Submission No 10

TRANSPORT TECHNOLOGY SECTOR

Organisation: Transdev Australasia

Date Received: 28 May 2021

Friday, 28 May 2021

Legislative Assembly Committee on Transport and Infrastructure
Parliament of NSW
Parliament House
6 Macquarie Street
Sydney NSW 2000

Dear Committee

Re: Transdev's submission for the Transport Technology Sector Inquiry

Thank you for the opportunity to make a submission to the Inquiry into the Transport Technology Sector in NSW. As the Mobility Company, Transdev is committed to the future and innovating transport services to support cities, regions, and customers with their future mobility requirements.

Around the world, Transdev collaborates with government, industry, and start-ups to actively explore innovative ways of delivering shared transport solutions that move people around our cities. We are a pioneer in the delivery of 'Mobility as a Service', a top name in the operation of autonomous vehicles, and one of the leading European operators for electric mobility solutions.

In NSW, Transdev is a long standing and trusted multi-modal partner of the NSW Government, operating ferry, light rail and bus services on behalf of Transport for NSW (TfNSW). Transdev has also participated in a range of TfNSW new mobility trials across NSW, including: five on demand bus trials through TfNSW's On Demand Public Transport (ODPT) pilot program; a world-first on demand ferry trial; and an autonomous shuttle trial in partnership with Armidale Regional Council.

Our vision for the future of mobility is Personalised, Autonomous, Connected and Electric and Eco-Friendly (P.A.C.E.). To achieve this, we place innovation at the centre of our operations to constantly improve the performance of public transport services and make the promise of 'new mobilities' a reality for everyone.

We also firmly believe that innovation requires the input of everyone concerned. Whether that is our local and global teams, government, industry, researchers, sector start-ups, or customers – we work collaboratively to develop, trial, operate to build awareness and advocacy for transport solutions for the future.

Members of our local team of new mobility experts would be delighted to discuss our submission, the results of our pilots and deployments locally and overseas and the specific opportunities and challenges present in NSW. If you would like to learn more, please contact Melanie Flanigan, Group Manager Stakeholder Engagement on mobile [redacted] or via email [redacted]

Yours sincerely,

[redacted]

Emma Duncan
Chief Business Development Officer

[redacted]

David Le Brenton
Head of Mobility

Parliament of NSW – Legislative Assembly Committee on Transport and Infrastructure

Transport Technology Sector

Transdev Australasia Submission

transdev
the mobility company

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Emma Duncan
Chief Business Development Officer

David Le Breton
Head of Mobility

As the Mobility Company, Transdev is committed to the future and innovating transport services to support cities, regions, and customers with their future mobility requirements.

We know technology is rapidly pushing the boundaries of what is possible in the public transport sector, requiring operators and key decision-makers to embrace a new forward-thinking customer focus. In addition, the COVID-19 pandemic has brought forward the importance of technology, and particularly the use of data, to help visualise mobility problems to help customers make informed decisions and safely manage patronage levels.

Around the world, Transdev collaborates with Government, industry, and start-ups to actively explore and deliver innovative ways of delivering shared transport solutions that move people around our cities. We are a pioneer in the delivery of Mobility as a Service, a top name in the operation of autonomous vehicles, and one of the leading European operators for electric mobility solutions.

In NSW, Transdev is a long standing and trusted multi-modal partner of the NSW Government, operating ferry, light rail and bus services on behalf of Transport for NSW (TfNSW). Transdev has also participated in a range of TfNSW new mobility trials across NSW including: five on demand bus trials through TfNSW's On Demand Public Transport (ODPT) pilot program; delivering a world-first on demand ferry trial; and completing an autonomous shuttle trial in partnership with Armidale Regional Council.

We welcome the opportunity to respond to the Legislative Assembly Committee on Transport and Infrastructure's Inquiry into the Transport Technology Sector. The following Inquiry Terms of Reference have been addressed in our submission, while also acknowledging TfNSW's recently released Future Transport Technology Roadmap 2021-2024:

1. Mobility as a Service (MaaS)
2. Real time public transport journey management
3. First and last mile transport services
4. How data might be used to improve access and safety for travellers, including for women
5. The ethical considerations and regulations in the development of connected and automated vehicles (CAVs).

As referenced in TfNSW's Future Transport Technology Roadmap 2021-2024, NSW is globally recognised for its innovative use of transport technologies, which have improved the lives of people across the State. Transdev is aligned and committed to supporting TfNSW in achieving this roadmap and see great benefits in advancing the Transport Technology Sector in NSW to deliver transport service innovations that not only bring value to the customer but the wider community.

We would be delighted to meet with the Committee to discuss our experience and expertise with you in more detail.

About Transdev

Transdev is at the heart of keeping communities moving, providing public transport services in six locations in Australia and New Zealand in Melbourne, Sydney, Brisbane, Perth, Auckland and Wellington. Globally, Transdev operates 17 modes of transport across 17 different countries, transporting 11 million* customers globally per day.

Our vision for the future of mobility is Personalised, Autonomous, Connected and Electric and Eco-Friendly (P.A.C.E.). This vision for the future of transport offers customers and communities more tailored services, more choice and a better customer experience, as well as reducing the environmental impact of our industry.

