

how we move people and goods



By 2035 Australia will look different. Very different.

Faced with a population nudging **32 million**, increasing demand from trading partners and rapidly evolving technologies and consumer behaviour, moving people and goods around our vast country will undoubtedly remain one of our nation's biggest infrastructure challenges.

Against this backdrop, creating a future ready roadmap that responds to today and tomorrow is complex. How do we make our cities and regional areas great places for people to live and work? How can we balance sustained economic productivity and quality of life when faced with the ever-changing challenges presented by evolving consumer demands thanks to new technologies? **Is it even possible?**

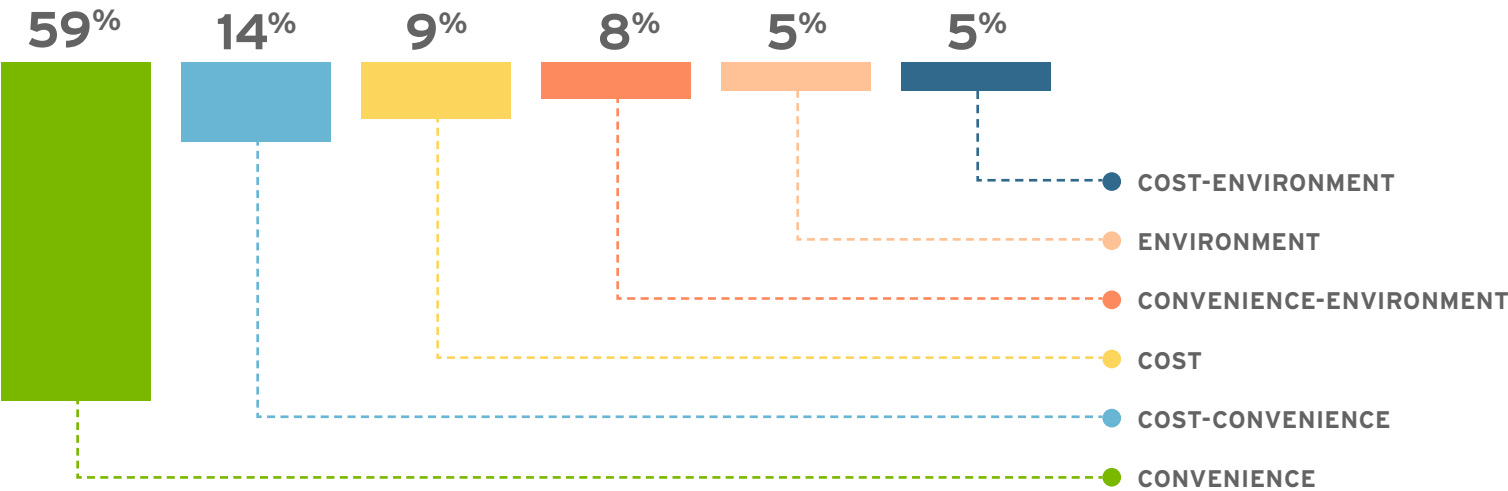
While those involved in the freight and logistics ecosystem all play their role, a crucial part of any future solution lies in knowing **what people want** when it comes to moving themselves and their goods around.

People don't seek mobility for the sake of mobility, they seek it to fulfil a purpose. **To explore this we asked more than 1300 people (from the general public and industry) to imagine themselves in 2035** and tell us about where they had chosen to live, work, how they commute, what foods and goods they purchase and how they prefer things to be delivered.

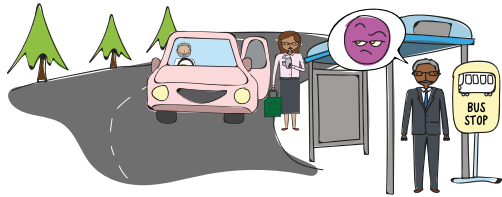
For each response, we evaluated how cost, convenience and environment influence consumer and commuter choices.

Overwhelmingly, the most important overall consideration when it came to future freight and transport decisions was **convenience**. Leading busy lives, the majority of respondents were drawn to anything that saved them time.

Here's the breakdown of overall priorities:



In today's fast-moving society, immediate gratification is a highly sought-after currency for many people who are time-poor yet earning high salaries. **So, we want convenience, but at what cost?** How do we achieve the convenience people desire, without compromising the environment in which we want to live, the hip pocket, or people's wellbeing and safety? **How do we ensure that this is convenient for everyone, not just the few who can afford the luxury of convenience?**



In 2035 survey respondents:

46% want to use an autonomous car to get to work

40% would choose a parcel delivery to their door

50% choose lunch based on their mood

What do you prioritise?



Convenience

You lead a busy life, juggling multiple priorities from family, friends and your career. Any decision, gadget or transport that makes life easier gets a big tick of appreciation from you. Life may not always be this busy but you can't see it slowing down anytime soon, so are drawn to anything that saves time.



Environment

You believe we all have a responsibility to reduce the effects of climate change, and you try your best to make a difference through efforts such as recycling, eating seasonally and shopping sustainably. You consider which modes of transport are best for the environment before deciding how to travel.



Cost

Saving money and increasing your wealth is important to you at this stage of your life. You are willing to wait a bit longer and take more time to get somewhere if it means saving some dollars that you can put towards a well-earned holiday or your home.

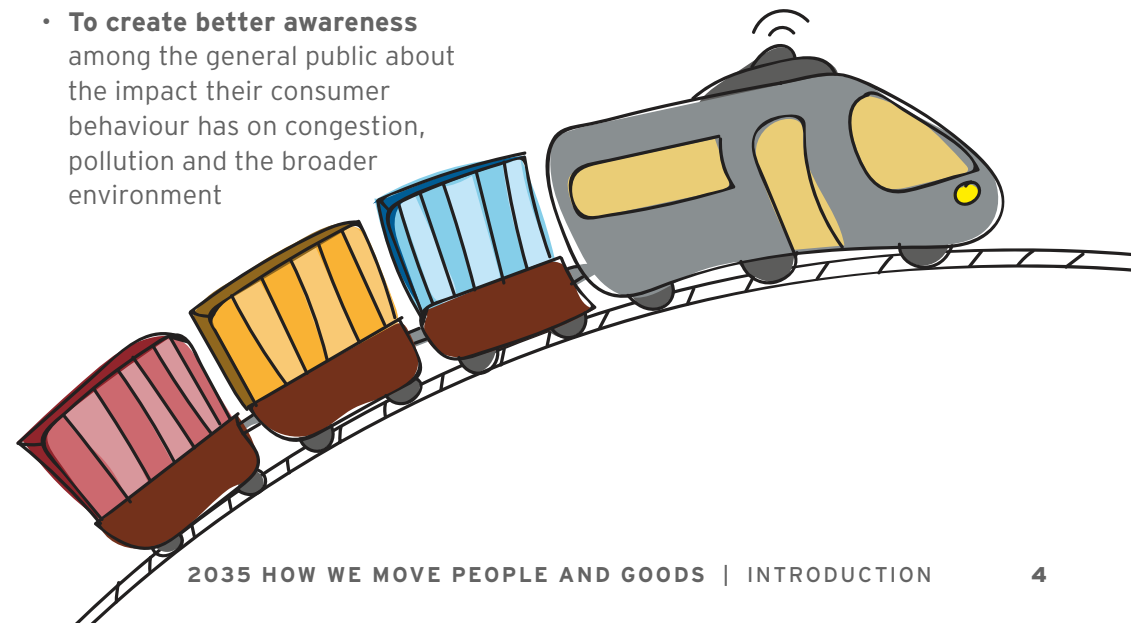
The survey data revealed some uncomfortable trends which can't continue – from a culture of convenience to a major disconnect between what the general public dream for their future and what industry respondents dream for theirs.

