Just Transitions in Australia: Transport Mobilities Focus Area

ADM+S Submission

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Overview of key factors to a successful ‘just transition’ of mobilities and transportation

- Sustainable transportation has become analogous with electric vehicles in the policy parlance of many countries, including Australia. However, this is only one element of a broader systemic change required to enable a just transition of mobilities and transportation.

- Decarbonisation should not be considered a standalone project. Rather, it should be mobilised in support of existing agendas surrounding sustainable land management and issues of Indigenous justice, sovereignty, and land rights.

- Inequalities in access to resources and infrastructure between inner city, outer suburbs, and rural populations are a central barrier preventing a “just transition”. Individual transport choice is highly dependent on geographic location and wealth, both of which are concentrated in inner cities. Racialised communities, such as outer suburb migrant zones and Indigenous communities, are often the last to receive access or benefit from new technologies of transport.

- Decarbonisation and other issues related to anthropogenic climate change are now highly politicised. In this context, instituting change is not just about public acceptance or introducing new technologies, it is dependent on the political will of major party leaders.

1. ADM+S Transport Mobilities Focus Area Research relating to just transitions

Our work in the Transport Mobilities Focus area is underpinned by a commitment to transition to decarbonisation. We are concerned with when and where automated decision-making (ADM) can support a transition to decarbonisation through new transport mobilities infrastructures, platforms, devices and uses of digital data. However, we are aware that many such technological innovations have human, labour
and environmental impacts elsewhere and therefore seek to keep these traces in view in our work.

1.1. Future Automated Mobilities: imaginaries and possibilities for a world in crisis

The key aims of the project are as follows:

- Determine how future automated (and automated features of) transport mobilities are being reimagined in post COVID-19 and post-bushfire crisis across industry, policy and everyday life
- Investigate what can be done to design differently, so that we do not simply replicate the problem-solution paradigm of the innovation paradigm when considering the place of ADM in future mobilities
- Develop innovative interventional and interdisciplinary (design ethnographic) research methods through which to undertake this research
- Propose pathways towards open designs that social innovation will play a part in and suggest how ADM might play an ethical, responsible and beneficial role

Within the broader Future Automated Mobilities research area we have a series of sub-projects:

1.1.1. ADM in Transport Mobilities Scoping Study

This study presents a desk-based review of industry and policy reports that speculate on the future of autonomous transport mobilities. The report is international in scope but focused on futures likely to affect Australians. The review will examine where ADM in transport is located and how future applications are imagined in these reports. This report synthesises these findings and presents new knowledge and critical insights on the limitations of these future visions.

1.1.2. Flight Paths, Freeways and Open Roads

Filmmaker Jeni Lee accompanies and films blind and deaf participants moving around urban and regional spaces. The act of commuting is intended to elicit reflection and thoughtful responses from the research participants. Each participant's commute forms the backbone and narrative arc of a short film. Illustrations created in collaboration with artist Jan Rothuizen embed an additional layer of rich ethnographic insight within the films, highlighting the moods and emotions of the participants and their imagined mobility futures.

These short film vignettes aim to surface the impacts of ADM that haven't yet been accounted for. The films are critical of techno-determinist and techno-solutionist views of automated mobility. By documenting experiences of the so-called 17% – the people who see the world differently— this project reveals the barriers and biases of automated transport mobilities as well as uncovering creative opportunities for innovation. The films have research objectives while also aiming to fulfil other communication functions such as participation, advocacy and education.
1.1.3. Highway to the Sky

Highway to the Sky is a short film co-created with 3 neuro-diverse artists and art therapist Isabelle Ashford. Participants in the workshops create visualisations around their imagined future mobilities, using paint, canvas and stop motion animation. The participants will explore what sensations arise from automated travel and what they would like to be automated (or not) in the future. The creative process is intended to elicit reflection and thoughtful responses from the project participants and highlight their sensory experiences.

