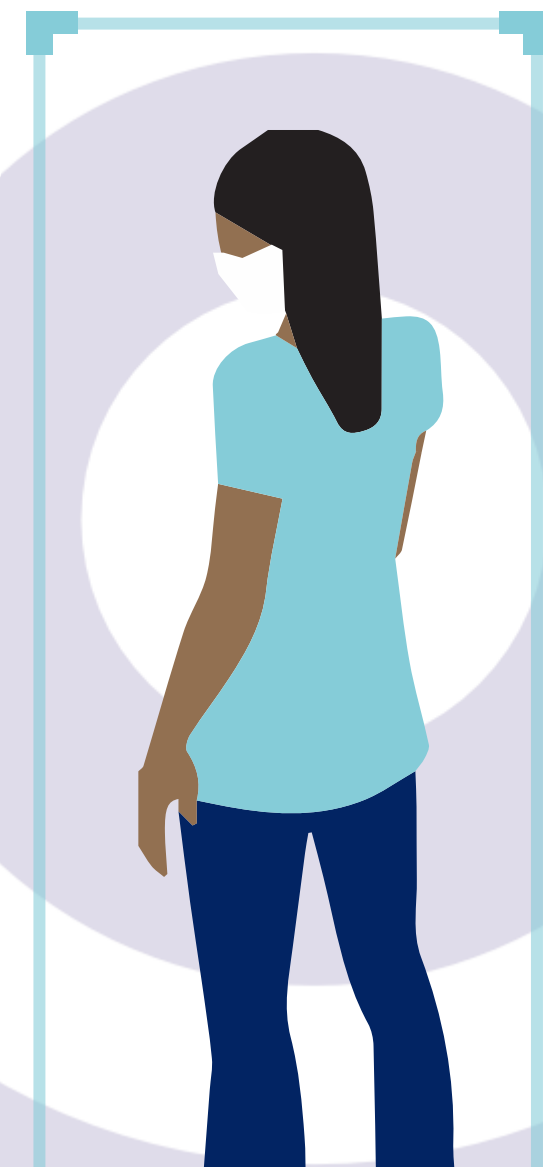
In Australia, big data is starting to play an important role in determining insights on current patterns of travel behaviour and provides a framework for predicting change in behaviour in response to changes in the transport system.

For example, The Department of Infrastructure and Transport South Australia (DITSA) is undertaking a project to upgrade the way they collect data to improve delivery of effective planning policy and efficient transport systems. With constant improvement in smartphones, Wi-Fi, Bluetooth networks, 5G, digital payment systems and the Internet of Things, there has never been more data on how people use transport infrastructure.

As a result, DITSA has been moving away from using traditional household surveys to collect data to an alternative and more cost-effective way for the collection of transport data - saving millions of dollars in the process (19).



The COVID-19 impact on Australian transport



As the COVID-19 pandemic recedes it leaves several changes on the Australian transport landscape.

During lockdowns, curfews and work from home arrangement periods, public transport usage reduced significantly. A survey conducted by ABS in March 2021 shows that 14% of Australians reported using public transport regularly compared with nearly 23% before COVID 19 restrictions began in March 2020 (25)

Australian's returning to the office are choosing to drive their own vehicles over public transport. Parkhound, a platform providing parking services reported a 205% increase in their services in January 2022 as people make their way back to work from the Christmas Holidays (26)

There have also been spikes in relocations from metro areas to regional Australia. The Regional Movers index shows 15% increase in quarterly migration during the peak of the pandemic compared to the previous years, with the Gold Coast proving to be the most popular destination accounting for around 11% of all capital city dwellers who moved to regional areas in 2021 and these new shifts and patterns can potentially alter the infrastructure investment priorities (27)

increased use of Intelligent Transport Systems (ITS)

Intelligent Transport Systems (ITS) involves using Vehicle-to-Everything technology, connecting motorist and infrastructure operators to alleviate congestion and improve the safety and traffic conditions. Due to increasingly complex and diversified transport infrastructure networks(28) in Australia, we are at the forefront of developing and utilising Vehicle-to-Everything (V2X) technologies, which connect motorist and infrastructure operators to relieve congestion and improve road safety and traffic conditions.