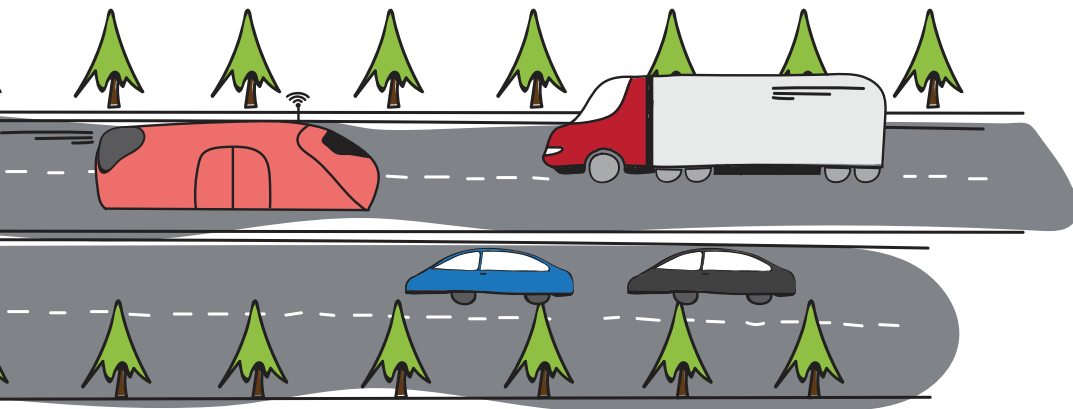
There is a tendency for experts to jump to solutions all too quickly rather than spending enough time delving into end users' true perspectives. By understanding these transport and freight choices, several clear must haves emerged for informing decision making of future freight solutions that could balance convenience with cost, environment, wellbeing and safety.

What do we mean when we talk about freight? When most people think of freight, visions of large trucks, containers and ports spring to mind however as we look to the future increasingly the concept of freight is encompassing the mobility of food, parcels, and people across short distances – otherwise known as the last mile and how packages reach consumers. How we address the integration of drones and bike couriers is just as important as the larger forms of transport.

Ultimately, to navigate a path through this mobility jungle **we** need an integrated mindset (systems approach) and designs that are people centric. To manage future freight demand and move it around **efficiently, safely, cost effectively and reliably we also need:**

- **To reframe what we think is convenient**, take new approaches and think more about the impact of what we do (our travel patterns) as individuals in the big picture – and be open to alternatives
- **To implement better planning** for urban mobility as a key factor in relieving pressures currently faced and those predicted for the future
- **An integrated, reliable transport system**, which considers technology such as automated rail, road and aerial vehicles, on-demand transport and how it can connect into existing supply chains. Aligning bus, train and tram timetables will create reliability and increase convenience – reducing barriers for people to use public transport and a decreasing reliance on the car
- **Jobs, homes and infrastructure networks** to be coordinated to maximise accessibility and liveability
- **To develop adaptable responses** based on tomorrow's needs rather than designing based on what we know today
- **Flexibility** in our freight and transport policies
- **To create better awareness** among the general public about the impact their consumer behaviour has on congestion, pollution and the broader environment
- **To trial different approaches** such as higher taxes on food, drink or transport that is not eco-friendly to drive sustainable consumer behaviour
- **To bridge the gap** between what the general public sees as the future reality versus what industry believes will occur.





At Aurecon, we are constantly thinking about how to adapt and achieve the balance between convenience, cost, environment, safety, wellbeing and equity. This report sets out a vision for the future of a transport ecosystem to move people and goods. By reflecting on the survey data, we will inform decisions for future freight solutions, and navigate towards more positive outcomes.

By working together to build a mobility future that is people driven – we have the opportunity to improve lives today, and for future generations.

Enjoy the read.

A handwritten signature in black ink, appearing to read 'Ben Stapleton'.

Ben Stapleton
Managing Director, Infrastructure

Report sections:

The impact of convenience	6
Autonomous vehicles and driverless transport	10
Ensuring fair and equitable access to transport in the mobility as a service culture	17
Increasing freight demand and safety on our roads	21

SECTION 1



The impact of convenience

**We want convenience,
regardless of the financial cost
or impact on the environment.**

We asked respondents to fast forward to 2035 and tell us where they will live and work, how they will get to work, what will drive meal decisions, how they will purchase things and what their preferences will be for delivery of those things.

For 59% of respondents, convenience was the most important consideration. The environment was barely a blip on the radar with just 5% thinking about which choices have the least environmental impact.

This disconnect demonstrates that while climate change remains a significant topic of discussion across the country, people are not necessarily prepared to sacrifice their creature comforts to help the planet.

REALITY CHECK:

The implications of our convenience culture on travel and the environment

As more people move into cities, more goods are moved into and around cities and the culture of convenience is creating problems which impact us all – from a throwaway culture that's spread packaging across the globe, to growing freight and transport systems which increase emissions, noise pollution and congestion.

We love having things now, but that appetite for convenience comes at a cost. It has a knock-on effect to the environment, our infrastructure, our economy and to our liveability.

The survey results show a disturbing appetite for convenience and before we get into a hole that we can't dig ourselves out of, we need to better utilise our energy and embrace more sustainable options for moving people and goods around.

We need to better balance the demand for convenience with a better outcome for our environment.

Legislation and taxation plays a role in minimising the environmental impacts, but more needs to be done when developing transport and land-use frameworks and growth plans. We need to bundle our collective energy for a cleaner, brighter future – go electric, incentivise adoption, disincentivise the 'late adopters', create the right infrastructure and influence the broader ecosystem.

Although the environment ranked low, we shouldn't lose faith...the environmental tide is turning in other industries and geographies, with people power playing a role where governments aren't. In the past few years we have seen massive shifts in mindset over single use plastics and microcarbons – people challenging convenience with the environment at its heart. This mindset shift will ultimately hit other industries hard and these same people will inevitably challenge our transport giants and governments to elevate the environment more in our transport choices and networks.

