



1. Introduction

1.1 Bicycle-sharing has developed rapidly around the world in recent years, particularly after the launch of the third generation system¹ which leverages the use of information technology to enable bicycle rental at a network of unmanned locations for a fee or free of charge.² Many of shared bicycles today are equipped with enabling technologies, such as Global Positioning System ("GPS"), to track the bicycles' locations and provide real-time bicycle availability information on the Internet. Users can pay rental fees with their credit/debit cards or through smartphone applications.

1.2 Bicycle-sharing systems come in two main forms: docked and dockless. A docked bicycle-sharing system comprises secure docking areas at designated on-street docking stations or kiosks across the service network. Users can pick up and drop off their bicycles at any of these docking stations/kiosks. In contrast, a dockless bicycle-sharing system does not require any docking stations/kiosks. It works with riders using their smartphones to open a relevant application to locate the nearest available dockless bicycle and then scan the Quick Response ("QR") code on the bicycle to unlock it. At the end of the journey, users can just leave their bicycles anywhere convenient and lock them up manually.

¹ There are three generations of bicycle-sharing system. The first generation began in 1965 in Amsterdam where bicycles without locks were provided for free public use. Then in 1995, the first large-scale second generation was born in Copenhagen and the shared bicycles could be picked up and returned at specific locations with a coin deposit system. The third generation started in the late 1990s making use of information technology to rent and return bicycles. See Feng (2013).

² Also lending support was the scale and success of Vélib in Paris which inspired the creation of bicycle-sharing systems throughout the world. Launched in 2007, Vélib is a large-scale public bicycle-sharing programme which signs up more than 250 000 users taking advantage of some 20 000 bicycles around Paris.

1.3 There are a number of benefits of bicycle-sharing system. These include: (a) providing the first and last mile transit connectivity³; (b) offering a convenient and affordable alternative means of transport for short trips that might otherwise have been made by car or walking; and (c) promoting a cycling culture that can help build a sustainable and healthy city. Probably reflecting the above, there were over 1 000 cities worldwide with bicycle-sharing programmes in operation in 2017. These programmes involved a combined fleet of over 4.5 million shared bicycles, up from that of less than 250 000 shared bicycles a decade ago.⁴

1.4 The Panel on Transport has requested the Research Office to study the bicycle-sharing systems in overseas places. This information note studies the development of bicycle-sharing in Hong Kong, followed by a discussion of the policy measures adopted by Singapore, London and Taipei to promote and regulate the use of shared bicycles in a densely populated urban setting. Singapore has embraced the privately operated dockless bicycles as part of its transport ecosystem, whereas London and Taipei have made use of publicly-funded docked bicycle-sharing services to encourage more people to cycle.

2. Bicycle-sharing system in Hong Kong

2.1 In Hong Kong, a private operator pioneered the launch of dockless bicycle-sharing services in April 2017, followed by the entry of several competitors into the market in the ensuing months. Currently, there are six dockless bicycle-sharing operators with a combined fleet of 18 000 shared bicycles⁵. While dockless bicycles allow users greater convenience, the operation of dockless bicycle-sharing system is not without problems. According to the Government⁶, individual operators launched their services in urban areas in late 2017. Yet, the Government does not encourage the public

³ The "first mile" is the first part of the trip from a starting location (e.g. commuter's home) to the start of the transportation network (e.g. a bus stop), whereas the "last mile" is the final leg of trip connecting the end of the transportation network to the final destination (e.g. commuter's workplace).

⁴ See International Transport Forum (2018b).

⁵ At the peak, there were seven dockless bicycle-sharing operators in Hong Kong. One major operator announced the cessation of its operation in July 2018 due to losses and high maintenance costs.

⁶ See GovHK (2018).

to use bicycles as a mode of transport in urban areas due to road safety considerations⁷. Coupled with the fact that there are no comprehensive cycle tracks and on-street cycle spaces⁸, the Transport Department does not support the operators to promote dockless bicycle-sharing services in urban areas.