Innovation is at the centre of our operations to constantly improve the performance of public transport services and make the promise of 'new mobilities' a reality for everyone.

We also firmly believe that innovation requires the input of everyone concerned. Whether that is our local and global teams, government, industry, researchers, sector start-ups, or customers – we work collaboratively to develop, trial, operate as build awareness and advocacy for transport solutions for the future.

Personalised

Services tailored to each individual customer to take them where they need to go, when they need to go.

Our journey so far

Transdev Group pioneered the first on demand shuttle service over 25 years ago (SuperShuttle, an inter-airport connection in France) and has since implemented over 300 on demand services worldwide.

Autonomous

Public transport operated by self-driving technologies that create safer and more efficient mobility options.

Our journey so far

We have a dedicated team with out Autonomous Transport System Department made up of more than 56 international experts from different sectors (automobile, robotics, artificial intelligence, shared transport). Over the years, we have moved over 3.5 million customers worldwide through our autonomous vehicle trials worldwide.

Connected

More convenient booking methods which offer a one-stop shop for all mobility needs.

Our journey so far

In Europe, we are the forerunner in Mobility as a Service (MaaS), a subscription service that enables customers to plan and book their journey across a range of transport modes. After "Whim" in Finland, we created Moovizy in Saint-Etienne and the "Compte Mobilité" mobility account in Mulhouse.

Electric and Eco-Friendly

Zero emission public transport services which enable sustainable growth and respect the environment.

Our journey so far

Transdev Group was the first zero emission mobility operator in Europe and remains as one of the leaders in this field with more than 1,400 zero emissions buses in operation of which 1,200 are electric.

*Pre-COVID

TRANSDEV TRANSPORT AND TECHNOLOGY PARTNERSHIP SNAPSHOT

- **Lynxx**: Lynxx has a long-term strategic partnership for many years with Transdev Group, providing in-house advanced analytics services to a number of Transdev entities globally, including Australasia.

  This partnership includes the provision for joint initiatives to push boundaries in terms of public transport analytics, tools and systems, with the aim of assisting Transdev Group to continue to be a leading-edge data-driven organisation, using the best possible empirical data insights to inform its decision making.

  Lynxx's team of quantitative experts focus on deploying machine learning and highly sophisticated modelling techniques (AI) to optimise operations, customer insights and asset management.

- **Universities**: Through our partnerships with UTS University of Technology Sydney (UTS), Monash University and other tertiary institutions, Transdev accesses ideas and expertise provided by industry-recognised academics dedicated to researching the emerging challenges and innovations arising in public transport operations.

- **Liftango**: We know from our trials the importance of the technology interface and having an agile partner. As a result, in 2019, Transdev took a stake in Newcastle-based on demand technology start-up Liftango.

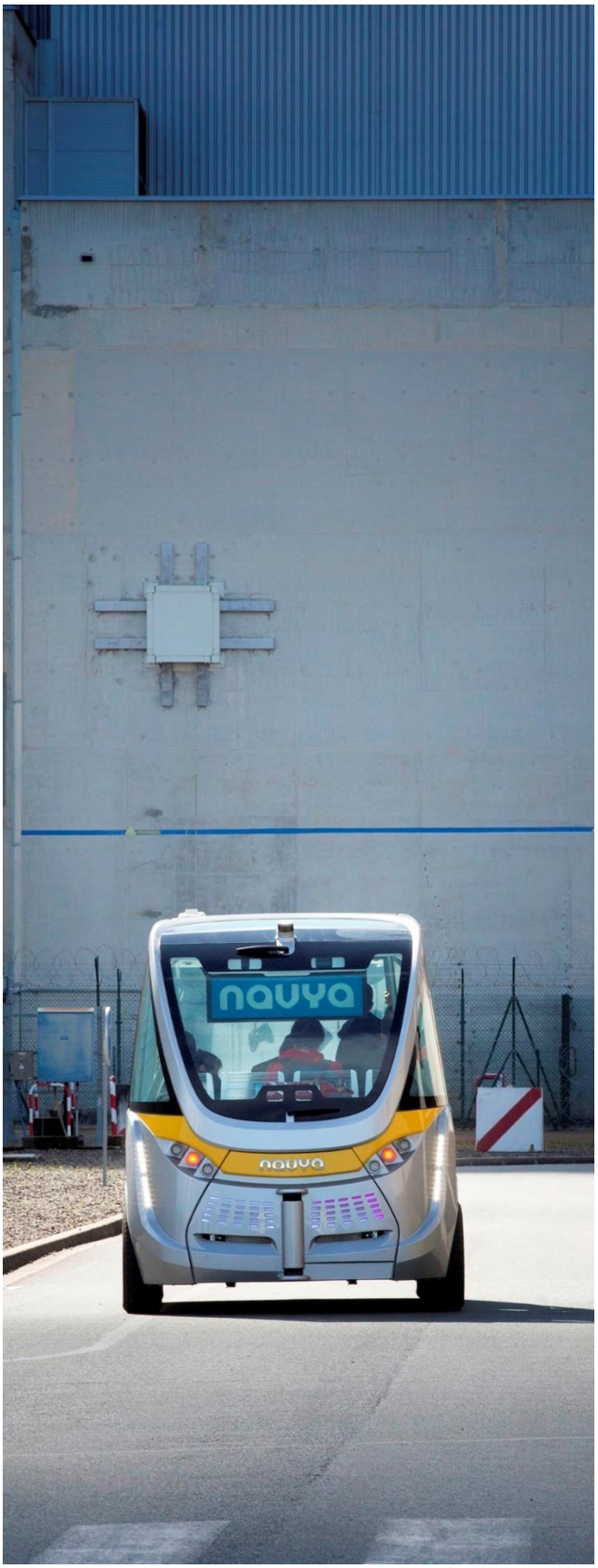
  Liftango is a transport technology provider that develops demand-responsive solutions (including demand-response transport, ridesharing and carpooling) that powers convenient, efficient, and sustainable shared transport.