While people are acutely aware of the environment and are passionate about the impact we are having, **the issue really is a disconnect between what they want and how it impacts the environment.** For example, the Australian Logistics Council recently spoke about the need to change their community perception so they are viewed as the industry that helps deliver Weet-Bix in breakfast bowls every morning instead of their current image as the dirty and noisy trucks and trains polluting our roads.





People are willing to pay a premium to get to their destination quicker and with less disruption

Speed, accessibility and reliability are fundamental to any well utilised transport or freight solution. Have all three and people will want it, people will use it and people will pay for it.

When it comes to delivery, **18% of people are willing to pay more for same day or instant delivery.** This is set to increase, as younger respondents are more likely to choose this option over regular delivery options with longer timeframes.

- **Respondents 18-34 years of age:** 25% chose delivery to a place of your choice by premium drone at 10am Monday
- **Respondents 65 and above:** 10% chose delivery to a place of your choice by premium drone at 10am Monday

On the flip side, it's important to note this culture of convenience – created through the advent of door-to-door delivery and on-demand services – has made a profound difference, and will continue to make, on people with restricted mobility.

**“What do we want?
Convenience.
When do we want it?
Now.”**

These new services are providing people who experience difficulty with leaving their homes access to new connections they previously did not have, and will only increase when on-demand autonomous vehicles appear.



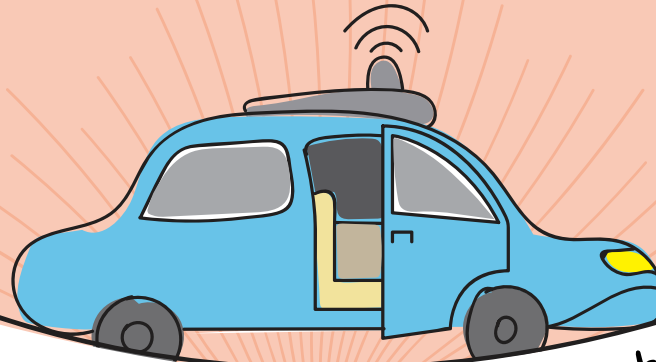
What value do people put on their time?

- **A majority of respondents (59%)** lead busy lives, juggling multiple priorities from family, friends and career. Any decision, gadget or transport that makes life easier got a big tick of appreciation. These respondents were drawn to anything that saves time.
- **14% of respondents prioritised cost-convenience** – drawn to things that save time, but were also willing to wait a bit longer / take more time to get somewhere if it means saving dollars.
- **9% prioritised cost sensitivity** as important and they were willing to wait longer and take more time to get somewhere if it saves money.

Travel time savings are often the primary justification for transport infrastructure improvements, and this presents a huge opportunity to leverage data and new technology in freight and transport planning, to give the city, and time, back to its people.

“Life may not always be this busy but you can’t see it slowing down anytime soon, so you are drawn to anything that saves time.”

SECTION 2



Are we ready for autonomous vehicles
and driverless transport?

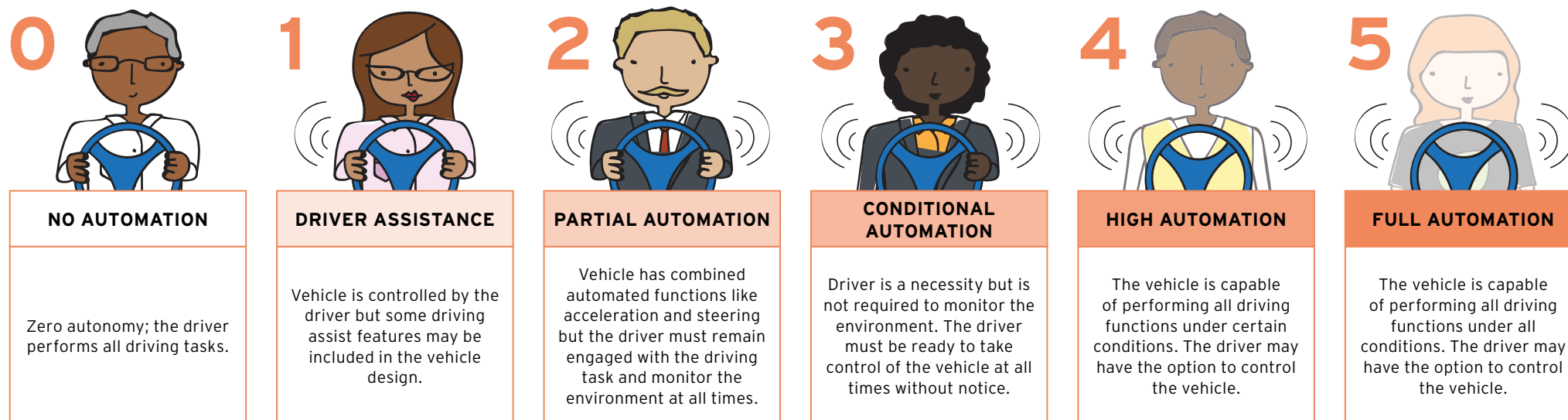
Yes and no.
The public are ready,
but our cities aren't.

The trend towards vehicle automation gathers momentum every day. It is replete with opportunity, what they might offer and what they might achieve.

But our cities, governments and transport agencies are playing catch up when it comes to the infrastructure to support these vehicles and their understanding and ability to manage them.

Automated vehicles are already here. Driverless rail has been operating in some industries such as mining for some time now, and Australia's first driverless passenger train is now a reality. The cars that we drive today have varying degrees of automation, which we can benchmark against the **Society of Automotive Engineers (SAE) levels of automation** (see next page).

The Society of Automotive Engineers (SAE) levels of automation:



46% of overall respondents and 72% of industry can see the clear advantages of driverless, dedicated rail routes, believing funding channelled in this direction will have the greatest impact on freight routes between capital cities.

Australia is well regarded in terms of its current engagement and testing in the AV world. New cars today come with emergency brakes, collision avoidance, parking control, radar enabled cruise control. **These levels of automation have been gradually increasing** and will continue to increase in capability in coming years, until they (possibly) reach SAE's Level 5 – full automation (as per graphic above).

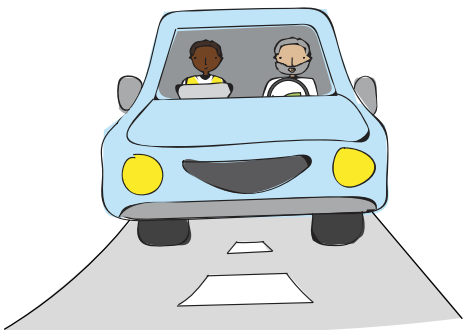
Perhaps this is why 46% of all respondents envisage going to work by AV in 2035; compared to 32% who indicated they will 'catch a few modes, usually bus and train'; 18% will 'ride a bike or walk'; and 4% will book a ride share.

