What might Covid-19 mean for Mobility as a Service (MaaS)?

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Abstract

This short paper speculates on what role MaaS may have post Covid-19. Two scenarios are proposed with one being business as usual, and the other being a significant change in the mobility framework as shared modes are less attractive and working from home takes on an increasingly popular status by both employees and employers. We argue that the 'new normal' offers opportunities never before achievable in terms of taming congestion on the roads and crowding on public transport, and that this opportunity should not be frittered away.

Keywords: Mobility as a service (MaaS), Covid-19, Rebooting MaaS, Multimodalism, Multiservices, Biosecurity, transport scenarios post-Covid-19, working from home

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Setting the Scene

Mobility as a Service (MaaS) has, as its centrepiece in most countries, the shared modes of public transport and rideshare (Uber, Ola, Didi, taxis), bikeshare and carshare[1]. With the Covid-19 pandemic, we observed a wholesale reduction in the use of such modes (Beck and Hensher 2020), in part due to restrictions that required large numbers of people to stay at home, and only workers on essential work that could not be undertaken at home to be out and about, many of which were tradies and retail workers with adequate free parking when they drove their car. While use of all modes of transport declined, there remained a higher percentage of travel by the private car (Beck and Hensher 2020, Figure 21) given that fears of exposure to the virus were high in shared modes, whereas biosecurity risk was low, if non-existent, in the private car. So, what does this mean for MaaS in the immediate period, the medium term and the long term?

In setting a context within which to comment on possible MaaS futures, we list and discuss two main scenarios which are likely to represent alternative futures on the spectrum within which MaaS can reboot as a multimodal and multiservice offering.

[1] While most e-scooter providers halted their operations in Switzerland (and only just restarted on May 6), bikeshare providers have continued to operate and partially seen large increases in usage as well (also in NYC). Maybe this is a consequence of a balance between users having fewer travel options now and weighing risk to (literally) touch shared mobility. In Switzerland, the huge increase in bicycle use might be due to the excellent infrastructure and also the warm spring weather. Will it last? Time will tell.

Scenario 1: Travel will return to the pre-Covid-19 normal within a few months, with public transport, ride share and private car use showing very similar levels of use, crowding and congestion as before. Working from home (WFH) will have a limited impact. The rationale is that, although the situation is somewhat fluid and the likely response is very uncertain, with Australia's success compared to other countries in minimising exposure and transmission ('flattening the curve'), there is a real possibility that normality might return quicker, with perceptions of risk dissipating at a fast rate. Habit persistence is also a significant trait of human beings. Crowds, described as heaving, at shopping precincts on Mother's day (10 May 2020) in Melbourne and Sydney, despite social distancing requirements in place, highlights this outcome.

Scenario 2: One of the most important policy levers now available[2], in contrast to pre-Covid 19, is the effectiveness and growing acceptance of WFH. We have never had a real experiment of what might happen to the transport network in the presence of a growing interest in WFH. One of Australia's leading banks, the National Australia Bank (NAB), for example, is reporting a 15% increase in productivity (associated with WFH) since travel restrictions. This evidence, and growing anecdotal evidence together with the Beck and Hensher (2020) findings from a National Survey, suggest the possibility of a noticeable shift to WFH and consequent changes in commuting (and non-commuting) travel demand. WFH will be encouraged all the while offices are required to practice social distancing and hence have to stagger working hours for staff, including the possibility of less days in the main office and the balance as WFH. Firms will be interested, as they can save on office space in the longer term (although NAB have just invested in a huge building or buildings at Redfern near the City).

Scenario 2 is the one that we would like to see play out over the next 18 months, with employers supporting staggered working hours (even when there is no imposed external constraint to do so) for employees whose work aligns with this strategy, and also with the number of days working from home varying by negotiation, especially where there is substantive evidence of no productivity loss and desirably productivity gain. This is an opportunity for the sustainability charter of supporting mandating increased flexibility of office hours as a consequence of social distancing, which will oblige a number of businesses to introduce staggered working hours, and only requiring attendance at the main office on an agreed number of days per week[3].

Many sectors already support WFH pre-Covid-19 such as the technology sector. Importantly more generally and widespread now, WFH is a new[4] policy lever to use to benefit the transport network[5]. In particular, we want to never return to the peak phenomenon where we have excessive road congestion and public transport crowding[6]. Governments need to not lose this opportunity, especially while social distancing is in place, assuming the anxiety around using public transport can be overcome

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[2] Milan has a very interesting approach where the city is attempting a more sustainable restart with regards to transport, reimagining the city by reallocating street space from cars to cycling and walking, in response to the coronavirus crisis. https://www.theguardian.com/world/2020/apr/21/milan-seeks-to-prevent-post-crisis-return-of-traffic-pollution

[3] Tangential to this initiative is a view that some public servants have a flexi day and want to ensure this is maintained when they work, to some extent, from home.

