



## Executive Insights

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# Five Key Steps To Deliver Successful On-Demand Transport

OnDemand passenger services are increasingly being touted as the panacea to first- and last-mile connectivity in our major cities. Today, there are over a hundred cities globally that are trialling on-demand public transport deployments. Many of these pilots have already transitioned into scale services.

When transport agencies get the delivery model right the financial savings, social inclusion, accessibility options and environmental benefits can be significant. However, there are a wide range of patronage outcomes being realised by transport authorities around the world. This begs the question, why are some OnDemand deployments so successful and why have others failed to deliver on their potential?

With so much variation in the type of deployment, operating approach and contextual situation, it can be hard to pin-point the key success factors. This Executive Insight shines the light on one of Australia's most successful OnDemand

deployments. It identifies key factors that made it a success, and draws out the key learnings for other authorities and operators looking to undertake similar deployments.

The paper is a follow-on to 'OnDemand Public Transport: Key Learnings from Global Pilots,' published by L.E.K. Consulting in August 2019.

### The ponds deployment

#### The specifications

The Ponds service operating in suburban NSW was launched in May 2019, timed to coincide with the opening of the new Sydney metro train line. The primary focus of the Ponds service was first and last-mile connections to key transport hubs. The Ponds area is serviced by 3 train stations (including the 2 new stations from the new metro line). In September 2019, The Ponds shopping centre was added as an additional hub.

The deployment started with 5 vehicles and a pool of 20 drivers, servicing an area of approximately 12 sq. km across The Ponds and Schofields area. Services were offered from Monday to Friday from 5 a.m. until 9 p.m. with average wait times of c. 12 minutes in August 2019.

The service is operated by Cooe Busway, with technology partner Via Mobility and funded by Transport for NSW.

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*Five Key Steps To Deliver Successful On-Demand Transport* was written by **Natasha Santha**, Partner, **Simon Barrett**, Partner, and **Mark Streeting**, Partner. Natasha is based in Melbourne, Simon and Mark are based in Sydney.

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L.E.K.



## Demonstrating success

The Ponds service is arguably the fastest growing OnDemand deployments in Australia.

As at the end of February 2020, in an area with 24,000 residents, the Cooee Busways app has more than 13,500 registered users. It has delivered more than 80,000 rides within nine months of launching in May 2019. Between June 2019 and February 2020, rides per day doubled from 265 to 540, utilisation increased from 5.3 to 10.2, and cost per ride before deducting fare revenue dropped from \$15 to \$7.40. This is much lower than most traditional low-volume route services, which can cost well over \$15 per passenger.

Furthermore, the service has shown the potential for wider economic benefits including emissions reduction and socio-economic benefits to the community:

- 55% of passengers made the same journey by private car previously. Half of these passengers were single car users driving and parking at or near the station
- 13% of individuals stated in a recent survey they would not have made the journey if they did not have access to the OnDemand service

Figure 1  
Cooee busways — the ponds  
monthly completed rides

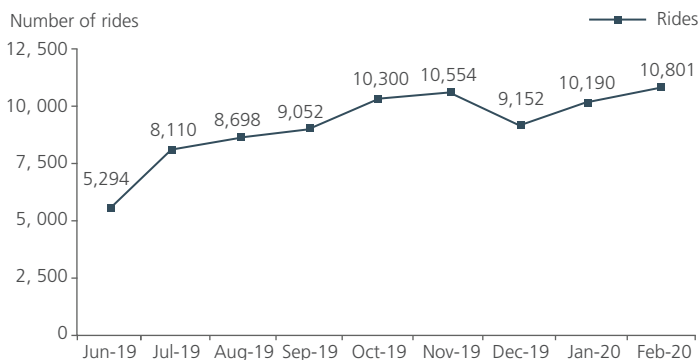
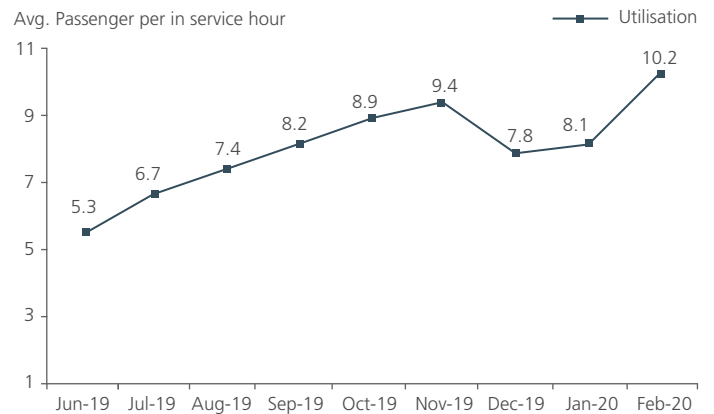