When we gaze into this future, is this the future we want? Will automated vehicles and driverless trains live up to their promise of being faster, safer, cleaner, more reliable? Or will they simply produce a raft of new travel patterns which create more congestion, pollution and danger?

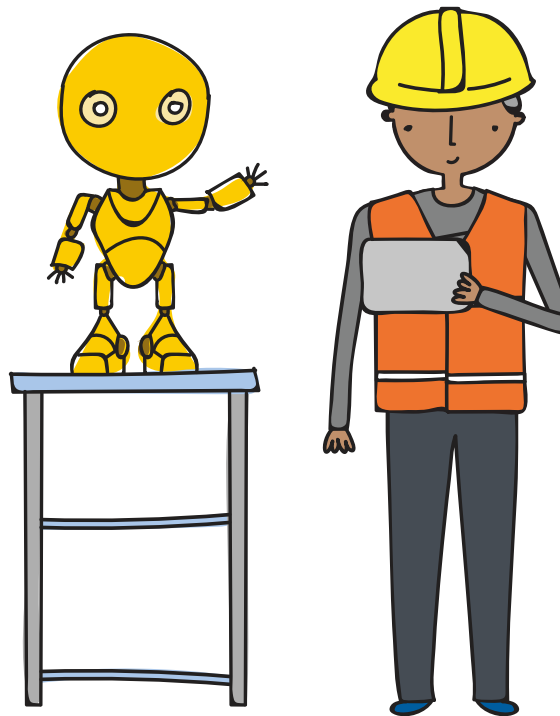
Implications for jobs and safety

Improving safety is one of the great opportunities, but the full extent of whether removing human error could see improved safety outcomes is still to be proven. **The major challenge will be how a mix of fully automated vehicles and human driven vehicles share our road network.**

While AVs might save lives, there is a concern they could destroy jobs and it's predicted more than **400,000 driving jobs could be impacted by self-driving technology**. These include train drivers, workers in the freight sector as well as taxi drivers and of course we would no longer need as many driving instructors.



The flip side is that new jobs will be created, new work opportunities we have previously never thought of, particularly in the engineering, data analytics and robotics sectors.



For example, human trainers will be required to teach and modify the machines plus new roles will be responsible for supporting machines in collecting and analysing reams of data that we've never before had access to. Just as the tractor was introduced in farming, creating jobs in factories and manufacturing for the design and importing of tractors and spare parts, whilst also increasing productivity on farms, ultimately creating many more jobs than people could ever have dreamed. But making decisions on future freight solutions must be inclusive, and operators need to be part of the conversation. **A people centric perspective is vital – not only the users, but the transport workers too.**

Consequences for industry and the impacts on society

Autonomous vehicles will have widespread impacts on society. If their integration is not planned properly with a balance across the four pillars of future mobility – connected, automated, shared, electric – the future could be worse than today, with larger populations and higher volumes of cars swamping streets, creating more gridlock.

Congestion costs our nation billions of dollars every year, but if AVs are an integrated part of an interconnected multi-modal transport system (Mobility as a Service), we could see reductions in car ownership and increases in vehicle sharing. Add in the ability for passengers to work while travelling, and the potential economic and productivity gains could be sizable. Wellbeing and happiness could also improve through sharing vehicles and simply interacting with each other more.

If technology trends are harnessed for the greater good, **AVs and driverless transport could see positive outcomes for society's vulnerable** – those with physical impairments, young children, the elderly – providing more cost-effective options, and improving social mobility, equity of access.

"We have an unprecedented opportunity to improve quality of life."



For industry, it will be a big shift.

AVs being shared and electric will see huge changes in mechanics, car dealerships, the petrol industry, and also in the value chain. The ripple effect across other industries will be widespread as adjustments are made to new behaviours: electric cars will bring increasing demand for electricity, connected cars will transform tech companies and insurers.

These impacts will create disruption and opportunity. Let's learn from history – with the introduction of tractors came concern, but the industry adapted and through automation set a new benchmark, forming a paradigm for further innovation and birthing new industries.



Policy and regulation must have the ability to respond and embrace technology and innovation as it comes and be more nimble for an uncertain future.

Is policy and regulation holding this back?

With greater automation in our freight and transport networks, comes a greater need to influence at the government level. Every government is grappling with creating policy and how to regulate and respond to changes. Many of today's policies were created more than 100 years ago when cars first hit our roads, and there's been little evolution since.

We need to hack into policy at a strategic and ground level. It needs to be more agile to meet changing needs of our growing population. It needs to be more flexible for city planners and operators to adapt infrastructure to meet people's

needs. We also need to be cognisant of the significant funding constraints that every level of government faces, that pose substantial challenges with regard to how well-equipped these organisations are in creating solutions to these very complex problems.

Governments need to enable and clear the path of any barriers to progress, which is challenging when you can't predict new business models – such as e-scooters, which blindsided many cities. Policy and regulation must have the ability to respond and embrace technology and innovation as it comes and be nimble for an uncertain future. With new technologies and evolving models disrupting all facets of the transport network, governments need support in helping determine where to focus their priorities. **Are the right questions being asked by decision makers, internally and externally with suppliers, to ascertain the right priorities?**

The insurance minefield

The insurance industry is set to face massive disruption. Why buy insurance if automation makes accidents far less likely? Without people driving vehicles, will there be a need for personal motor insurance policies or other transport related insurance? How will the industry respond?

The insurance sector knows a shock is coming, and many companies are now heavily involved in AV testing, as they seek to understand the risk and determine how best to diversify their products.

There are so many unknowns to the future of freight and transport that it's hard to predict exact outcomes, but if insurers want to keep their skin in the game, learning about these new technologies, which are tipped to alter the current vehicle ownership model, is crucial.

How do we catch up with and manage the public's expectation? Is there a risk that we can't meet demand?

The Australian public know what they want. In 2035, 46% of all respondents want to jump in an autonomous car to get to work. But the dream for industry respondents differed vastly – with 68% going to work via multiple modes of transport (bus/train), riding or walking.

While the public see AVs as a reality, industry is much more aware of the constraints of the transport system and the ability for it to absorb any more traffic congestion. How do we bridge this gap between the public's expectation and what industry perceives to be the future reality?

Without appropriate 'market shaping' and behaviour changes needed to effectively manage the advent of AVs, these modes could exacerbate the problems we currently face in our network (congestion, safety, less walking space etc).