  Our partnership provides an exciting opportunity to combine our shared strengths of innovation and mobility to provide a more personal and seamless customer experience.

- **EasyMile**: EasyMile is a pioneer in autonomous vehicle technology having deployed more than 250 driverless projects in 30 countries, including a dozen deployments in Australia.

  EasyMile and Transdev have a proven track record of collaborations on many autonomous vehicle deployments globally in Europe, in North America and in Australia where both our organisations partnered on the ground-breaking ARDi project in the City of Armidale in 2019-2020, as well as an interstate AV roadshow in 2017.

  Overseas, Transdev has a multi-manufacturer positioning has deployed the largest range of AV brands including: EasyMile, 2GetThere, Zoe (Renault), i-Cristal (Transdev-Lohr) and Navya.



Response to Terms of Inquiry

The following sections will reference Transdev's response to the Committee's five terms of reference.

Mobility as a Service (MaaS)

Mobility as a Service (MaaS) is a real revolution in the way it is helping people organise the way they travel. In the same way customers consume online video, and telephone and internet services, they now have access to a range of transport services that is not only simpler with regard to ticket purchasing, but also broader and more practical. It also offers a real opportunity to stimulate modal shift, increase patronage and improve the sustainability of the transport system.

Transdev has been a pioneer of MaaS deployment in Europe, after being actively involved in early developments such as Whim in Finland (2016) and Tranzer in the Netherlands (2018). Since then, Transdev has developed - with its digital arm Cityway - a complete offering in the field of MaaS. Our more recent MaaS deployments include:

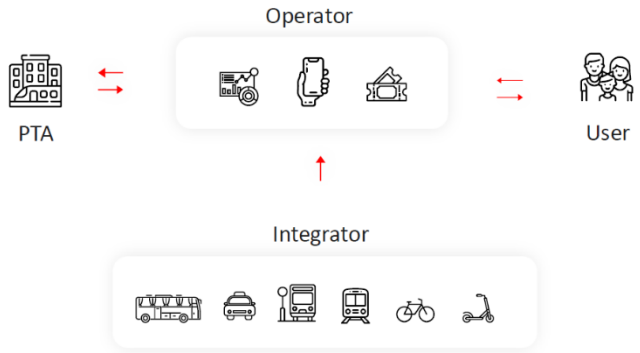
- **Saint Etienne, France:** Since September 2020, Transdev has been operating a full Mobility-as-a-Service offer, known as Moovizy in Saint-Etienne. This MaaS offer, the first at scale for a metropolis, is catered to offer seamless access (trip planning, trip booking, trip payment) to the over 400,000 inhabitants of the Saint-Etienne metropolis covering 53 cities. The service currently has some 25,000 regular monthly users.

- **Greater Paris, France:** Transdev is leading a research project called M2I, which is set to prefigure the future MaaS offer for the region, which represents half of all public transportation in France.

- **Amsterdam, Netherlands:** Transdev as part of a consortium have introduced a new MaaS trial, Amaze, for the City of Amsterdam to promote shared mobility to commuters in a bid to cut congestion and pollution. The Amaze App aims to create personalised best daily travel routes, based on learning the individual commuting habits of employees based in the Central Business District.

- **Sydney, Australia:** Transdev worked with Lynxx to pilot Tranzer App as a single-mode operation in Sydney for the Bays Precinct On Demand ferry trial. Lynxx also participated in the TfNSW MaaS innovation challenge.

Transdev's collective view is that MaaS should remain a tool in the hands of public transport authorities to organize and pilot their local sustainable mobility policy. We see the digital transformation of mobility has created two key roles – the mobility integrator and the mobility operator.



MaaS is more than just an app though, it is a mobility transformation based on three pillars driven by data.

Investment	Politics	Experience
Mobility services to ensure access for all	Rewards	Ease of usage
Infrastructure for security and comfort	Constraints	Ease of access
		Personalisation

We are pleased to see the NSW Government's first step towards MaaS in our region via the Opal Connect platform and that TfNSW has specifically highlighted MaaS as a key priority program in their Future Transport Technology Roadmap in delivering seamless and personalised journeys across all modes.