1.1.4. Seeing the Road Ahead

Vision is central to the field of autonomous vehicle (AV) research. While much of the research into AVs has focused on the technical aspects of vision, such as object recognition and sensor development, this project turns instead to its social, cultural, and political dimensions. ‘Seeing the road ahead’ aims to counter corporate and industry visions of self-driving cars by using creative methods to explore alternate visions. These visions are drawn from Australian popular culture as well as through interactive, creative workshops with everyday Australian people. We hope that these methods help us to develop a uniquely national case study, and to demonstrate the value of using creative methods for understanding speculative and emerging technologies.

2. Australian Context

According to Infrastructure Australia, between 2015 to 2016 across Australia there were 433 billion passenger kilometres travelled, showing a 5.39% increase since 2010-11. Cars are overwhelmingly the dominant passenger transport mode, accounting for 279 billion (64.4%) of all passenger kilometres. Buses account for 4.99% and passenger rail services for 3.73% of passenger kilometres.

The transport sector is the second largest emitter in Australia and its emissions are growing. Transport accounts for approximately 19% of Australia’s emissions, with cars being the single largest contributor. In 2018, the Climate Council commented:

> Australia’s cars are more polluting; our relative investment in and use of public and active transport options is lower than comparable countries; and we lack credible targets, policies, or plans to reduce greenhouse gas pollution from transport.

An audit of Australia’s infrastructure published in 2019 outlined that whilst electric vehicles have the potential to (amongst other benefits) reduce emissions the uptake of electric vehicles will require strong government and policy support.

There are also geographic barriers to consider. Many regional, remote and rural communities do not have the economies of scale to justify private investment in charging infrastructure. Without charging infrastructure, users in these areas will have fewer opportunities for electric vehicle uptake.

The Australian context presents a distinctive set of issues for a just transition to decarbonisation in transport and mobility. Some of these issues include:
2.1. Car culture: Australian society is characterised by an excessive use and reliance on privately owned passenger vehicles for transport. This idea was captured succinctly by one of the participants we interviewed as part of the ADM in Transport Mobilities Scoping study. James' (Transport Planner) described to us that Australia's car culture exists due to design:

[Australia's car] culture is largely driven by the fact that we’ve planned for it. If the opportunity to walk or cycle or take public transport was just as convenient and easy, a lot more people would choose it. But there are some people that just have that car and they’ll drive the car regardless of whether something else is just as convenient and easy.

2.2. Settler-colonial context: Australia is a nation that is still grappling with the consequences of Indigenous genocide and dispossession. This means that questions of inequality and environmental justice cannot be addressed without also acknowledging issues of Indigenous justice, sovereignty, and land rights.

Decarbonisation should not be considered a standalone project. Rather, it should be mobilised in support of existing agendas surrounding sustainable land management, especially forms of Indigenous land management. Public discourse surrounding the importance of Indigenous land management practices have grown in recent years, in particular, following the 2019 bushfires and the 2020 Royal Commission into National Natural disasters.

3. Key innovations around transport and mobilities transitions

The key innovations and changes around transition to autonomous transport mobilities are both technological and social. Plans outlined by each state and territory in Australia for the rollout of autonomous vehicle technology have all paired the transition with the integration of zero emission vehicles. Decarbonisation is a core objective of future visions for transport mobilities in Australia.

The Future Automated Mobilities project aims to understand how often ‘invisible’ automated technologies are shaping the transport sector and the way people plan for the future. In a report (in development) we present our findings from a desk-based review of 58 industry and policy reports speculating on the future of autonomous transport mobilities. The report is international in scope but focused on futures likely to affect Australians. The review examined where automated decision-making in transport is located and how future applications are imagined in these reports. Below is a summary of the trends anticipated collectively in the industry and policy reports, as relevant to and potentially disruptive for the transport sector:

Large-Scale Technology Developments

- Future vehicles will have SAE levels (4) and (5) automation which will change the transport of both people and goods

1 Throughout this submission any names used for participants are pseudonyms we have assigned to protect individuals identities.
The Internet of things will support the implementation of Connected and autonomous vehicle (CAV) technology will allow V2V and V2X communication and increase safety.