SURVEY RESULTS

OVERALL RESPONDENTS:

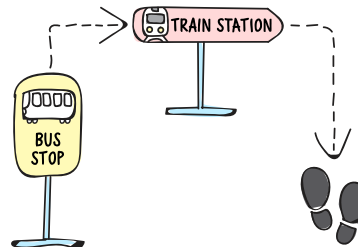
46%

Jump in an autonomous car



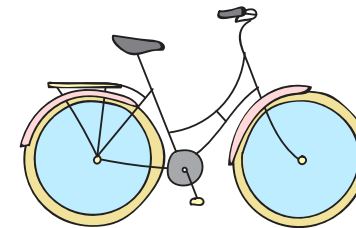
32%

Catch a few modes
(usually bus and tram)



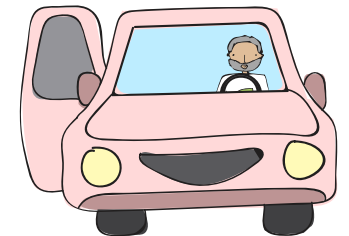
18%

Ride bike or walk



4%

Book a ride share



INDUSTRY:

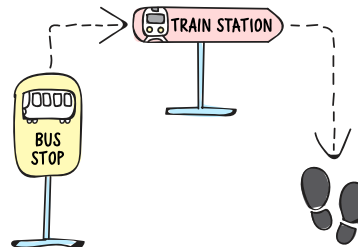
28%

Jump in an autonomous car



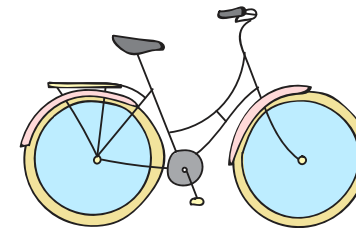
36%

Catch a few modes
(usually bus and tram)



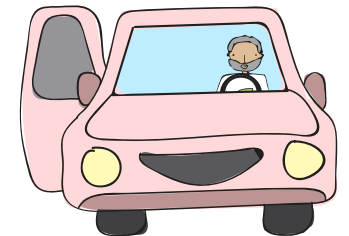
32%

Ride bike or walk



4%

Book a ride share



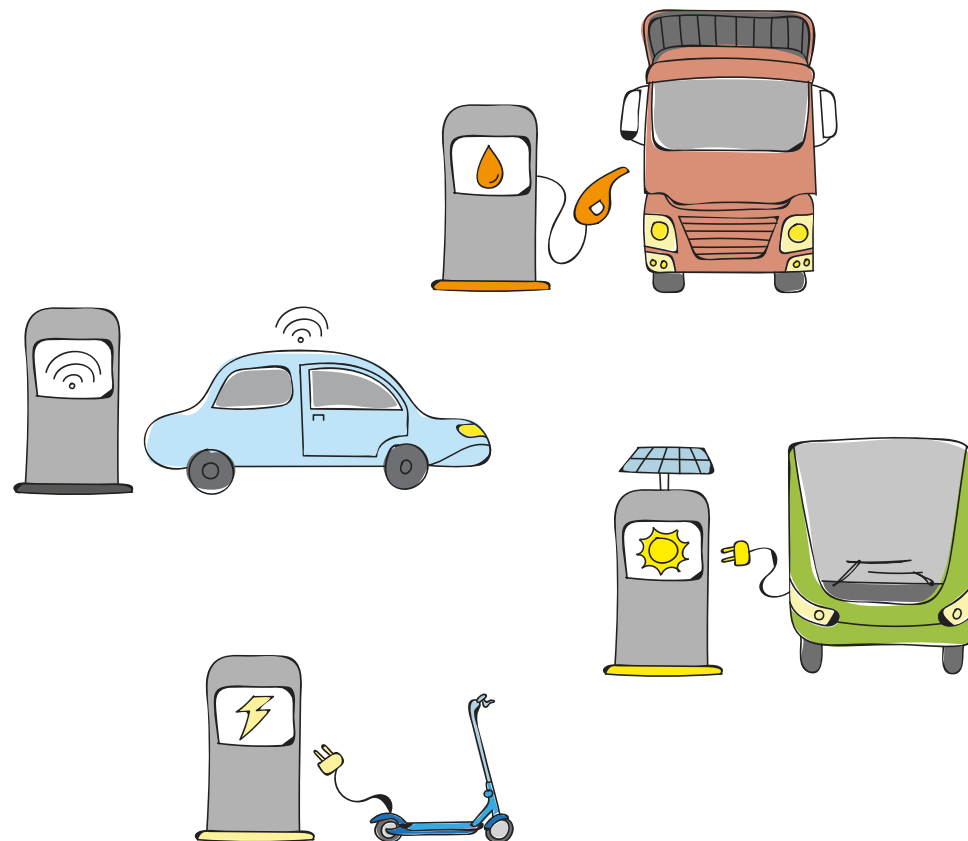
Engagement with the public is fundamental, for their informed understanding of what all this means now and into the future, and also for industry to understand what people really want.

To meet future demand, regulatory barriers need to be overcome, procurement models for public transport services need to change, and we need to think differently about how these vehicles are procured. Currently most buses are diesel, and it's only a few years before electric is the norm – how quickly can governments transfer their fleet to fully electric when they are inhibited by the way they purchase the vehicle?

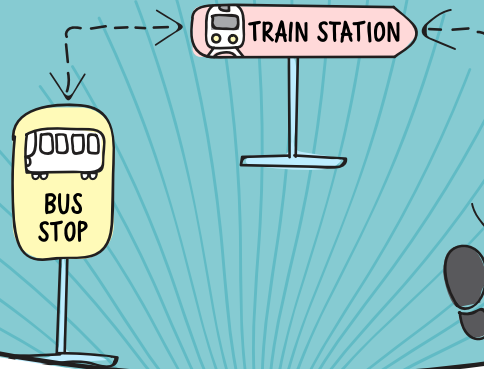
Some government authorities such as Transport for NSW – one of Australia's biggest energy users – are already preparing for this. **Aurecon has developed an Energy Futures Strategy to help the Government achieve their aspirational net zero carbon**

target by 2050, including not just electricity but all energy (diesel, petrol and gas) for all transport modes. It's this kind of leadership that is required across public and private industry to truly make a difference.

We can meet the anticipated demand for AVs if cities enable them to integrate seamlessly with other transport modes and existing infrastructure. Instead of seeing them as competition, AVs need to be seen – and understood – as being part of an ecosystem that better connects people to other modes of transport.



SECTION 3



How do we ensure fair and equitable access to transport in the Mobility as a Service culture?