2.2 The launch of dockless bicycle-sharing services has also added to the bicycle parking problems in Hong Kong. The Government has committed to providing a bicycle-friendly environment in recent years to foster a green community and facilitate the public to ride bicycles for short distance commuting or leisure purposes⁹. However, there are insufficient public and private bicycle parking facilities, resulting in widespread illegal parking. From 1 January 2017 to 30 June 2018, a total of 84 668 notices on removal of illegally parked bicycles were issued, and a total of 18 948 illegally parked bicycles, of which about 2 051 were dockless bicycles, were removed.

2.3 The Government also received about 800 complaints relating to dockless shared bicycles between April 2017 and July 2018. Some members of the public have complained that (a) shared bicycles have occupied a large number of public bicycle parking spaces, exacerbating the existing problem of shortage of bicycle parking spaces; and (b) many shared bicycles are indiscriminately parked in public places, causing obstruction to pedestrians.

2.4 In response, the Government is of the view that there is no fundamental difference between dockless bicycle-sharing and conventional bicycle rental services¹⁰ in terms of their business nature, only that the operators adopt different modes of operation.¹¹ Therefore, there is no specific regulatory regime for dockless bicycle-sharing. Any dockless bicycle-sharing programme is subject to existing legislative requirements, including regulations in relation to the parking or placing of bicycles and safety

⁷ According to the Government, the traffic in urban areas of Hong Kong is generally very heavy, with narrow and crowded roads, frequent on-street loading and unloading activities and many vehicles passing by and needing to stop temporarily. See GovHK (2018).

⁸ There were 222.8 km of cycle tracks and 59 890 public bicycle parking spaces in Hong Kong as at end-July 2018, of which 99% were in the New Territories.

⁹ For example, the Government has carried out improvement works in nine new towns in the New Territories to build more public bicycle parking spaces and additional safety facilities at some sharp bends, steep ramps and pedestrian crossings. As at June 2018, about 100 of the 900 potential improvement sites had completed their improvement works.

¹⁰ Users who use conventional bicycle rental services pick up or drop off their bicycles at designated locations.

¹¹ See GovHK (2018).

requirements for bicycles¹². Government departments have also initiated law enforcement actions to handle illegal parking of bicycles according to their purviews. From 1 January 2017 to 30 June 2018, relevant departments have conducted a total of 783 clearance operations against illegally parked bicycles.

2.5 Most recently, the Transport Department has implemented a code of practice to promote self-regulatory and sustainable operation of dockless bicycle-sharing in Hong Kong.¹³ The code sets out various requirements for dockless bicycle-sharing operators, including requiring them not to operate in urban areas due to road safety considerations. Other requirements include: (a) providing assistance to users through smartphone applications; (b) setting up hotlines to handle enquiries and complaints effectively; and (c) sharing operation data, including trip data, with the Government for analysis and monitoring purposes.

3. Bicycle-sharing system in Singapore

3.1 Singapore has taken proactive steps towards sustainability with efforts to develop an integrated and sustainable transport system in the city. Singapore's Land Transport Master Plan, which was launched in 2008 and updated in 2013¹⁴, seeks to create a transport network with a high level of multi-modal integration. While the focus is on greater accessibility to public transport, the Master Plan also aims at making cycling and walking viable modes for short journeys.

¹² The relevant governing legislation includes the Road Traffic (Parking) Regulations (Cap. 374C), the Land (Miscellaneous Provisions) Ordinance (Cap. 28), the Summary Offences Ordinance (Cap. 228), the Road Traffic (Construction and Maintenance of Vehicles) Regulations (Cap. 374A), and the Road Traffic (Traffic Control) Regulations (Cap. 374G).

¹³ In end-September 2018, four operators had voluntarily entered into a Memorandum of Understanding ("MoU") with the Transport Department to the effect that they are committed to complying with the code.

¹⁴ See UN Environment (2016).

3.2 Since the development of the Land Transport Master Plan, Singapore has been working towards the goal of becoming a bicycle-friendly city¹⁵. To promote cycling activities, Singapore launched the National Cycling Plan in 2010 as the first strategic step to integrate cycling as an integral part of Singapore's transport ecosystem and develop dedicated cycling routes for recreational and commuting purposes.

3.3 In 2013, Singapore released an updated and ambitious National Cycling Plan with the objective of building "a cyclist-friendly, well-connected network providing safe and healthy cycling for all" by 2030. The strategies developed include: (a) extending the cycling paths from 230 km to over 700 km by 2030; (b) enhancing the cycling network connectivity and convenience; and (c) developing a safe cycling culture through education and programmes.