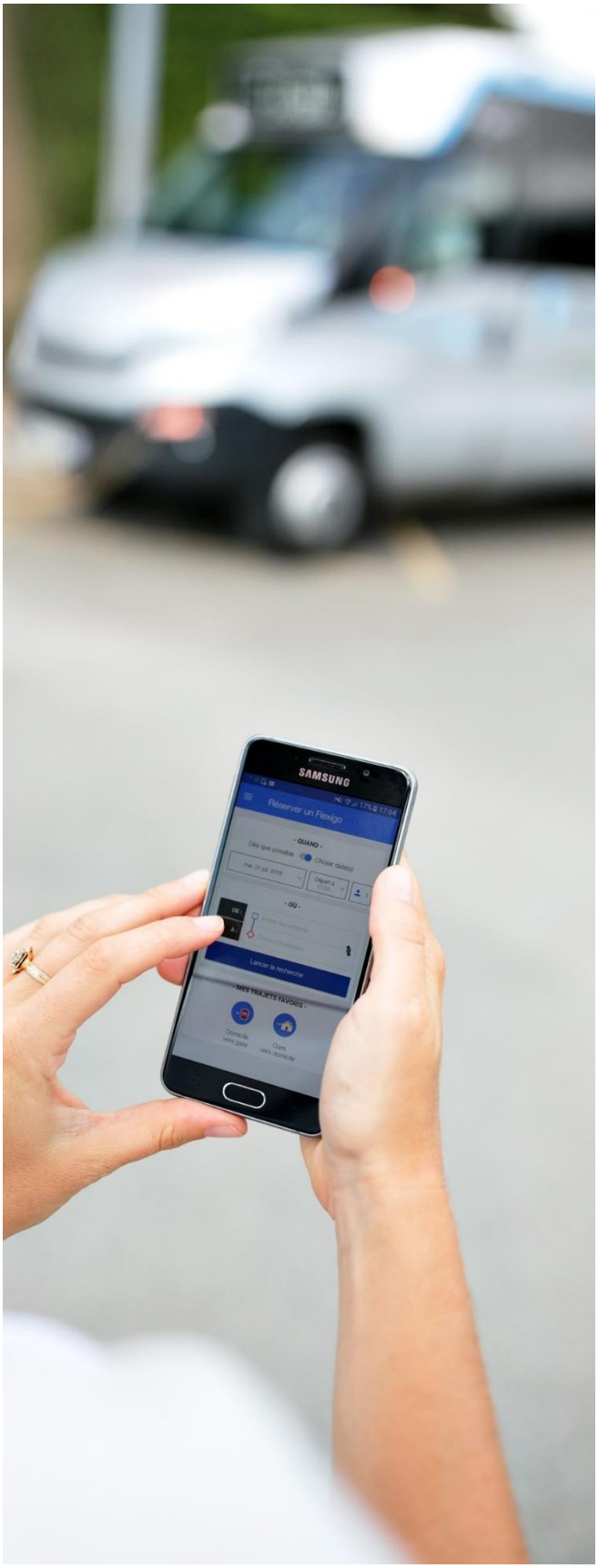
While the Opal Connect platform is mostly focused on stage on ticketing, the NSW trial could open the door to future innovation in other cities and states. A key feature of Transport for NSW's approach, and what gives it significant potential to succeed, is the incentivization for customers by way of fare discounts.

As an Operator, it is also encouraging to see an openness to partnership and working together to integrate all modes, including on demand and rideshare mobility service providers such as the new Uber and Transit feature to ensure better first and last mile connections to public transport.

From Transdev's experience successful MaaS implementation relies on:

- Collaboration at all levels, aligned with ambition, and reinforced with a solid commitment of funding.
- Ensuring that all parties – such as government, mobility providers, revenue collection, data integrators, and planners – are actively engaged in developing a good outcome for the customer.
- Open sharing of information and data of all stakeholders. It is our mission to guarantee that data ownership remains with public authorities and do not serve commercial objectives of private tech companies.

Transdev is actively working with our clients and customers throughout Australia, and indeed globally, to promote the benefits and sorts of outcomes that can be achieved through new mobility solutions, such as MaaS.