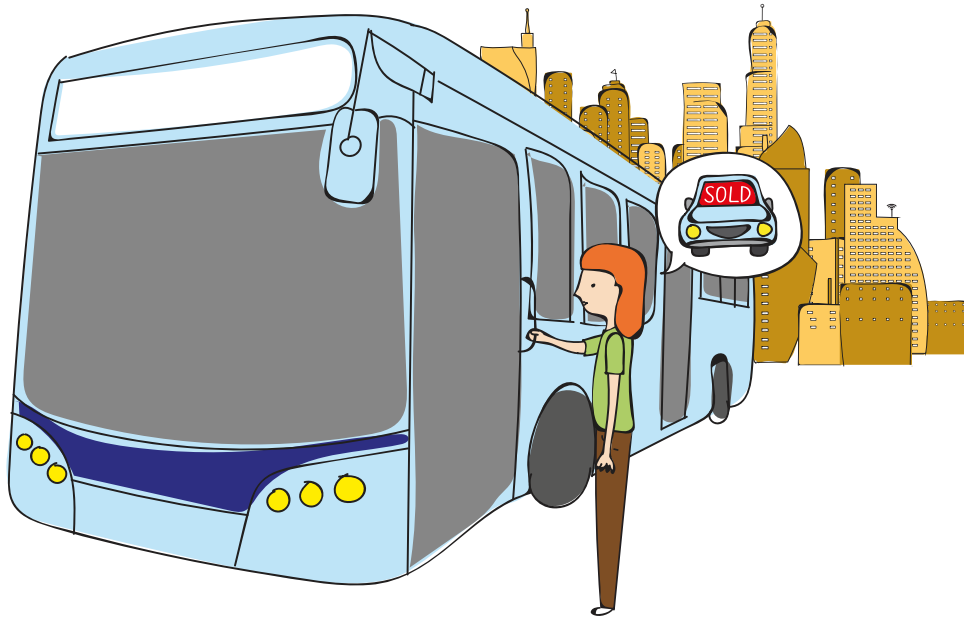
Mobility as a Service (MaaS) is about creating choice, bringing all modes (car, ride share, public and active transport) together, integrating them into people's lives rather than forcing transport solutions upon them.

The benefits of an integrated **MaaS** system are many: people can understand the choices available to them, selecting from options designed to meet user needs, make transport decisions (and pay for them) more easily, all of which creates a better ability to move around.

This survey shows people want this integration and on-demand choice. But with so many differences regarding the way people want to move around and want their goods to move around, what challenges does that present for the future of urban mobility and **MaaS**?

How can we tackle those challenges to create a mobility future that is people driven, and improves lives?

Creating this **MaaS** culture will be challenging. In growing cities, the only option to achieve reasonable mobility and journey time success is to improve integration, access to, and use of, mass transit. This is a challenge when – as our data reveals – a majority of respondents still rely on a car, rather than considering other options.



We need to instil a behavioural change to enable people to be more open to other modes of transport through providing better, reliable choice.

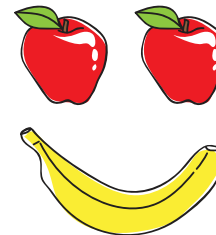
Despite Australia's history and love for the car, we are seeing pockets of change.

People in new high-density residences near stations have a reduced need to own their own vehicle, instead opting for a range of on-demand and short-term options should they need to access a private vehicle. **This is a new mindset**, a new demographic and a new population type.

City versus regional

- 65% of regional respondents believe they will have moved to a city by 2035.
- On the other hand, just 4% of city respondents are considering a tree change by 2035, while 96% believe they will still be living and working in the city suburbs or CBD.
- City responses highlight an overwhelming desire for convenience, whereas regional responses show stronger links to community and environment. When it came to food choices, regional respondents were more likely to consider local produce in contrast to city-based counterparts who chose food based on mood, with little regard for the cost to the environment.

Q: THE MORNING HAS FLOWN AND IT'S LUNCH TIME. HOW DO YOU DECIDE WHAT'S FOR LUNCH?



52% City respondents picked meals based on their mood

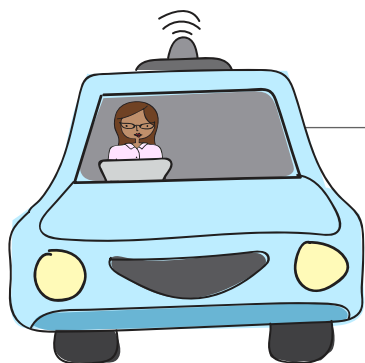
47% Regional respondents tried to buy, or only bought local produce

vs

44% Regional respondents picked meals based on their mood

38% City respondents tried to buy, or only bought local produce

How will growing urban and declining regional populations impact the MaaS culture and fair and equitable access? Solutions must reflect the needs of the people – one solution for one area, might not be right for the next.



54% Regionally based respondents would 'jump in an autonomous car'

VS

43% City based respondents would 'jump in an autonomous car'

As cities mature, **we are seeing more ways to get around and more convenience**. On-demand transit gives us more choice – there is no need for a timetable, you can turn up and a service will be there or in some cases it will come to you. Add into the mix more micro-transport (e.g. e-scooters) and urban dwellers have more ability to get from their city apartment to transit hubs, transport becomes cheaper and more accessible, and the need for a car becomes less.

In regional areas where the needs are different, the **MaaS** picture will be different. **As technology enables regional areas to become places where people live AND work**, the distances needed to travel every day will reduce – this opens up opportunities for MaaS options suitable to shorter trips, such as on-demand transport and ride sharing. With more transport options available in regional areas, could we see this drive population growth?

Equitable access and choice

In some suburbs and towns there are no alternatives to a car, or at best a reliance on an at capacity bus transit system. While other areas are spoilt for choice.

Equitable access to transport and freight options maximises participation and inclusion in the community and leads to better liveability.

Governments and the private sector have important roles to play in fostering equity in the provision of transport, ensuring geographic coverage and accessibility, as well as serving low-income and vulnerable populations.

By working together to build a mobility future that is people driven, we have the opportunity to improve lives for all people.

Multi-modal offering and how this is communicated (the difference between what industry and the public want)

The survey revealed some major disconnects between the general public and industry – relating to multi-modal offering. Overwhelmingly, industry was more inclined to consider multi-modes of transport in their daily choices.

- When commuting to work, **overall 46% of all respondents would use an autonomous car**, whereas industry prioritised 'catch a few modes, usually bus and tram' (36%) and 'riding bike or walking' (32%), with 28% using an AV.
- When it came to where we live and work, overall, **most respondents see themselves living and working in the suburbs (43%)**, whereas industry respondents (38%) predominantly see themselves living in the suburbs and working in the CBD.
- **Unplanned transport:** the results show that industry is more inclined to order a car that will take the passenger directly from A to B (48% industry versus 36% overall), but also industry is more likely to consider an on-demand bicycle scheme (14% industry versus 8% overall).

There is significant industry activity in planning, building and delivering on-demand intelligent public transport. Industry sees that future. The general public is in the here and now. We need to bridge that gap through education, **creating infrastructure geared towards the public** and integrated transport and physically bringing these multi-modal choices into people's daily reality.

Transport for NSW's future strategy is geared around mobility and for people to move around Sydney's three 'cities' – the 30 minute city concept focussing on multi-modal transport.