3.4 In a further effort to facilitate cycling, the Singapore government has committed to building better bicycle parking facilities around MRT stations and bus interchanges, as well as public housing estates, amenities, schools and other places where there is demand. At present, there are about 174 000 bicycle parking lots in Singapore of which some 17 500 are provided at MRT stations.

[Dockless bicycle-sharing system](#)

3.5 According to the Land Transport Authority ("LTA"¹⁶), bicycle-sharing system would complement the government's efforts to facilitate cycling and improve the first and last mile connection to public transport nodes.¹⁷ Bicycle-sharing would also be useful for those who wish to cycle but do not own bicycles, or prefer the convenience of using shared bicycles for one-way trips.

¹⁵ According to the Ministry of Transport, cycling is an environmentally-friendly mode of transport for short-distance intra-town travel and journey to MRT stations and bus interchanges for daily commute to work.

¹⁶ LTA is a statutory board under the Ministry of Transport entrusted with planning, operating, and maintaining land transport infrastructure and systems in Singapore.

¹⁷ See Land Transport Authority (2014).

3.6 In 2016, LTA planned to launch a docked bicycle-sharing scheme backed by government grants.¹⁸ However, the plan was subsequently scrapped after several privately-funded dockless bicycle-sharing services emerged in Singapore in early 2017. According to LTA¹⁹, the entry of private operators into the market has obviated the need for setting up a publicly-funded bicycle-sharing system.

3.7 Dockless bicycle-sharing has expanded rapidly in Singapore since its debut in early 2017. As at March 2018, there were six dockless sharing-bicycle operators with an estimated combined fleet of 100 000 bicycles²⁰. However, indiscriminate parking of shared bicycles has marred this positive development. The bicycle-sharing operators have exacerbated the bicycle parking problem as they expanded their fleets too quickly to capture the market share.

3.8 In October 2017, LTA, National Parks Board²¹ and Town Councils signed a MoU with five bicycle-sharing operators in an effort to reduce disamenities arising from bicycle-sharing services and improve public safety. The MoU contains guidelines for encouraging responsible operation of bicycle-sharing services in public spaces²² and educating users on proper parking and safe riding behaviours. In addition, LTA has also worked with other public authorities to increase bicycle parking capacity by adding more bicycle racks and designated bicycle parking zones²³ at MRT stations, bus stops, public housing estates and parks.²⁴ It has also stepped up enforcement actions to clear indiscriminately parked bicycles.²⁵

¹⁸ LTA called a tender in July 2016 for an operator to build, own, operate and maintain a bicycle-sharing system. To defray part of the costs, tenderers could bid for grants from LTA.

¹⁹ See Land Transport Authority (2017c).

²⁰ See Lim (2018) and Ministry of Transport (2018b).

²¹ National Parks Board is a statutory board under the Ministry of National Development with the responsibility of providing and enhancing the greenery of Singapore.

²² For example, operators are required to (a) remove indiscriminately parked shared bicycles within half a day and faulty bicycles within a day; and (b) purchase public liability insurance for users and victims of accidents caused by users.

²³ These designated parking zones are demarcated by bright yellow lines and they are known as "yellow boxes" in Singapore.

²⁴ There are now about 174 000 public bicycle parking lots in Singapore, and LTA plans to provide another 50 000 more by 2020.

²⁵ Between mid-2017 and March 2018, LTA issued more than 2 100 removal notices and collected about S\$180,000 (HK\$1.02 million) in fines and administrative fees from bicycle-sharing operators.

Licensing of bicycle-sharing operators

3.9 Notwithstanding the government's efforts, the problem of indiscriminate bicycle parking persists. This prompted the Parliament of Singapore to amend the Parking Places Act in March 2018 in a move to address indiscriminate parking and allow sharing operations to grow in a more sustainable manner. The Act has introduced a licensing system under which dockless bicycle-sharing operators must apply for a licence and be licensed by LTA. Licensed operators are allowed to operate in public spaces for up to two years.