Figure 2  
Cooee busways — the ponds  
monthly utilisation



## Framework for success

The Ponds Deployment shows that an OnDemand service can achieve both improved customer outcomes and efficiency gains compared to traditional route networks. Achieving this level of success is no coincidence, and underpinning the launch, was a considerable amount of pre-planning, as well as on-going refinement.

A closer look at the deployment end-to-end suggests there are five key steps to get right:

- 1 Feasibility assessment
- 2 Service specification and design
- 3 Platform choice
- 4 Pre-execution foundations
- 5 Continual optimisation

### 1. Feasibility assessment

OnDemand is not the solution to every transport challenge but is a great tool that when wielded correctly produces great results. The first step in identifying whether OnDemand is right for a given transport need is to identify a sufficiently compelling use-case. This will require appropriate due diligence such as demographic information, travel pattern analysis, identification of transport

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'gaps' in the network and transport alternatives to identify the demand for the service. Performing customer surveys can aid the feasibility when used to identify transport patterns / gaps, as long as the time is taken to educate customers about the service. Understanding the use-case and the associated goals of what the OnDemand service should deliver is critical.

In The Ponds the use case was clear, with supporting demand drivers, and the benefits of OnDemand articulated in a clear customer narrative: "Replace your car for a faster ride to the station". The goal was to get those parking hundreds of meters from the station, out of their cars, and onto an OnDemand Bus.

The Ponds deployment had four structural factors that supported the use-case:

- 1. Lack of credible first and last mile options:** Although The Ponds is now served by 3 train stations, and the area is serviced by regular route services, these bus services were not optimised to be feeder services into each station
- 2. Existing high car mode share:** Busways surveys of the region indicated that 90% of The Ponds residents were arriving at Schofields station by car
- 3. Inconvenience of driving to the station:** Passengers were regularly parking c. 800m from the station spending at least 10-15 minutes walking to the train, in addition to their drive time
- 4. High density housing location:** The Ponds is a relatively new housing development. The streets are narrower than older Sydney suburbs, making them harder to navigate for larger buses. This is not uncommon for many other new land developments across Australia

Use cases can vary and be compelling for a variety of reasons. Other potential OnDemand use cases could include servicing transit deserts in newly developed areas, end to end journeys within communities, off-peak or weekend services, school routes, patient transportation or community transit.

## 2. Service specification and design

The second most critical step, is getting the parameters of the service design right.

The first thing to look at is zone shape and size and estimate a preliminary service zone. Typically service areas that are elongated rather than circular will deliver more cost efficient outcomes. The area serviced by The Ponds is 12sq. km (5 x 2.5 kms), which is relatively small compared to other deployments. Typically, it makes most sense to set service boundaries aligning to natural cut-off points, e.g. major roads, parks, etc. Also, permeability is equally important. For example, service zones with a high number of dead-ends and cul-de-sacs will add to journey times.

Once a preliminary zone is established, operators then have to trade-off three key elements of service design which impact customer outcomes and cost of service provision. Changes in any one of the levers below, will impact the others.

### 1. Demand for the service

It is important to identify upfront what the likely demand will be for the service. This involves estimating demand patterns to and from transit hubs and other major corridors, and then simulating the likely demand based on the quality of service settings, and fleet size described below.