Customer centric design

How do we navigate through the mobility jungle? **It starts and ends with people.** By accelerating the fusion of people focused design and new technology, we have an unprecedented opportunity to improve quality of life.

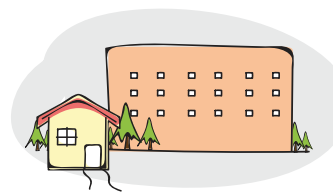
Understanding what people need and why will enable us to plan our cities better. **The survey shows convenience, liveability and integration of services are all very important to people.** Historically transport and freight planning has been done in isolation, but new insights reaffirm the case for future planning to not be siloed and to focus on multi-modal transport / **MaaS.**

The people centric trend of precinct-based city design is key in navigating towards a MaaS culture. In 2035, the need to live in the suburbs and work in the CBD may not be as common as it is today.

New technologies are driving a real shift in thinking when it comes to city design – with on-demand vehicles and other new services, our travel options increase and we have more choice around where we work.

All these elements feed into providing convenience, impact how we will move around and are significantly changing the nature and dynamic of cities.

People want more time back for themselves. **The more we can integrate MaaS transport into our lives, the more time we can give back to people.** That's the future we should be planning for.



43% of respondents see themselves living and working in the suburbs

30% living in the suburbs and working in the CBD

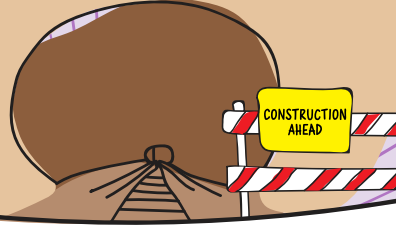
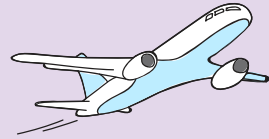


15% live in the inner city and work in the CBD



12% live in a regional town and work in a capital city

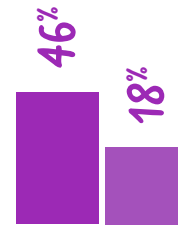
SECTION 4



*With significant increases in freight demand
how can we ensure the safety of our roads?*

**In 2035, respondents will
have a heavy reliance on
our road system:**

Commute:

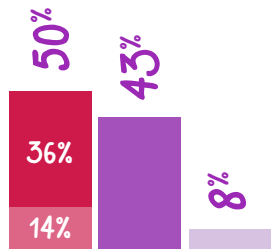


- 46% of respondents are using an autonomous car to get to work, with
- 18% riding a bike or walking



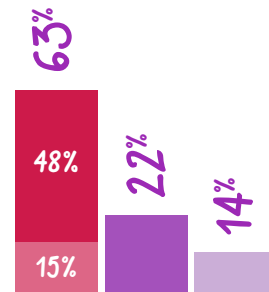
Organising unplanned transport

Overall respondents:



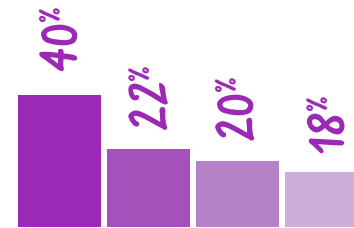
- 50% of respondents would choose 'unplanned transport' options which relied on the use of a car
 - 36% said they would order a car service
 - 14% would book a seat on a local share ride service
- 43% said they would phone their friend
- 8% would use the on-demand cycle scheme with bikes travelling to a preset place via designated pathways

Industry respondents:



- The story was similar for industry... with 63% choosing options requiring a car
 - 48% said they would order a car service
 - 15% would book a seat on share ride service
- 22% said they would rely on a friend
- 14% would use the on-demand cycle scheme with bikes travelling to a preset place via designated pathways

Parcel delivery:



- Home delivery is the preferred method of receiving goods, however male respondents are more likely to choose faster drone delivery at an extra cost
- 40% choosing home delivery within 4 days
- 22% choosing free delivery to a community parcel centre within 3 days
- 20% picking it up at the store yourself 10km away on the same day
- 18% choosing delivery by drone on the same day (22% of males versus 14% of females chose drone delivery)



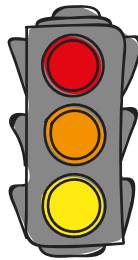
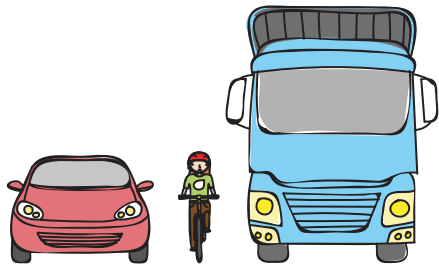
REALITY CHECK:

As populations grow, so too do imports. Since 2000, imports into Australia have increased 10% per annum, seeing massive growth in road and rail freight demand.

We are buying more goods from overseas because it's cheaper and more convenient. Ironically, we want convenience, but we're inconveniencing ourselves in other ways – pushing this huge import demand onto our freight and transport network.

Our roads will remain an important component of our future freight and transport network. People want independence, they want choice – owning their own car, using an AV, sharing a vehicle or using on-demand public transport.

But we cannot continue the same trend of growth in freight demand without some drastic changes. Our network will not cope and liveability will rapidly decline. A continued increase in freight demand will exacerbate existing issues – increasing conflicts and congestion and reducing safety.



- **Conflict:** there will always be conflicts between different road users – heavy vehicle versus light vehicles, cars versus cyclists – while there is a lack of understanding about how other users behave

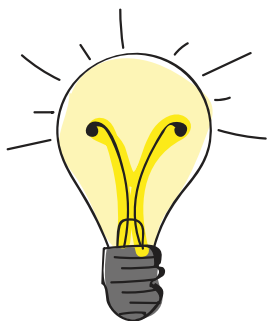
- **Congestion:** costs us – economically, timewise and environmentally. People want a reliable journey and congestion makes it less so. Unreliability has social and political impacts, reducing the convenience that people so highly desire

- **Safety:** is a key concern. As freight demand increases, so does the number of users on our roads and therefore the likelihood of increased accidents. It is also driving an industry push to increase truck sizes to increase efficiency, which will impact safety, roads, bridges and other infrastructure and see billions being spent on upgrades in response to the changing market

- **Cost:** to cope with increasing freight demand, vehicles carrying the loads are getting bigger and heavier, which brings with it an increasing cost burden for maintaining, upgrading and repairing the network to cope with growing vehicle size. We need to reverse this 'bigger is better' trend and keep maintenance costs in check

Managing challenges and meeting anticipated increase in freight demand

It is imperative to go back to the root cause and ask why? Why is there such a demand and what has driven it? What are the issues compounding the increase in freight demand – ranging from growing populations, growing imports and a lack of accessible and frequent public transport?