3.10 The licensing system, which came into force in October 2018²⁶, contains three key features, namely (a) managing the size of each operator's fleet; (b) giving LTA stronger regulatory levers to require operators to manage indiscriminate parking; and (c) ensuring responsible user behaviour.

(A) Managing the size of each operator's fleet

3.11 The licensing system allows LTA to manage the size of each operator's fleet by setting a maximum fleet size for each operator. LTA will regularly review fleet sizes and allow operators who are able to manage indiscriminate parking and show good utilization of their fleets to grow over time, taking into account other relevant factors such as user demand and availability of parking spaces.

(B) Giving LTA stronger regulatory levers to deal with indiscriminate parking

3.12 LTA can take regulatory action against operators for breaches of licensing conditions and industry-wide standards. These includes reducing their fleet size, imposing financial penalties of up to S\$100,000 (HK\$565,000) for each instance of non-compliance, suspension or revocation of licence.

²⁶ Six out of seven applications for dockless bicycle-sharing operator licences received in-principle approval from LTA in September 2018. They will receive their licences at end-October 2018 after paying the licence fees to LTA.

(C) Ensuring responsible user behaviour

3.13 Operators are required to take measures to ensure that their users practise responsible parking. This includes the implementation of a QR code geo-fencing solution where users must scan a unique QR code at the parking location as proof of proper parking before they can end their trip. Operators can continuously charge the users who park indiscriminately, until the latter return the shared bicycle to a designated parking space. Operators are also required to share data with each other on users who park indiscriminately for the purpose of imposing a collective ban on recalcitrant users. An individual user who has been determined to have parked indiscriminately at least three times in a calendar year when renting from one or more operators will be banned for up to one year from using all bicycle-sharing services.

4. Bicycle-sharing system in London

4.1 In London, former Mayor Boris Johnson announced the Mayor's Vision for Cycling in London in 2013 to transform cycling in London by spending £913 million (HK\$9,176 million) on cycling lanes, bicycle parks and road improvements over the next 10 years²⁷. Incumbent Mayor Sadiq Khan sets out the target of increasing the mode share²⁸ for cycling to at least 5% by 2026 in the current London Plan 2016²⁹. In order to achieve this target, developments in all parts of London should meet the minimum standards for cycle parking facilities set out in the London Plan 2016³⁰. In addition to the efforts made by successive Mayors³¹, the Transport for London ("TfL"³²) has been actively promoting cycling as an integral part of London's transport

²⁷ The 10-year plan included constructing a connected network of cycle routes across London, improving cycling safety at junctions, and encouraging more people travelling by bicycle.

²⁸ Mode share can be defined as the share of people using a particular mode of transport (including cycling and walking) within the overall transport usage of an urban area.

²⁹ The London Plan 2016 is a strategic plan that maps out an integrated economic, environmental, transport and social framework for the development of London over the next 20 to 25 years.

³⁰ For example, a minimum of one short-stay cycle parking space for every 40 units must be provided for residential developments in London.

³¹ Boris Johnson's predecessor, Ken Livingstone, also sought to improve cycling conditions in London. Measures proposed included developing a network of routes for cyclists and introducing a bicycle-sharing programme similar to the Vélib system in Paris.

³² TfL was established in 2000 as a local government body responsible for London's transport system. Its role is to implement the Mayor's Transport Strategy and manage transport services across London.

system. TfL considers cycling a "very cost-effective form of mass transit" and sets out a vision of achieving 1.5 million daily bicycle trips by 2026 that doubles the figure in 2016.

4.2 As a result, London has seen increased provision of new cycling infrastructures on streets over the past decade or so. Over 130 000 bicycle parking spaces had been delivered by TfL and its delivery partners between 2008 and 2016.³³ London has also developed a series of new cycle networks, including Cycle Superhighways and Quietways, to cater for different cyclists. Cycle Superhighways are segregated cycle routes on main roads, designed to give more experienced cyclists a quicker way from outer London into and across central London. For Quietways, they are largely un-segregated routes on lower traffic backstreets across London and target less experienced cyclists or those who want to cycle at a slower pace.

4.3 According to the Mayor's Transport Strategy³⁴, making cycling easy and convenient for everyone is also about making it as simple as possible to get access a cycle. The Cycle Hire Scheme³⁵ – a docked bicycle-sharing programme – was launched by TfL in July 2010 to make cycling more accessible, thereby broadening the appeal of cycling in London.