A smarter road system

In the past, ITS has improved Australian transport systems in many ways - from dynamic speed zones and active lane management to traveller information systems and e-tolling. As the population continues to grow, ITS is becoming more crucial in shaping the future of Australian transport and mobility systems through (21):

- 1. Improving traffic management** – Applying technologies to traffic signalling systems, traffic safety and route & congestion management to measure and regulate the number of vehicles entering and exiting in real time. This enables roads to handle the maximum number of vehicles while maintaining traffic flow, reducing travel time and preventing safety issues relating to congestion (22).
- 2. Building smarter motorways** – Although smart motorways have been used in Australia since the 1990's, more flexibility is now required in the planning and design of transport infrastructure projects, accommodating emerging technologies such as predictive algorithms and machine learning (23).
- 3. Creating an intuitive public transport** – NSW trains have congestion management platforms that allow passengers to see which carriages are occupied. This is not only displayed at the train station but also on the TripView app
- 4. High-Capacity Signalling** – High-capacity signalling allows trains to automatically adjust their speed according to the train in front allowing both to maintain a safe distance. Although this technology already exists in cities such as London and Hong Kong, Melbourne is testing this technology on the Melbourne Airport rail and Cranbourne/Pakenham line in 2023 allowing for 45% more peak capacity (29)



The global intelligent transport System market size is valued at

\$25,378 million

In 2020 and is expected to expand at A compound annual growth rate of **7%** by 2028 (20)

sustainable transport

Australia aims to achieve net zero emissions for the whole of economy by 2050.

As part of the plan, the Australian Government has created the Future Fuels and Vehicles Strategy - a technology led approach to reducing emission in the transport sector, and consequently creating new trends and changes for the industry (24). State Governments are also implementing strategies and funding programs to support the roll out of electric vehicle charging infrastructure.

For a more in-depth look into Australia's landscape for electric vehicles [click here](#)

As a result, Australia can expect to see more electric charging and hydrogen refuelling infrastructure where it is needed. With approximately 3600 charging points already available to the public across 2100 locations in Australia (30), this will grow substantially. For example, charging infrastructure specialists such as Jet Charge working with the Western Australian Government to roll out 98 chargers in Western Australia (31) and BP looking to roll out 600 across the country (32).

More broadly, to meet expectations from customers, regulators and stakeholders across society, Environmental, Social and Governance (ESG) practices are moving higher up the agenda for the transport and logistics organisations. This is highlighting the need for technology to play a role in enabling and improving a range of activities from emissions reporting to community engagement. In the transport and logistics sector, data analytics and 'optimisation software as a service' are being used to better understand costs such as fuel wastage and to improve journey planning.



is your business ready for the future?

Australia is in an era where technology is advancing at lightning speed, bringing innovation and efficiency for transport and logistic organisations. However, this also leads to new challenges.

It is more important than ever that organisations adapt quickly if they want to stay ahead of the curve and meet the needs of a rapidly changing consumer and legislative environment.

In order to understand if your business is ready, its essential to ask yourself the following questions:

- Is your IT infrastructure structure model able to adapt quick enough to changing market conditions?
- How well do you understand your customers or your customers' customers?
- What systems do you have to ensure your environmental reporting is robust?
- Do you have the right data governance and strategy in place to enable future growth?

If you're struggling to answer some of these questions, [get in touch](#) with us for a workshop



get in touch

If you want to drive growth through innovation and technology, then talk to us.

We combine deep industry knowledge and technology experience across land, air and sea to help clients face a wide range of challenges.

