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The prospects and challenges of new electric micromobility (e-mobility) modes and their strategic municipal management in Asian Pacific cities

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Extended Abstract:

“Micromobility” refers to a new set of small (weighting 10-50 kg), low-speed (usually <25km/h) electric personal mobility devices (PMD, or e-mobility), which is a collective term for e-scooters, e-bikes or self-balancing hoverboards. Adopting the dockless sharing model used by bicycle sharing, e-scooters are now the fastest growing micromobility sharing segment globally since late 2010s. Micromobility sharing schemes continue to proliferate globally even during the COVID-19 pandemic, as citizens look for alternatives to public transport. Private ownership to the new devices is also rapidly growing. These new modes provide individualised transportation with lower environmental and monetary cost, and have great potential to replace car use for shorter distance travel. However, disbenefits such as accidents and disorderly parking have affected some of the cities who were early adopters.

This presentation presents a critical review of municipal planning for e-mobility across Asian Pacific cities. This study aims to compare the status of e-mobility modes, local context and policy response in four Asian Pacific cities with different settings. The chosen cities for detailed analysis are Brisbane, Singapore, Ho Chi Minh City and Hong Kong. We propose a “maturity framework” to understand the evolution of e-mobility. This paper sought to explore how municipal authorities can improve their strategic planning to minimise the negative effects whilst maximising the potential benefits of micro-mobility.

Singapore experienced rapid growth of e-scooters and e-bikes in 2017-8 and these devices were widely used by gig economy delivery workers. However, several high profile crash accidents and battery fires prompted the city state’s government to heavily regulate this emerging mode. Singapore’s response is notable for treating private e-scooters akin to motor vehicles, requiring registration plates and mandatory vehicle testing. The effect of such is yet to be seen when the restrictions will be fully in force in 2021. Use on pedestrian pavements are banned, which diminishes the travel utility function of e-mobility devices. Broad brush regulations have caused strong backlash from users and industry groups, resulting a trade-in cash rebate scheme for delivery riders to surrender devices affected by stringent e-mobility regulations.

An alternative approach is to embrace e-mobility with appropriate municipal planning and market management. Brisbane was the first in Australia to permit the introduction of a dockless e-scooter sharing service in 2018. Tenders were sought for a duopoly within inner the city, with two operators invited to provide services, following a competitive assessment of different company vehicles, apps and backroom operations. Unlike Singapore, riding on pavement is allowed, but not on roads for vehicular traffic. E-scooters are considered successful in Brisbane and are expanding to more locations, and without the strong public backlash as seen in many other cities. Private ownership are also growing after

the legalisation and introduction of shared schemes. The recent Draft E-Mobility Strategy formally acknowledged the potential of e-mobility as alternative ways to travel, and the need for better planning and regulation. Following the trial and tender model for e-scooters, the declining docked bicycle sharing system will also be replaced by dockless e-bikes sharing schemes.

While Singapore and Brisbane can be considered as the more mature forms of e-mobility regulation, some jurisdictions that did not acknowledge or formally regulate e-mobility in their streets. Such example may include Ho Chi Minh City (with no clear legal status) or Hong Kong (prohibited for public use). While the lack of clarity of their legal status discouraged shared operations, privately owned e-mobility devices are increasing. E-mobility devices are often seen to be ridden publicly in both cities, especially in residential districts. As enforcement of these devices in public areas are seemingly ineffective, the authorities are mooting begin follow the footsteps of Singapore and Brisbane to better manage e-mobility as a new way of travel.

These four cases show four differing approaches to e-mobility in Asia Pacific, which are quite different to North America's or Europe's initial "legalise but not regulate" approaches. In the face of new disruptive e-mobility modes, it is important to draw on global practice and evidence to shape new regulations that effectively address the "who, when and where" of benefit and impacts. Generally speaking, e-mobility regulations need to be easy to enforce, otherwise there will be non-compliance and enforcement issues. Excessive restrictions may also offset the potential benefits offered by e-mobility modes. A paradigm shift from regulatory to partnership is now generally being encouraged, somewhat along the lines of the current Brisbane model. That is, municipal governments now typically seek to act as regulators to reduce the problems associated by e-mobility, but they also partner with commercial operators to co-develop new rules and provide better infrastructure to support the healthy growth of shared transport mobility services.

Keywords: micromobility, PMD, e-mobility, e-scooters, e-bikes, emerging modes