Docked bicycle-sharing programme

4.4 The Cycle Hire Scheme is a public self-service bicycle-sharing programme aiming to provide people with an inexpensive and convenient way of making short trips around London. At any time of the day or night, users can hire a bicycle from one of London's hundreds of docking stations and return it to any docking station for a fee³⁶. Docking stations are typically about 400 m apart, located off main roads, near tourist attractions, in parks, and at underground and overground railway stations.

³³ See London Assembly Transport Committee (2018a).

³⁴ See Greater London Authority (2018).

³⁵ It is also known as the "Santander Cycles" after its current sponsor. Previously, it was called "Barclays Cycles" after its former sponsor. The scheme was also commonly referred to as the "Boris Bike" after the former Mayor Boris Johnson at the time the scheme was launched.

³⁶ It costs £2 (HK\$20) to access the bicycles for 24 hours, and the first 30 minutes of each journey are free. Longer journeys cost £2 (HK\$20) for each extra 30 minutes. In other words, a rider can use a bicycle as many times as he or she likes for free and only pays the £2 (HK\$20) access charge as long as each journey is under 30 minutes.

4.5 The Cycle Hire Scheme is currently operated by a service company for TfL. The service contractor provides and maintains shared bicycles, and distributes them between docking stations to maximize their availability to users. The scheme is financed by incomes from the scheme, government subsidy and private sponsorship³⁷. According to the latest information available³⁸, it incurred a total operating expenditure of £21.35 million (HK\$214.57 million) in 2016-2017, which was covered by customer income (51.5%), private sponsorship (29.9%), funding from TfL (17.0%) and other income (1.6%).

4.6 At its launch in 2010, the Cycle Hire Scheme comprised a mere 5 000 bicycles located at 315 docking stations throughout central London. The scheme has extended to all areas of London since then, and there are now 750 docking stations and 11 500 bicycles in circulation across London. In 2017, more than 10.3 million journeys were made using the scheme, nearly five times the number of journeys in 2010.

Dockless bicycle-sharing programmes

4.7 In July 2017, seven years after the launch of the Cycle Hire Scheme, a private operator introduced the first dockless bicycle-sharing services in east London. Since then, several similar services have been operating in different boroughs of London. Currently, two of the most active operators together provide an estimated 7 000 bicycles in different boroughs of London.

4.8 While acknowledging the potential of dockless bicycle-sharing system to make cycling more accessible and attractive to people in London, TfL considers it essential that any bicycle hire initiatives do not have a negative impact on other cyclists, road users and pedestrians or result in unlawful highway obstruction. Yet, there have been reports of disruptions of dockless bicycles to street environments, e.g. bicycles were left in inappropriate places, blocking pedestrians and other road users³⁹.

³⁷ TfL signed a seven-year sponsorship contract with Santander in 2015. The contract gives the sponsor exclusive naming rights in return for its contribution of (a) a £6.25 million (HK\$62.81 million) annual fee and (b) a £1 million (HK\$10.05 million) a year "activation fund" to attract more members and encourage greater use of the bicycle, particularly among families.

³⁸ See Transport for London (2018a).

³⁹ See London Assembly Transport Committee (2018b).

4.9 In September 2017, TfL in collaboration with London's boroughs issued a code of practice for dockless bicycle-sharing services with a variety of requirements governing the operators. For example, service operators must ensure that their bicycles will not cause nuisance or obstruction through the use of geo-fencing or other means. They are also subject to other requirements such as:

- (a) meeting safety standards for their bicycles and having robust maintenance regimes;
- (b) promptly removing any bicycles causing an obstruction;
- (c) sharing anonymized trip data with highway authorities to help them enhance the cycling network; and
- (d) offering 24-hour communication channels for customers, including a telephone number.

4.10 In addition to the code of practice, some boroughs also require dockless bicycle sharing operators to enter into MoUs which set out in detail the way in which the operators roll out their services.⁴⁰ Nevertheless, the London Assembly Transport Committee calls for establishment of a tougher licensing system to regulate the bicycle-sharing market. According to the committee, the number of operators should be set in order to allow for competition while avoiding an excessive number of unused bicycles being left to clutter pavements and roads. Meanwhile, London Councils⁴¹ is also exploring the potential for a London-wide byelaw that would enable the licensing of dockless bicycle-sharing operators, in recognition of the current lack of regulatory powers for local authorities to regulate dockless bicycle-sharing services.