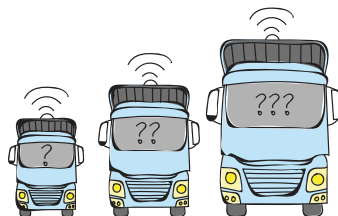


How can issues be improved / what can we do about it?

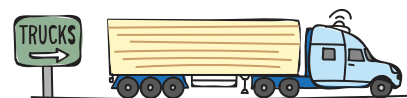
We asked respondents to tell us their ideas. From driverless trucks and dedicated lanes, to 24 hour delivery cycle and producing goods locally – fundamentally there is a desire to look at different solutions using new technologies – which could reverse the trends, starting to reduce conflict and congestion and increase safety.

Driverless trucks...

will cause major disruption to the freight industry. They are likely to change the cost structure, utilisation of trucking and the cost of consumer goods. They will tackle two significant contributors to accidents in Australia – truck size and fatigue.



Truck platooning trials underway (with a human on standby) are seeing improvements in safety (for the truck itself and other road users). And new discussions have opened with industry about which trucks are the most efficient – this could see a reverse in the trend of increasing vehicle sizes. Incentivising and applying new technologies to trucks would also enable the ability to mandate safety features that currently aren't mandated such as digital log books, automatic braking systems, lane control and the elimination of exhaust brakes using electromagnetic braking systems to reduce noise.



Dedicated lanes...

on arterial roads could be devoted to specific types of trucks, improving reliability, efficiency and reducing conflict. This is about reallocating road space.



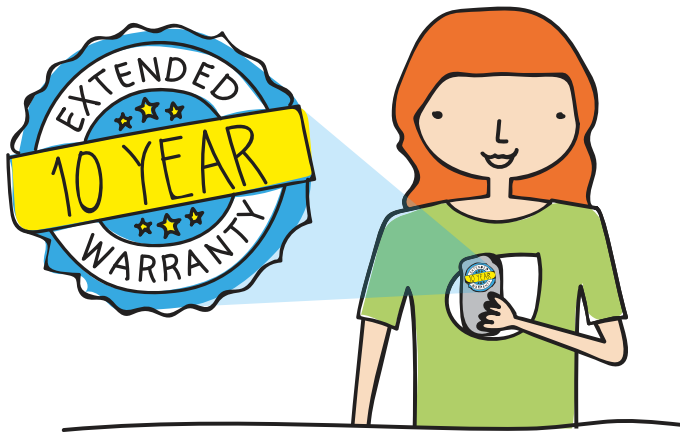
24-hour delivery cycle...

is already happening, with trucking companies avoiding peak hour times because it costs them money, but this 24 hour delivery cycle isn't happening everywhere yet because of noise restrictions.



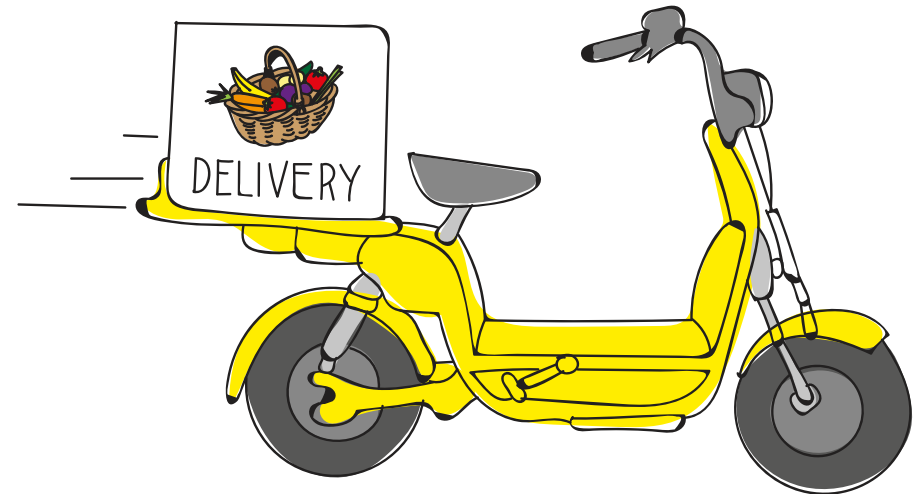
Locally produced goods...

is common sense. It requires less travel, reduces the carbon footprint, and stimulates local economies by employing people in regional communities. We have to provide incentives for locally produced goods and impart a cost for transport onto goods to discourage long distance travel. Instead of just accepting the rate of freight growth linked to demand, we need to challenge what is behind the pressure.



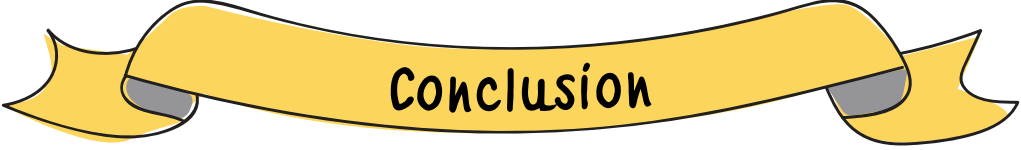
Increased lifespan of consumable goods...

could also make a difference. If we demand a better guarantee of lifespan on our consumables, we will replace them less. We have seen this shift in the car industry with warranty's increased from 3 to 7-10 years to drive consumer choice, we should value the same approach in consumables such as electrical goods.



The impact of smaller delivery vehicles

Since World War 2 the go-to solution for dealing with increased freight demand has been to create more road space and larger, longer trucks, which is filled by more vehicles increasing congestion and decreasing safety. But new approaches to planning – such as city courier hubs and using electric vehicles are bringing huge benefits, minimising the number of trucks delivering small packages moving around our cities. It's enabling the re-use of road space, reducing flooding zones and activating the space for other uses. All cities should be thinking about this kind of central approach, which could also be rolled out in suburbs.



Conclusion

These considerations and factors are just a snapshot of the scenarios that will need to be worked through as we traverse the many different paths for improving transport and freight solutions between today and 2035, and beyond.

Convenience is not going anywhere – as our society continues to increasingly rely on technology, digital data will make even more accessible options available to consumers, not less. **Convenience doesn't need to cost the earth** but it will require seismic shifts in behaviour from consumers and business to move the needle if greener, more eco-friendly solutions are required.

One aspect that we can be sure of is that collaboration will be critical for success. Industry will need to work closely with governments, start-ups, and consumers to ensure that new and evolving offerings are not only practical but also realistic to implement from a cost perspective. **In the words of a survey respondent:**



“Australia has many opportunities at its fingertips: increasing productivity, strengthening our labour force and domestic business market and creating greater community diversity. But to maximise these opportunities our cities and regional areas must remain great places to live and work.”

About Aurecon

Aurecon is a design, engineering and advisory company that brings ideas to life to create a better future for people and the planet.

For more information, please visit
aurecongroup.com