### 2. Quality of service settings

- **Wait time** (time between booking and pick up) — The willingness to wait, can vary by region, time of day, weekday v weekend, travelling to or from destination. There is generally a sweet spot of around 6-13 minutes, but each deployment is different, and it depends on the particular circumstances of the area being serviced including alternatives available and local customer needs s ie shorter wait times in the morning to get people to work with longer wait times in the middle of the day when customer tolerance levels increase.
- **Walking distance** (Virtual Bus Stop selection) — This is highly dependent on local topography, weather on the day and accessibility requirements of the target audience. Again, walking time can vary by time of day, for example, less time during the morning peak — when customer place a higher value on their time.
- **Detour time / distance** — This is the time or distance that the service is allowed to detour when a new passenger requests a service mid-route. A higher detour time / distance will ultimately result in greater in-vehicle time for those already on board but could improve utilisation. However, if this parameter is pushed too far than passengers can stop using the service because the journey time is too long (from picking up too many other passengers along the way).

### 3. Fleet size

Fleet should be fit for purpose and reflect the benefits of OnDemand transport. Smaller (5-18 seats) capacity vehicles are generally suitable. It is rare for an OnDemand to carry more than ~12 people in a vehicle at any one time. The Ponds deployment started with 5 Hino 14+ seat DDA compliant vehicles. Having the same fleet made operations / training easier, and with a fleet size above 12 seats Cooe Busways did not incur the point-to-point legislation taxes applied to ride share services in New South Wales (\$1 per customer booking).

Ultimately operators will need to trade off these three key dimensions. To do this effectively, it is important to be clear up

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front about the key quality of service thresholds (which should be tied to project goals) and limiting factors, such as budgetary limits for fleet and driver hours. For example, The Ponds project goal was to “get commuters parking hundreds of meters from the station, out of their cars, and onto an OnDemand Bus”. This made it important to set low wait times during the peak and walk distances lower than what they would otherwise do walking from a side-street carpark to their station. Combining this information with expected demand the fleet size required was derived. If budget constraints do not allow the quality of service / demand level targets to be met, then it may be necessary to re-visit the zone size.

Importantly, the service design process is iterative with trade-offs being made to reach an optimal equilibrium between demand, supply and quality of service. While optimising service design at the outset is important these parameters can be changed relatively easily post service launch.

### 3. Platform choice

The aggregation capability of the software platform used to provide the OnDemand service is critical to minimise detours, wait times, and walking distance. The ability of the platform to group passengers along virtual routes and determine pickup and drop-off locations, as well as the best route given traffic conditions, are critical to delivering the lowest journey times.

A good platform provider is just as important as a good operator, and both are required to deliver the maximum benefits from OnDemand. There are various platform providers on the market. Their platform offerings and capabilities, level of support, experience and focus can be very different. Platform and marketing support across pilots and operational phases can be different across providers, as well as data analytics capability, which is a necessity for on-going continuous service improvement.

Busways considered the above elements and partnered with Via for The Ponds deployment. However, regardless of the provider chosen it is important to ensure:

- The software aggregation algorithm is capable of dynamic routing in real-time, taking into account changing traffic condition and employing Virtual stops to minimise deviations to effect the greatest quantum of aggregation possible
- The platform can provide a number of payment methods including seamless payment integration. Cooee accepts payment through debit / credit card registered through the Via app, and is integrated with TfNSW's Opal Connect fare product
- The platform provides an easy to understand and use customer and driver interface
- The platform vendor has proven real-world experience, and can bring that experience to bear to assist with scoping, deploying and marketing the service

### 4. Pre-execution foundations

Once a service has been designed, pre-execution activities become critical. Marketing, customer service and driver training can make or break a service.

#### Pre-launch

As with any new service, pre-launch marketing is important. However, with a new OnDemand service, this requires more than just product awareness. There is a strong element of educating the customer on how to use the service and the benefits of using the service. Importantly, the marketing campaign needs to encourage customers to 'give it a go and relies heavily on ensuring a seamless customer service upon execution to encourage both re-use and word of mouth to 'vouch for the service'.

Busways took a multi-pronged approach to pre-execution promotion and marketing.

They partnered with local influencers, such as community groups and the local real-estate agent, who viewed it as a great differentiator between The Ponds and other similar residential developments.

Busways also employed direct outreach tactics such as information stalls, posters and leaflet drop in the community, using the tagline 'a bus that comes to you'. This collateral also directed customers to a CooeeBusways website which provided potential customers with a central information source as well as allowing Busways to measure awareness.