⁴⁰ According to Financial Times (2018), some operators had reportedly called for a London-wide permit so as to avoid time-consuming negotiations with each of London's 32 boroughs.

⁴¹ London Councils is a cross-party organization that represents London's 32 borough councils and the City of London.

5. Bicycle-sharing system in Taipei

5.1 Taipei has prided itself on being an environmentally friendly city, with the vision to develop a green and shared transport system characterized by the integration of various transport modes to boost mobility. In particular, walking and cycling are promoted as the first mile and last mile connection to public transport modes.

5.2 In recent years, the Taipei government has introduced a number of measures to facilitate cycling, including the implementation of a public bicycle-sharing service known as "YouBike" to encourage more people to use bicycles as short-distance transit vehicles. New cycling infrastructures have also been added onto the streets to promote and encourage more people to cycle. For example, Taipei's total length of cycling network more than doubled from 120 km in 2009 to the current 391 km, comprising 87 km of dedicated bicycle lanes and 304 km of dual-use pavement allowing cyclists to share the lanes with pedestrians. There were also 39 743 bicycle parking lots at end-2017, increasing visibly from 17 770 at end-2009.

5.3 Most recently, Taipei's Department of Transportation released the White Paper on Transportation Policy of Taipei (臺北市交通政策白皮書) in February 2018 setting out, among other things, a target of increasing the mode share for green transport from 60.4% in 2016 to 66.8% in 2020. Another target is to increase the number of bicycles rented through YouBike from 18.4 million times to 25.0 million times over the same period.

Docked bicycle-sharing system

5.4 In Taipei, YouBike operates an electronic unmanned automated management system that enables users to rent a bicycle from a docking station and return it to another for a fee. Launched in 2009, YouBike initially saw small number of daily users due to the lack of both bicycles for rent and docking stations to return the bicycles. This prompted the Taipei government to tender for a new contractor in 2011, and signed a seven-year build-operate-transfer contract at NT\$268 million (HK\$70 million) with a bicycle manufacturer in the same year.

5.5 Under the contract, the service contractor is responsible for operating the bicycle-sharing programme, which includes installing docking stations, providing bicycles, redistributing bicycles from a full station to empty stations and providing customer services. YouBike turned around in 2013 and has made profit since then, attributable to improvement measures such as lowering the bicycle rental rates and adding more docking stations and bicycles near MRT⁴² stations and bus stops.

5.6 Currently, YouBike offers the first and last mile connection to MRT, which has been the backbone of Taipei's transport system with the support of extensive bus services. There are now 400 docking stations and some 13 100 bicycles in circulation across Taipei, and many docking stations are located by MRT lines and major trip generation spots (e.g. bus stops and tourist destinations)⁴³. Coupled with the low cost of renting a YouBike bicycle⁴⁴, the number of bicycles rented through YouBike increased to a high of 22 million times in 2017. The figure represents a significant increase from about one million times in 2012 when YouBike was overhauled with the plan of adding more docking stations and bicycles.

Dockless bicycle-sharing programme

5.7 The booming bicycle-sharing market attracted the entry of the first dockless bicycle-sharing operator into Taipei in April 2017, and the number of its dockless bicycles had reportedly totaled 7 000 one year after commencing operation⁴⁵. Similar to the cases of Singapore and London, the introduction of the dockless bicycle-sharing programme in Taipei has brought with it the issue of illegal or prolonged occupation of public bicycle parking spaces by dockless bicycles.

⁴² Taipei MRT, also known as Taipei Mass Rapid Transit or Taipei Metro, is a rapid transit system serving the metropolis Taipei and New Taipei City.

⁴³ According to the guidelines published by Taipei's Department of Transportation in 2015 (105 年公共自行車租賃站設置準則), docking stations installed from 2016 should be at least 100-450m apart from each other, preferably to be located close to MRT stations and bus stops.