Real time public transport journey management

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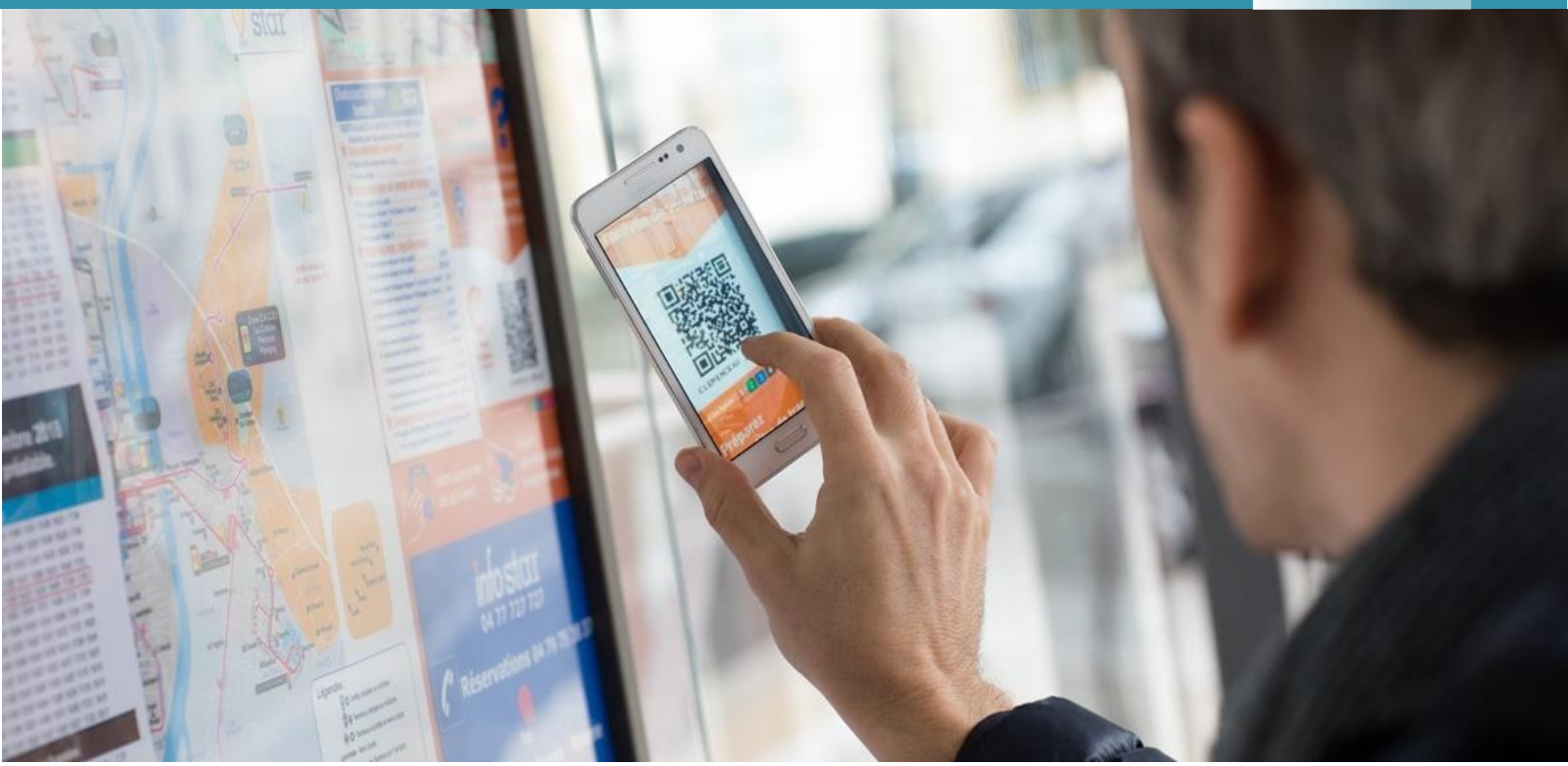


We know that as technology evolves so do customer expectations. Customers want more real-time information to personalise their journeys. They want to make informed decisions about how and when to travel safely and seamlessly from door-to-door-to-door at any time of the day and night.

NSW is already a global leader in the application of real-time technology applications including Open Data solutions and initiatives which enabled the greater collation and sharing of data to enable better customer outcomes and community benefits via reduced congestion.

Transdev is pleased to see the advances the of real time public transport journey management evolving into the Opal Connect MaaS platform as outlined in TfNSW's Future Transport Technology Roadmap. We would advocate for expanding the Open Data activity to include wider elements of the MaaS ecosystem, including micro mobility operators, first and last mile operators (on demand and Autonomous Vehicles), as well as the development of account-based ticketing.

We also support the development, funding, and rollout of wider customer information channels particularly on bus networks to support the delivery of real time journey management, particularly during times of network disruptions. Extending existing channels such as ePaper PIDS (low-energy solar powered electronic paper display) which have the capability of providing customers with real time information for the next arriving service and displaying live service updates, as well as onboard PIDS which can also display next stop information as well as to relevant service updates to also support customers onward journeys.

First and last mile transport services

3

Globally, Transdev is at the forefront of delivering on demand transport solutions around the world, from first mile and last mile connections, through to point-to-point services for the public transport market from buses to bike sharing and autonomous vehicles.

Traditional public transportation services – bus, ferries, light rail and train or metro services – works effectively in dense city centres and inner suburbs. However, these networks frequently leave gaps in service as they move out into lower-density communities, often forcing customers to drive or walk the distance between their starting point or destination and the nearest transit stop.