#### Beta-testing

Busways contacted respondents who had completed a survey of their travel needs prior to the launch of the OnDemand service and offered them the opportunity to participate in beta testing of the service. Over 140 local residents agreed to participate. They were all provided access to the Cooee Busways app and were able to book rides during the three weeks before the service was launched. This period was used to test driver and rider app interface, including routing and virtual stops components of the algorithm. No fares were charged during beta testing.

Having the fleet operate “in-service” during this three-week period raised community awareness and interest. The buses themselves were mobile billboards. Painted in a bright colour, clearly differentiating the buses from anything else presently in the market.

#### Post-launch

After the service launched, digital marketing campaigns have included using social media to keep customers up to date with progress of the service, especially when reaching impressive milestones such as 10,000 rides in six weeks of service. Other collateral included videos highlighting what the service is and how it benefits customers and one showcasing the incredible patronage milestones reached.



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Emails and in-app messages were also utilised as an effective way to have one-on-one contact with customers.

**Driver training:** To a greater extent than traditional bus services, bus drivers are front and centre of the deployment, and custodians of much of the customer experience. Smaller vehicle sizes together with the uniqueness of the service, prompt conversations on-board and create an opportunity to build a deeper level of connection between the bus driver and customer.

Busways selected a pool of 20 drivers to operate their service. They chose drivers from their existing pool of drivers, looking for those who naturally excelled in customer service. These drivers were then put through an in-depth customer focussed training regime, and quarterly training has continued since launch.

The drivers were trained to greet each customer by first name as they board the bus. Each driver's name was prominently displayed in the bus as customers board to encourage two-way communication. Customers continuously rated drivers as one of the top reasons they loved the OnDemand service.

## 5. Continual optimisation

One of the key benefits of OnDemand is that changes can be made in real-time, unlike traditional route services, which can take weeks or months to adjust. The ability to quickly adapt to customer behaviours and requirement, is also key success criteria for the successful longevity of any OnDemand deployment and critical to achieving a low cost per passenger.

Operators can constantly monitor and tweak the service parameters described in Phase 2. For example, as demand grows, transit authorities and operators can adjust change wait times or walk times to increase utilisation. If after adjusting these factors, ridership drops off, then you know that you have gone too far - at this point, it may be necessary to increase fleet size in order to meet demand.

To be able to practically execute this nimbler approach to service delivery and optimisation, there are two key success factors:

**Deep data-driven understanding of the performance of the service:** The quantum of information available for OnDemand services surpasses any other form of public transport mode making data driven decisions easier and more effective.

Real-time performance data is a critical requirement to delivering an effective OnDemand service. Operators need to be able to effectively interrogate and understand the performance of their service, take swift corrective action, where required, and capitalise on expansion opportunities.

**Willingness to make quick changes:** Operators need to take a flexible approach, trialling, testing and tweaking the parameters of the service (wait times and walk times), and then observing the demand implications of their changes. This requires constant monitoring, watching the leading-indicators and taking decisive action. For example, Cooee Busways closely monitors driver performance using customer star rating as a guide. Drivers who struggle with enhanced customer interaction are given additional training and, in some cases, redeployed to regular bus services. Cooee Busways also had the flexibility to deploy an additional (spare) bus to the service when demand exceeded expectations.

## Conclusions

OnDemand can be used to solve transport challenges in ways that traditional forms of transport cannot. When OnDemand is deployed correctly it can deliver far superior cost and customer outcomes than traditional fixed route services. In the first instance, operators and authorities must objectively assess the opportunity, and do their research to ensure OnDemand is in fact the right solution. Once they are satisfied there is a plausible use-case and clear customer narrative of what problem they are solving for, then it is important to ensure the service is appropriately sized, designed and specified. These first two steps are where most operators miss-step. Where there isn't a strong use case, or the area is difficult to service, it is imperative for authorities to look at other mobility options, including active, micro mobility or even reconfiguration of existing fixed route services.

Following this, to maximise the potential of the OnDemand deployment it is important to partner with a proven platform provider. One that provides support not just during the design phase but through execution, to enable a mindset and delivery methodology of continuous improvement. This needs to be combined with a multi-faceted promotions campaign and high-touch customer service to ensuring strong take-up and repeat-use. Lastly you can't take a 'set and forget' approach as with traditional PT, where a timetable change occurs every 6+ months. Continuous adjusting of the service parameters over time, will yield the best efficiency and customer outcomes.



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