[4] 'New' in the sense that there is a much broader interest in WFH given the forced circumstance. Telecommuting, for example, is not new (see Brewer and Hensher 1998) but has always struggled to get support from either employees or employers, and especially where the matching of employees and employers is required for it to be implemented. See also https://www.linkedin.com/pulse/why-do-we-meet-anyway-chance-relieve-burden-meetings-glenn-lyons/

[5] The internet seems to be able to handle mass WFH.

[6] Flattening of the curve is now replaced with the challenge to find ways to maintain flattening of the peak now that Covid-19 has done the hard work for us. 'The camel has died' and now we want to preserve 'the horse'.

fairly quickly,[7] to support a re-aligned network that also works for employers and employees and the wider community more broadly. Flattening the peaks has huge productivity benefits beyond passenger movements, with the freight distribution sector in particular gaining significant travel time savings and reduced costs of doing business. Some light goods movement can be picked up by underemployed Uber drivers and also by Community Transport.

While this new normal is ambitious, it may just be achievable for the first time in our history since the advent of the internal combustion engine, but it will also require a rethink of road user charges to ensure that the road network in particular does not deliver growing congestion through not only private car use but also increased road freight vehicle activity. The position of the private car is dependent on the extent of WFH, the staggered daily commute times and an in-place road user charge scheme. This is a very important point, and the latter will be necessary to at least provide funding (in contrast to an efficient pricing model) to support the revenue loss from public transport[8] (which typically only recovers 24% from the fare box) and other sources of mobility revenue loss, as well as supporting new initiatives in mobility investments (such as improved walking and cycling infrastructure). If governments desire to flatten the peaks, they may be prepared to offer tax relief to employers who arrange employer work hours in order to achieve this[9], especially after social distancing is relaxed. This can be seen as a very relevant transport demand management (TDM) initiative. The benefits may well outweigh the additional costs to society of a return to congestion[10] and crowding. However, counteracting this may well be a longer term saving in office space rental[11] as less employees need to be in the one location at any point in time[12].

The MaaS Reboot

Although operational changes will be required to support a more hygienic shared mode environment[13], they are a necessary but not sufficient condition for a significant return to public

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[7] See https://www.smh.com.au/national/nsw/anxious-parents-and-students-face-school-commute-amid-lockdown-20200509-p54req.html

[8] Some redistribution of tax money will have to happen – providing a good opportunity to highlight road pricing (once again), given also that fuel tax income will decrease with increasing electrification.

[9] Which has associated emission reduction benefits.

[10] In Australia, it is suggested that the annual cost of congestion in terms of lost productive and leisure time is $30billion (BITRE 2015).

[11] However, with social distancing, office spaces will need to be rearranged and the 'floor area to worker ratio' will increase, possibly resulting in no gain.

[12] However, there will be the issue of the costs of running an office from home and who might fund that.

[13] Examples for public transport including automatic doors to avoid touching entry and exit points both on trains and buses and also platforms, cleaning wash rooms more often (or even closing them) given they are a major source of disease transmission, separating bus drivers by a plastic separator (the two-thirds design used by many bus operators to enable some safe communication with passengers), no cash payments, the wearing of masks, and temperature check on entry to and exit from public transport. Also Apps are being developed such as Skedgo's occupancy feature and COVID-19 alerts for public transport confidence: https://skedgo.com/skedgo-launches-occupancy-feature-and-covid-19-alerts-for-public-transport-confidence/.
This feature allows passengers to choose quieter routes and carriages, or switch to alternative forms of transport to maintain social distancing, such as cycling or e-scooters. The occupancy feature has been trialled using open source data from Transport for New South Wales in Sydney and can be rolled out worldwide, depending on data availability. For rideshare, the big challenge is how we might ensure that drivers clean the passenger areas every time someone alights and before someone gets on board. Rideshare may be more challenging than public transport in managing the biosecurity risk. It will also be interesting to see how micro-mobility providers ensure disinfection of vehicles. It has also been suggested that buses might be preferred over trains where the latter travel long distances underground in situations perceived as contained. With a bus, one can open the windows which is seen as an advantage regardless of whether it makes a difference to the health risk. Importantly, it will be easier to increase passenger capacity under social distancing through adding more buses into the network than increasing train capacity which is often at its limits given track constraints.

transport and ridesharing. The challenge is to get people back to public transport and ride share (at least until a vaccine is widely available, which may be up to two years), or more generally away from the private car. If WFH and parking charges, in the absence of road pricing reform, do not contribute to taming road congestion, we risk growing the modal share in favour of the private car and a significant setback for MaaS, not only as a niche offering but as a scalable prospect.