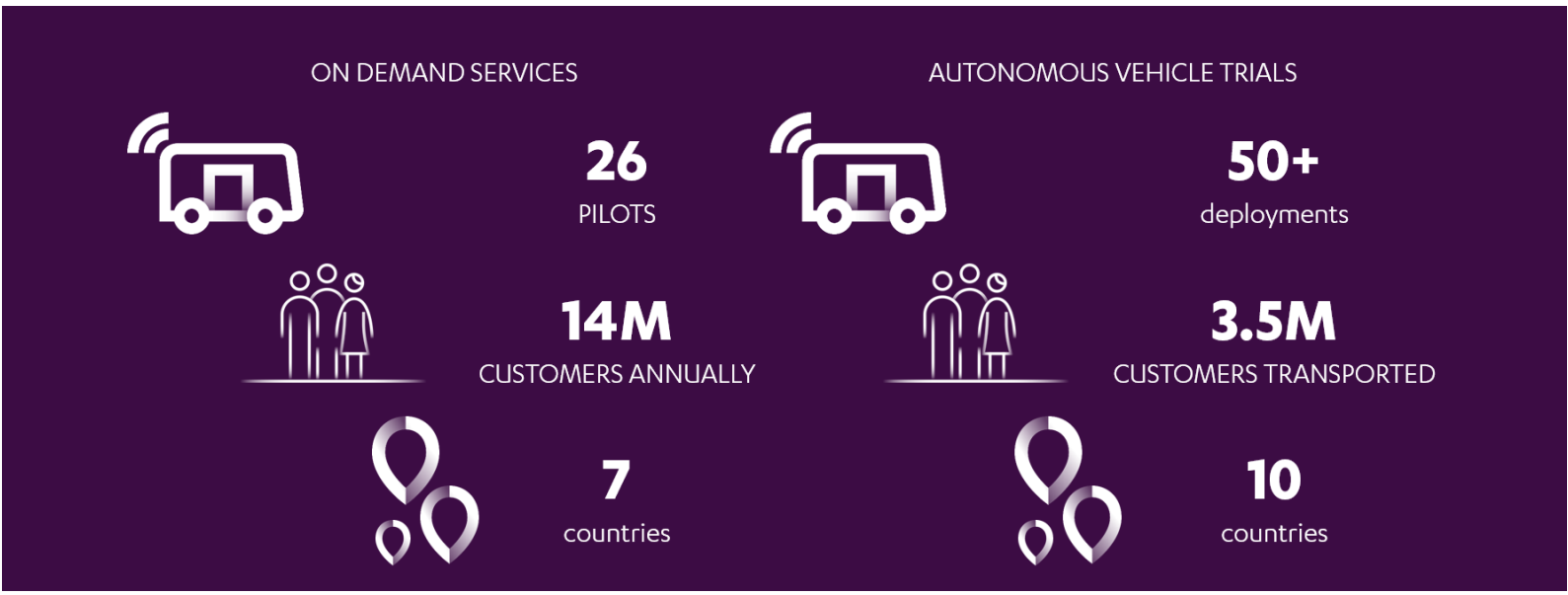
Tackling mobility in lower-density communities has presented public transport authorities with a difficult decision; either expand fixed-route bus lines at a high cost and with low frequency or endure poor service in lower-density areas. First and last mile transport solutions address these challenges by offering a flexible and efficient solution to serve low-density areas, complement regular lines in lower traffic periods or regional areas.

The NSW Government and TfNSW should be congratulated for their strategic foresight in trialing new public transport technology solutions though the implementation for On Demand Public Transport (ODPT) pilot program and the Automated vehicle trial in regional NSW.

We note and applaud that as part of TfNSW's Future Transport Technology Roadmap 2021-2024, there is an increased focus on adopting connected and automated vehicles and undertaking trials to show how autonomous ride share services can integrate with MaaS.

Transdev is aligned with this approach and has safely operated and maintained autonomous shuttles since 2005. Transdev already operates autonomous shuttles in closed networks (private roads) and is currently conducting numerous pilots on open sites (public roads) around the world.

The **Transdev Autonomous Transport Systems team** has been created to prepare transportation networks to operate fleets of Autonomous Vehicles (AV) in the upcoming years. Our view is that AVs provide a compelling value proposition for first and last mile transport, including as on demand solutions, enhancing the efficiency of existing networks and encouraging patronage. We also believe shared mobility is crucial to realising the full range of benefits of integrating autonomous, eco-friendly vehicles into the transport network.



TRANSDEV'S FIRST AND LAST MILE EXPERIENCE

Around the world we work in partnership with a range of clients to trial innovative first mile and last mile solutions.

- **On Demand:** Since 2016, Transdev has delivered on demand services via 26 pilots to 14 million customers across five continents through 300 on demand services, all moving customers from their homes to public transport hubs, reducing congestion by encouraging shared mobility instead of private car usage.
- **Autonomous vehicles (AVs):** Since 2005, Transdev has deployed over 50 AV trials across ten countries, including the world's first commercial contract in Rotterdam, The Netherlands. Our cumulative experience has involved moving more than 3.5 million passengers across 1.6 million kilometres with five different vehicle manufacturers.

Locally, Transdev has worked with our partners across Australia and New Zealand, including TfNSW, to trial a range of personalised and connected first and last mile solutions:

- **In Sydney:** Transdev delivered five on demand trials in TfNSW's On Demand Transport Trials to help aggregate learnings. Trials included: Ride Plus in Sydney's Eastern Suburbs and Manly; Transdev Link in the Sutherland Shire; Sports Hopper Trial in the Sutherland Shire which provided weekend travel to and from a netball complex to alleviate weekend traffic congestion and parking issues; and Station Hopper 'Turn Up and Go' Route 980 service that was a high frequency bus service trial linking the Lilli Pilli peninsula area to Caringbah Train Station.