⁴⁴ Currently, the standard rental rate is NT\$10 (HK\$2.6) per 30 minutes within the first four hours, NT\$20 (HK\$5.2) per 30 minutes for the next four to eight hours, and NT\$40 (HK\$10.4) per 30 minutes after the first eight hours. Taipei's city government subsidizes half of the cost of the first 30 minutes of every trip, meaning that users actually pay NT\$5 (HK\$1.3) to rent the bicycles for the first 30 minutes.

⁴⁵ See 《聯合報》(2018).

5.8 Currently, there is no specific regulatory regime for dockless bicycles in Taipei, which are regulated together with docked bicycles by the existing regulations and legislation. For example, the Road Traffic Management and Penalty Act (道路交通管理處罰條例) sets out provisions regulating the slowing-moving vehicles that include pedal-powered bicycles like docked and dockless bicycles. Likewise, docked and dockless bicycle operators alike are required by the Ministry of Transportation and Communications to set out mandatory provisions in their bicycle rental terms and conditions.⁴⁶ Operators that do not comply with the requirement may face a fine of up to NT\$300,000 (HK\$78,600).

5.9 In addition, the Regulations Governing Road Traffic Safety (道路交通安全規則) requires cyclist to park in the bicycle racks and designated parking areas. In locations where no parking spaces are allocated for bicycles, riders can park their bicycles in the scooter parking spaces. Yet, there have been complaints of dockless bicycles taking up the already scarce scooter parking space in Taipei. Against this, Taipei's Department of Transportation reached an agreement with a dockless operator⁴⁷ in mid-2017, under which the latter will remove its bicycles within an hour if they are illegally parked or staying for prolonged period in the public parking spaces. A tougher rule subsequently came into force in August 2017 with eight districts in Taipei prohibiting bicycles from being parked in paid parking lots for scooters and requiring violators to pay a towing fee.

5.10 Most recently, the Taipei City Shared Modes Industry Management Regulations (臺北市共享運具經營業管理自治條例) was passed in August 2018 requiring both docked and dockless bicycle-sharing operators to obtain a permit to operate their services. The permit scheme is set to commence as early as November 2018, creating a set of rules to regulate the operators through measures such as designated service areas, requirement for payment of permit fees and security deposits, a cap on the number of vehicles deployed, and fines and penalties for violations⁴⁸.

⁴⁶ These provisions aim to protect consumer interests and avoid disputes between consumers and operators, covering items such as rental rates and charging methods, coverage of insurance, age and height requirements for users, and duty to comply with the relevant traffic regulations. See Bicycle Rental Finalization Contract (自行車租賃定型化契約應記載及不得記載事項).

⁴⁷ Taipei has so far only one privately-funded dockless bicycle-sharing operator in the city.

⁴⁸ Operators may be liable to a fine of up to NT\$100,000 (HK\$26,200) or revocation of permit for breach of the provisions.

6. Concluding remarks

6.1 Cycling is increasingly recognized as a sustainable mode of transport which offers environmental benefits for the cities that promote it. All the overseas places studied have adopted transport policies that promote the use of bicycles in urban areas, particularly as a convenient and affordable means to make short trips and provide the first mile and last mile connection to public transport modes. In Hong Kong, the Government has committed to providing a bicycle-friendly environment. However, it does not encourage the public to use bicycles as a mode of transport in urban areas due to road safety considerations.

6.2 All the overseas places studied have committed to improving their cycle tracks and bicycle parking facilities in urban areas in an effort to facilitate cycling. For example, London and Taipei have each built a comprehensive cycling network with dedicated bicycle lanes, while Singapore has committed to extend its cycling path citywide from 230 km in 2013 to over 700 km by 2030. Taipei also more than doubled its bicycle parking lots over the past decade or so. In comparison, the Hong Kong Government has focused on carrying out improvement works in nine new towns in the New Territories, featuring building more public bicycle parking spaces and additional safety facilities at some sharp bends, steep ramps and pedestrian crossings.

6.3 All the overseas places studied have made use of bicycle-sharing system to make it as simple as possible for people to get access to a bicycle, thereby further broadening the appeal of cycling. Taipei and London introduced a publicly-funded docked bicycle-sharing system in 2009 and 2010 respectively. They have experienced increased popularity of bicycle-sharing services in recent years, thanks to the low cost of renting a shared bicycle and the practice of locating docking stations along the transport stations. In contrast, there is no publicly-funded docked bicycle-sharing system in Singapore and Hong Kong, and shared bicycles have been provided by private dockless bicycle-sharing operators in these two cities.