The starting position has to be the MaaS elements that can ensure biosecurity safety, and the obvious candidates are micro-mobility modes such as e-scooters[14] and bicycles, which are however mainly limited to short trips (possibly up to 5 kilometres)[15], and car sharing from the rental market (for medium to longer trip lengths) that complies with stringent health assurances. One idea is to support carpooling through MaaS with a pre-approved group of individuals that are known and trusted by each sharing passenger. This is the familiar and very old idea of carpooling[16], but with a difference – no one passenger owns the car per se but arranges to share what might be best described as collaborative ownership and consumption of the modal service where there is trust in the provider[17]. For this to happen, employers can play an important role, actively promoting sustainable mobility practices. This interpretation of the initial phasing back of MaaS aligns well with views of Sampo Hietanen, MaaS Global, who suggests that 'The profitable part [of MaaS] is having access to a car on weekend[18] otherwise MaaS is just a utility service'. This may have to be reviewed as a seven days a week offer, under the 'familiarity of sharing'[19] adage, which might be attractive where individuals can see the appeal of also being able to select a class of vehicle that best fits their activity needs, as linked to the particular subscription fee of a bundle plan (Reck et al. 2020).

We also believe that MaaS needs to be seen as more than a multimodal offering, but as a multiservice offering. What we mean by this is that some of the services are not only the passenger mode discount, but discounts on non-transport services, for example, retail purchases, as well as having goods delivered to the subscriber, and especially where WFH becomes more popular, or MaaS points that can be redeemed for goods or gift cards. We finally can see the word 'service' being given a much broader and meaningful multi-sectoral definition, which may be the basis of a business case that can morph into a commercial proposition.

Under scenario 1, we might expect MaaS in Australia, and more generally any Covid-19 affected economy, to reboot pretty much along the same lines as pre-Covid-19. It is under scenario 2 that MaaS may have the greatest challenges but also opportunities, at least in the foreseeable future. MaaS may be a way of arresting a decline in public transport use by offering a first and last mile rideshare[20] discount where the convenience of public transport is in place, although how we resolve the matter of hygiene in Uber and taxi remains a concern[21]. What is encouraging in Australia during the Covid-19

[14] Although they are currently not legal in New South Wales.

[15] In Zurich, for example, shared dockless e-scooters are used only for very short trips (median: 721m) while shared docked bikes (median: 1'312m) and shared docked/dockless e-bikes (median: 1'574m) are used for substantially longer trips. Of course, this is very context-dependent, but a first indication. See Reck, Guidon et al. (2020).

[16] Carpooling historically has faced many difficulties in finding a match (i.e., fellow travellers). With the extra layer of trust required, it may be challenging to achieve this.

[17] But we do not want to discourage informal lift-sharing between trusted groups using someone's car – which is how carpooling started in the first place.

[18] This has general appeal; despite it being a rather Finnish viewpoint since regular trips to the "summer cottage" (= shack!) is how Finns spend their free time.

[19] I thank Glenn Lyons for his liking of this interpretation, which in his words 'merits further attention'.

[20] Some commentators have suggested that rideshare is part of the hyped 'shared mobility' concept rather than a reality arriving soon.

[21] Will taxi drivers, for example, clean the seats and surrounding space every time a passenger gets out? There have been a lot of licences returned recently.

pandemic is that, with the exception of Western Australia that reverted all services to a weekend timetable, the service levels of urban public transport remained in place[22].However, the resurrection of public transport as the centrepiece of MaaS may have to take a back role for a little while, as indeed will rideshare.

The design of MaaS bundles (Reck et al. 2020, Hensher et al. 2020) is likely to be affected by the preferred (and most likely) Scenario 2 from a societal perspective, with concerns about having to subscribe for a month when some days are WFH[23]. This is almost certain to influence responses to offered monthly subscription fees, and risks staying with pay as you go (PAYG), even outside of a digital platform that promotes modal integration in trip planning and selection.

Recommendation: Under Scenario 2, a bundle consisting of flexibility in choosing the subscription period, a micro-mobility mode for short local trips, a shared car for familiar sharers that is coordinated through the broker, and a rental car for individual use, may be a good first start as a reset offer after rebooting MaaS. Importantly, there may still be a need for the private car outside of the MaaS offer, but the offer may result in a reduction of the number of private cars in a household. Under Scenario 1 MaaS can resume as before but might want to take advantage of prospective opportunities under Scenario 2, where possible.

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[22] Continuing normal service levels has allowed customers to physically distance on trains and platforms.

[23] Daniel Reck (Personal communication) in commenting on this says: 'Interesting idea, one way this could work out is by taking up UbiGo's idea of selling a number of PT daily passes instead of a monthly ticket to accommodate irregular / part time commutes.'