  We launched and operated the world first On Demand Ferry service in Bays Precinct in Sydney's Inner West harbor area for 12 months. The service has since been suspended due to COVID.
- **In Armidale:** Transdev participated in TfNSW's Automated vehicle trials in regional NSW via the Armidale Regional Driverless Initiative, known as ARDi. The trial operated a fully automated Level 4 EasyMile EZ10 shuttle inside the University of New England (UNE) campus which provided a regular service between the residential colleges and the main university campus. It was first automated shuttle to operate in mixed traffic within a city centre and operated on one of our longest and most complex trial routes yet.
- **In Auckland:** Transdev in partnership with Liftango launched a new personalised on demand shuttle service connecting the ferry terminal at Half Moon Bay, helping customers avoid traffic and parking issues.

From our trials and key learnings, AVs can serve a significant benefit to customers but there are challenges to be addressed to support wider rollout.

Benefits

- Enables shared mobility and integrates with the transport network
- AVs are electric and therefore zero emission
- Safety improvements and service quality
- Offer flexibility in operating an on demand or via regular timetabled or loop services
- Provide a nigh-time or off-peak service
- Facilitates mobility within city centres and tourist attractions
- Inclusion in real-time journey planning
- Inclusion in a MaaS ecosystem
- Serve as a mobility solution within a private or restricted site

Challenges

- Determining suitable financial models
- Government policy and regulation
- Operating speeds are typically slower
- Vehicle size restricts capacity
- Ensuring infrastructure is aligned with technology

PARKSHUTTLE ROTTERDAM – NETHERLANDS

AN HISTORIC COMMERCIAL AV CONTRACT RENEWED FOR ANOTHER 15 YEARS

Operated by Connexxion since 2005, this is the **world's first contract for the operation of autonomous shuttles.**

These light infrastructure-based shuttles run on dedicated and closed tracks. ParkShuttle connects the Kralingsezoom metro station to Rivium Business Park. After an initial pilot period, the service has been extended and operated by 6 shuttles since 2005.

An average of 30 000 people is transported per month.

The contract was renewed in 2018 for 15 years. This will be the first commercial deployment for the third generation **2getthere shuttles. An extension of the track on open road is planned within the next two years.**

How data might be used to improve access and safety for travellers, including women

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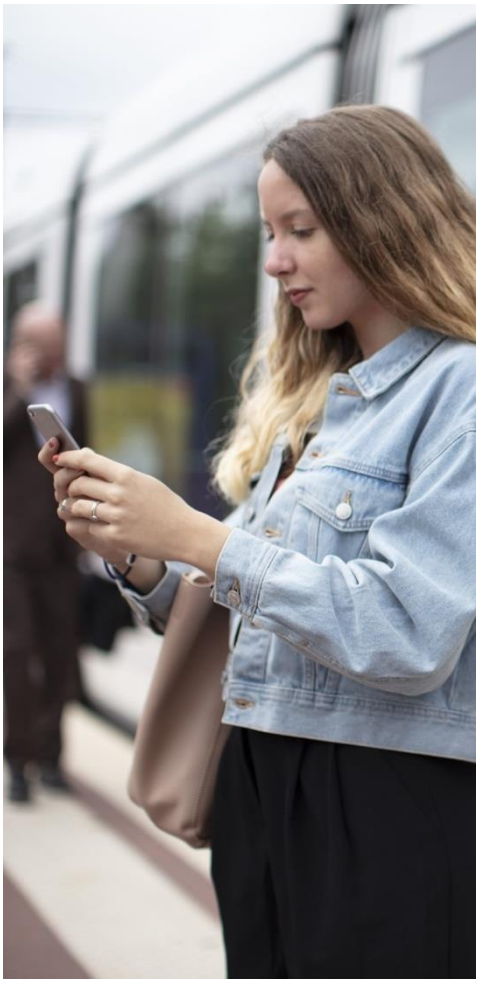
Transdev is committed to delivering Uncompromising Safety to our customers, communities and employees. It is essential that everyone feels safe and secure when travelling, and equally important that everyone has equitable access, regardless of their cultural and linguistic background, or their level of ability.

As such, we strongly support any initiative that enhances the level of access and safety for travellers – and particularly those from vulnerable customer groups.

At Transdev Australasia, we have recently developed our Accessibility and Inclusion Action Plan 2020-2023, which complies with the Disability Discrimination Act 1992 and any other accessibility guidelines issued by State and Federal Governments. We have also been exploring further opportunities to work in partnership to promote safety, particularly for women. This includes being a signatory to the Greater Sydney Women's Safety Charter

In responding to how data might be used to improve access and safety we reference the following areas:

- Perception data: Access and safety is a very personal requirement which generates a wide variety of perceptions. This lends itself to a very customised set of data with the ability for travellers to review and choose what is specifically important to them. Our view is that crowdsourcing is the best source of perception data for safety.
- Measuring accessibility: Access can be more objectively defined and the way it is measured can be enhanced and refined through data. For example, road topology, step counts, curb heights, drains and ramp locations could be mapped and measured to provide a clearer picture of the varying degrees of accessibility across a network.
- Visual analytics: With the revolution in visual analytics technology, we have the opportunity of introducing innovative new ways of improving safety and access in and around transport hubs. Leading technology providers are pioneering specialist artificial intelligence and deep machine learning systems to assist in measuring passenger flows and detecting hazards. When measured and predicted accurately, significant safety and access barriers can be mitigated and eliminated for customers and employees.