The normalisation of large-scale collection of individual and population-based transport data.

Environmental and Energy-based Developments

- Increased uptake of Autonomous and Electric Vehicles (AEV) will reduce emissions as well as air and noise pollution.
- Global events (such as the COVID-19 pandemic) and localised events (bushfires in Australia) have impacted the trials and roll-out timeline for automated vehicles.
- Climate change and fuel security combined with increasing efficiency and performance in battery and fuel cell design will drive consumers towards low and zero emission vehicles.
- Artificial intelligence (AI) will be utilised to support everyday transport scenarios, e.g. the movement of people and goods.

Demographic changes

- Individuals with high incomes and levels of education will be more likely to be early adopters of autonomous transport technologies.
- Automation will increase mobility and accessibility for consumers who ordinarily cannot travel – elderly folk, young people, individuals with disabilities and individuals who cannot drive.
- Creating trust between the public and modes of autonomous transport is important for adoption rates and successful uptake.

Economic changes

- Automation will increase job displacement (not just in the transport sector) and necessitate re-skilling workforces.
- New ownership models will emerge based on the sharing economy over individual ownership.
- As a result of both the pandemic and increased automation working from home will become more normalised.

4. Approaches to concepts of transition and/or justice

The concept of “transition” is addressed implicitly through our group focus on futures and future visions. A transition implies a movement or transformation between a current/past state and an envisioned future end state. By focusing on futures, our research addresses the idealised end state of mobility transitions.

The concept of “justice” is also addressed implicitly through our focus on elevating diverse voices in the national conversation on automated mobilities. This kind of consultation work with everyday communities is positioned as a necessary step towards just futures, one that does not seek to prefigure or anticipate the needs or desired
outcomes of these groups, but that invests in teasing these needs and desires out in detail before advocating for them.

5. Key policy areas and the implications for a just transition to decarbonisation

Our team does not explicitly examine policy, however, there is likely to be implications for:

**Data regulation** e.g. regarding the deployment of connected-automated vehicles. How will peoples data be gathered/stored/protected? What measures will be put in place to protect vehicles from malicious hacking?

**Licensing** e.g. will you need a licence to drive an AV? Who is liable in the case of a traffic incident? How will fines and other infringements be managed? According to the ATSE (2019) over 50 Australian federal and state laws will need to be amended to allow for autonomous vehicles due to references to the ‘driver’, and assumptions that the driver is human.

**Freight and supply chain logistics** as well as **travel and tourism** e.g. is decarbonisation just a question of changing how products and people are transported or is it about accepting that less things and people need to move?

**City planning** if the number of personally owned vehicles decreases this has the potential to have a significant impact on urban landscapes, this will require changes to town planning regulations

**Imports and manufacturing** of AVS. Both vehicles and the associated parts made in Australia or imported will need to comply with Australian standards.

**New ownership models**, including pay-per-use and shared mobility options, will require new registration models.

**Insurance policies** will need to shift in order to reflect the responsibility of the automated system, rather than the human driver, to safely operate the vehicle. This will shift the liability. Who is liable in the case of a traffic incident? How will fines and other infringements be managed?

6. Decarbonised mobility futures

Decarbonised mobility futures risk exacerbating socioeconomic and racial inequalities. At present, the majority of decarbonised solutions benefit those located in wealthy urban centres. As transport infrastructure within these centres are reworked to accommodate for new decarbonised modes of transport, this will take a significantly longer time to reach rural and poorer suburban areas (if at all). As an example, public transport and cycling infrastructure is well supported in the Melbourne CBD, but for many people who live in newly developed or fringe areas in the Western suburbs this infrastructure is severely lacking. This lack is part of the reason why housing in these communities is more affordable, and subsequently, why they also become racialised as lower-income migrant communities take advantage of this cheap housing stock. The
removal of ample parking or access to petrol stations means that populations at the fringe will rarely be able to visit the centre as private cars become the primary means of travel for most of these people.