Get in touch with us today



Tim Staley

Transport & Logistics Industry Leader, NCS Australia

Contact details

tim.staley@au.ncs-i.com

Tim is an experienced CIO, Technology Executive and Board Member with 30 years of operational leadership, technology innovation and program delivery experience. He has international experience across industries including transport, mining, government, oil & gas, and technology. Most recently Tim was the CIO at Aurizon, where he led the IT transformation post-IPO, and he currently serves on the Board of a member-owned bank. Prior to that he worked at Rio Tinto in the leadership team of their IT function, global process transformation and ERP program.

references

Reference Source

- 1 [Tired driving - TAC - Transport Accident Commission](#)
- 2 <https://www.budgetdirect.com.au/car-insurance/articles/australia-lags-behind-in-the-driverless-cars-race.html>
- 3 <https://www.ga.gov.au/scientific-topics/positioning-navigation/positioning-australia/about-the-program>
- 4 [Connected and automated vehicles | Department of Infrastructure, Transport, Regional Development and Communications, Australian Government](#)
- 5 [Australia & Oceania: mobility service segment user | Statista](#)
- 6 [EXCLUSIVE: Autonomous car of the future quietly tested on Australian roads - Drive](#)
- 7 [5 Innovations Transforming Australia's Mobility Landscape - Public Sector Network](#)
- 8 [New MaaS research reveals Australians ready to ditch cars for subscription transportation services | Traffic Technology Today](#)
- 9 [Consumer preferences for Mobility-as-a-Service \(MaaS\) in Australia \(trb.org\)](#)
- 10 [MaaS-Webinar-Discussion-Paper-v060921 \(2\).pdf](#)
- 11 [Big data for strategic transport planning \(imoveaustralia.com\)](#)
- 12 [Mobility-as-a-Service \(MaaS\) world wide – Statista report](#)
- 13 [Australian Micromobility 2022. 2022, A Year of Change | by Zipidi | Zipidi | Medium](#)
- 14 [Australia Micromobility Market Trends and Revenue Forecasts by 2030 \(psmarketresearch.com\)](#)
- 15 [What's the Future of Micromobility in Australia? - Micromobility Report](#)
- 16 [Intelligent Transportation System Market Report, 2021-2028 \(grandviewresearch.com\)](#)
- 17 [Transforming Warehouse Operations using Low-Code Digital Twins - Spiceworks](#)

Reference Source

- 18 [Intelligent transport systems: a revolution on our roads - Infrastructure Magazine](#)
- 19 [How Australian motorways can be smarter if we unlock their value \(aurecongroup.com\)](#)
- 20 [Future Fuels and Vehicles Strategy | Department of Industry, Science, Energy and Resources](#)
- 21 [Electric vehicle charging and hydrogen refuelling infrastructure where it is needed | Department of Industry, Science, Energy and Resources](#)
- 22 [Intelligent transport systems: a revolution on our roads - Infrastructure Magazine](#)
- 23 [Sustainable Logistics | DHL | Australia](#)
- 24 [Top 10 Logistics Industry Trends & Innovations | StartUs Insights \(startus-insights.com\)](#)
- 25 [Fewer Australians using public transport after COVID-19 | Australian Bureau of Statistics \(abs.gov.au\)](#)
- 26 [Melbourne COVID: Pandemic drives down public transport use \(theage.com.au\)](#)
- 27 [Net migration from capital cities to regional areas doubles during COVID-19 - ABC News](#)
- 28 [7 Major Functions of Cooperative Intelligent Transport Systems - AUTOCRYPT](#)
- 29 [High Capacity Signalling - Victoria's Big Build](#)
- 30 [State-of-EVs-October-2022.pdf \(electricvehiclecouncil.com.au\)](#)
- 31 [Announcement - JET Charge Awarded Contract For Australia's Longest EV Highway \(WA\) - JET Charge](#)
- 32 [bp pulse electric vehicle charging goes live in Australia | News and insights | Home](#)