The ethical considerations and regulations in the development of connected and autonomous vehicles (CAVs)

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Australia's readiness to embrace autonomy and shared mobility has multiple dimensions. The state of technology, the willingness of commuters and the supporting laws and regulations all need to be considered.

All levels of government have a role to play in the development of connected and automated vehicles and associated transport.

In 2019, Transdev participated in the Federal Government Inquiry into Automated Mass Transit and outlined our review for the role of Government as setting a clear policy direction for the future of automated transport. By doing so it will:

- Encourage investment in new transport technologies and in trials and pilots testing different use cases.
- Support the orderly evolution of the transport sector by taking a leadership role on the development of national regulation and standards that is consistent across Australia.
- Position shared mobility at the centre of transport policy so that automation helps solve, rather than aggravate, congestion in our cities.

We would encourage the NSW Government not to generate another set of standards to but to work collaboratively with the Federal government to input into the development of national regulations and standards, which would be consistent across the various states. Not doing so would present a challenge to a national operator such as Transdev, who are working collaborative with public transport authorities to further new mobility innovation including AVs across state jurisdictions.

To guide the NSW Government policy development, we recommend reviewing the European's Commission ethical considerations and 20 recommendations available to support researchers, policymakers, manufacturers and deployers and in the safe and responsible transition towards CAVs.

This is why Government support for trials is so important. Trials and pilot programs highlight the challenges and constraints not only of technology, but of the regulatory environment and of community sentiment. Trials also perform an important role by introducing technology and various use cases to commuters, which helps educate and assure them of the safety, efficiency and other benefits of automated mass transport.

We also encourage policy makers to make shared mobility a priority. Shared mobility is the key to reducing congestion, creating better connections across our cities and ensuring the transport system remains accessible to all members of the community.

Cities are suffering from rapid demographic changes, increased congestion and pollution concerns

Shared mobility is contributing to better-functioning cities but does not meet all people's needs and expectations

Private-owned cars or mass transit alone are not the solution

As autonomous technology will be a reality, shared mobility services using electric, autonomous vehicles integrated within Public Transport (PT) networks will contribute to solve these issues

Shared autonomous mobility will enable more efficient and inclusive services, with better time/geographical coverage transforming cities for a better future

Transdev's New Mobility Expertise

Our local team of new mobility experts would be pleased to provide further insight to the Committee for this Inquiry.

David Le Breton
Head of New Mobility Solutions

With 15 years' experience in senior management – developing people and innovating products in the transport, energy, and manufacturing sectors – David has the skills and experience to lead and empower mobility solutions.

He is an accomplished analytical and innovation driven professional, with the ability to solve the most complex public transport infrastructure problems. David ensures that our clients' chosen demand responsive services are sustainable and have a real long-term impact on the communities that we operate in every day.

David developed and launched Australia's first Ferry On Demand service for Transdev Sydney Ferries, introduced autonomous vehicles through pilots with councils, universities and developers, and delivered numerous on demand projects and pilots, including Transdev's Link amendments in NSW – Sports Hopper and Station Hopper and launched the recent MyMobigo On Demand Services in Auckland.

Additionally, David has established strategic partnerships with essential technology providers for on demand technology, including Liftango and Mobility as a Service (MaaS) stakeholders.

Clément Hamart
Business Development Officer New Mobility

Clément is an accomplished New Mobility Specialist, holding a master's degree in entrepreneurship and innovation. He has over three years' experience delivering innovative mobility solutions for Transdev.

Clément believes that innovation, and leveraging new emerging technologies, is imperative to driving significant commercial and customer experience outcomes for all stakeholders.

Clément's knowledge and expertise place him at the forefront of cutting edge of on demand transport. He has supported the door-to-door-to-door strategy of numerous on demand pilots in NSW, operated by Transdev.

Ben Hayes
Manager Operations Projects & Technologies

In his role, Ben is focused on embedding operational excellence across transport modes in reporting, monitoring and anticipating business challenges and opportunities. He is a key contributor to developing Transdev's footprint in operating new mobility solutions, such as autonomous shuttles and is the Transdev project lead for the Armidale Regional Driverless Initiative (ARDi) - an autonomous shuttle operating in Armidale at the University of New England.

Ben has a strong commercial background and previously held roles as a Commercial Analyst with Coles and as a Business Administrator in the UK with the Financial Services Compensation Scheme. He holds a Bachelor of Business/Commerce from the University of Western Sydney and is an accredited Prince 2 Practitioner in Project Management.

He is passionate about the future of transport and offering customers greater mobility choices.

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