Looking further outside the cities, rural areas are also defined by their need to consistently access private vehicles for everyday travel. This is especially true in remote Indigenous communities, for which public transport is often non-existent and long distance travel is commonly required for both social and cultural reasons (e.g. travel for "sorry business"). Decarbonised transport infrastructure will take a disproportionately long time to reach these communities (if at all), and is further weighed down by the lack of political appetite in these areas to support such projects.

7. Partnerships for just transitions

Key Stakeholders: individuals were invited to participate in interviews who are key decision makers in the transport sector. This participant group included members of Australian state departments of transport, mobility as a service trials, peak bodies such as Roads Australia and ITS Australia, as well as consultancy and advocacy groups. These stakeholders represent those both making decisions relating to and shaping visions for the future of transport mobility.

She's a Crowd (https://shesacrowd.com/about-us/): is a Melbourne based social enterprise, empowering people to share their stories of gender-based violence and providing a database of evidence that can be used to influence decision makers to take action. With innovative data capturing technology, She's A Crowd gives women (and people of all genders) across the world a platform to share their experiences and link them to a specific place. She's a Crowd target four key barriers to reporting gendered violence, namely: discrimination, safety, lack of understanding, and poor prior experiences.

Historically, men have predominantly designed city transport and how they operate – currently, it's a male-dominated field. Past and current projects She's A Crowd has contributed to have explicit focus on mobility. For example, previous projects they have undertaken with the Department of Transport Victoria and Transport for NSW aimed to promote the safety of women and gender diverse people while travelling on public transport as well as Uber, rideshares, and taxis.

On the subject of mobility justice Mimi Sheller (2018, p. 104) writes that 'greater attention to justice in transportation decision-making and participatory processes'. Working with organisations like She's a Crowd is necessary for achieving a gender-just transition to decarbonising mobility because as Sheena Wilson argues “energy transition is a feminist issue” because decarbonizing our energy supply “could provide opportunities to develop more socially just ways of living that put the concerns of those most exploited – women, people of color, and the global 99 percent – at the core of energy transition politics. This is why this organisation was selected. Firstly, to ensure active and meaningful participation from a group of women was included in our project and secondly, to put women at the core of just transitions.

Wallara: (https://www.wallara.com.au/about-us/) provides disability support services for adults in south eastern Melbourne. As an organisation, Wallara partners with
families, experts in the industry, community groups and businesses to design programs and activities to empower people with different abilities. This includes facilitating programs that develop independent living skills and provide varied pathways to employment, creating supported employment positions through their corporate services, and developing accommodation to support inclusive living models.

By partnering with Wallara, our goals are to:

- To understand how adults living with disabilities experience existing forms of automation in their daily use of transport mobilities
- To understand how these adults imagine possible transport mobility scenarios in the future
- To elevate the voices of adults living with disabilities in the national conversation on the future of self driving cars and other automated vehicles in Australia

We aim to achieve this through:

- The development of a co-designed creative workshop activity series, targeted at clients attending Wallara holiday programs
- Collaborating with the WallaraTV School of Media to develop assignments within their training courses that focus on automated mobilities
- Inviting Wallara clients to participate in film projects, such as the ‘Flightpaths, Freeways, and Open Roads’ commute films

8. Partnerships for just transitions

We have captured imagined future mobilities through in-depth interviews conducted with key stakeholders in the transport sector including:

- members of federal & state departments of transport;
- companies testing autonomous electric and mobility as a service transport solutions;
- peak transport bodies;
- consultancies and;
- transport insurance organisations.

In these interviews we found that decarbonised mobilities in the future are tied more closely to energy & transport efficiency aims than justice goals. For example,

I also think from an environmental perspective, climate change, pollution, congestion, broad adoption, and the flow of traffic will greatly improve and make our transport system a lot more efficient. (Benjamin, CEO of an international driverless vehicle company)

Similar views were expressed by William, a practice leader at an Australian mining company:

[Australian mining company] announced last week that we would be targeting a 15% reduction on our 2018 emissions by 2025 and a 50% reduction by 2030, leaning towards net zero by 2050. So the emissions reduction work, diesel's one of those hard to... transports hard to abate sectors. So we're looking at energy efficiency initially to just give us some incremental improvement. We're looking at alternative fuels, where they are sustainable and provide emissions reduction. Looking at alternatives to moving the material. So it's either way we could do it that requires less energy, and
then electrification which is battery electric. That's a lower priority, hydrogen fuel cell, battery electric.

Another theme that has emerged around decarbonising mobilities concerns the idea of **shared mobility**:

Ultimately what we want is to move away from private vehicle usage, so it's about having more options, and I think there's some evidence emerging that this access to these electrified modes is helping to provide alternatives to people. (Logan, Director, MaaS trial)

A major part of the problem is how industry narratives about AV's often frame public transport as something that is both old and no longer works (Currie 2018) and of 'shared mobility' as the most progressive pathway. However as Currie (2018) points out, even though 'shared mobility' sounds as though it involves shared vehicle occupancy, the forms of mobility that it is referring to (such as Uber and Lyft, bikesharing, and carsharing) offer quite the opposite.

Other future mobilities include moving away from framing those travelling via walking or cycling as *vulnerable users* to *active transport*:

What are also other active modes, so bike riding, much more thinking about walking. I heard an interesting comment the other day. So, we used to think about vulnerable road users being cyclists and pedestrians. It’s almost like we've made a bit of a transition now and we now see them, we call them “active transport”, instead of “vulnerable road users”, these are active transport modes.

Through one of our projects – *Flight Paths, Freeways and Open Roads* – we have also been able to capture some of the future ideas (and fears) around how future technologies will shape the way people visually impaired folk experience transport. One participant – Amelia – expressed her fears around the future of driverless cars:

But then I don't want to be like, what if another blind person is in a driverless car, we don't see each other coming. The cars don't sense it. And then we crash. Like, I know, I'm thinking about the worst case scenario here. I seem like quite a negative thinker. But I think that we don't think about these safety things enough. (Amelia)

She also discussed the importance of accessibility when planning for future mobilities, and considering the possible ways new technologies can make this less safe for some people:

And even in terms of, you know, climate change, and everything, we don't think about accessibility and people who kind of, to use a cliche, see the world in a different way to us. And it actually is, you know, it makes these advances more unsafe, when we don't consider other people in our environment. (Amelia)

In a more hopeful sense she described how driverless cars could protect her from discrimination she experiences in rideshare services:

Currently, there's a lot of discrimination with taxis and Ubers, as well as rideshare, generally around service dogs. So I've been late to things before because taxi and Uber drivers have refused my guide dog, which is illegal, but it happens anyway. And, again, nothing has been done about it. So you know, that's the only advantage I can sort of see to having a driverless car is that I wouldn't have to worry about that stuff so much anymore. (Amelia)
9. Summary

All the projects within the ADM+S Transport and Mobility Focus Area seek to explicitly prioritise the experiences and practices of everyday people as they navigate their futures with automated mobilities. A key topic within each project is the question of justice – for people as well as the planet. Decarbonisation and ‘just transitions’ are treated as a subset of these questions. This includes:

- How can we ensure that transitions to decarbonised transport mobilities do not exacerbate geographic and racialised inequalities?
- How can we include more diverse voices in the conversation around decarbonisation, automation, and other imagined futures for transport and mobility?
- How does the question of a ‘just transition’ connect to other issues of justice, such as Indigenous sovereignty, justice, and land rights?
- How can creative methods, such as filmmaking, help to illustrate and surface different themes relating to these issues?

This submission includes preliminary observations from our research so far. We aim to develop these themes further as our research continues in 2022 and 2023.

10. References