6.4 All the overseas places studied saw the launch of dockless bicycle-sharing services in 2017. While dockless bicycles allow riders greater convenience, the operation of dockless bicycle-sharing system is not without problems. Of particular concern is the indiscriminate parking of dockless bicycles in public places that causes obstruction to pedestrians and other road users. Similar to Hong Kong, all the overseas places studied have implemented one or more of the following measures to address the obstruction caused by the shared bicycles: issuing a code of practice, entering into MOUs with service operators, and/or stepping up enforcement actions. They have also planned for or implemented a licensing regime to regulate the operation of dockless bicycle-sharing services with the objective of enabling dockless bicycles to grow in a sustainable manner and maximizing benefits of it.

6.5 London Councils is exploring the potential for a London-wide byelaw that would enable the licensing of dockless bicycle-sharing operators. Singapore has moved ahead with the adoption of a licensing system in October 2018 to regulate dockless bicycle-sharing operators. Likewise, Taipei plans to introduce a permit system in November 2018 under which both docked and dockless bicycle-sharing operators are required to obtain a permit to operate their services.

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References

Hong Kong

1. GovHK. (2017) *Press Releases – LCQ5: Automated bicycle rental service and "bicycle-friendly" policy* 21 June. Available from: <http://www.info.gov.hk/gia/general/201706/21/P2017062100604.htm> [Accessed October 2018].
2. GovHK. (2018) *Press Releases – LCQ20: Automated bicycle rental service.* 7 February. Available from: <https://www.info.gov.hk/gia/general/201802/07/P2018020700333.htm> [Accessed October 2018].
3. Transport and Housing Bureau. (2018) *Replies to initial written questions raised by Finance Committee Members in examining the Estimates of Expenditure 2018-19.* Available from: https://www.legco.gov.hk/yr17-18/english/fc/fc/w_q/thb-t-e.pdf [Accessed October 2018].
4. 運輸署：《無樁式自助單車租賃業務守則》，2018 年 8 月，大埔區議會文件 WGRSC 7/2018 號，網址：https://www.districtcouncils.gov.hk/tp/doc/2016_2019/tc/working_group_s_doc/WGRSC/15530/WGRCS_2018_7.pdf [於 2018 年 10 月登入]。

Singapore

5. Gov.sg. (2018) *Fostering a culture of safe and civic-minded riding.* Available from: <https://www.gov.sg/microsites/budget2018/press-room/news/content/fostering-a-culture-of-safe-and-civic-minded-riding> [Accessed October 2018].
6. Land Transport Authority. (2014) *Share a Bicycle by 2015.* Available from: <https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=8d332453-27e8-48bc-9dc5-36c39bfc8773> [Accessed October 2018].

7. Land Transport Authority. (2017a) *A Cycling-friendly city*. Available from: <https://www.lta.gov.sg/content/ltaweb/en/walk-cycle-ride/integrating-cycling-with-public-transport.html> [Accessed October 2018].
8. Land Transport Authority. (2017b) *MOU with Bicycle Sharing Operators to Reduce Public Disamenities and Improve Safety*. Available from: https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=cfebb3c1-a765-4d70-a9af-7cbe79648c4e#_ftn1v [Accessed October 2018].
9. Land Transport Authority. (2017c) *Non-Award of Bicycle-Sharing Tender*. Available from: <https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=ea2e677b-262f-48f6-9a54-50e7494eb161> [Accessed October 2018].
10. Land Transport Authority. (2018) *First Reading of the Parking Places (Amendment) Bill*. Available from: <https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=d35fdfa6-6cfb-477d-ac12-c93aa5a6a78f> [Accessed October 2018].
11. Lim, A. (2018) Shared-bicycle operators to be licensed to curb indiscriminate parking. *The Straits Times*. 5 March. Available from: <https://www.straitstimes.com/singapore/transport/shared-bicycle-operators-to-be-licensed-to-curb-indiscriminate-parking> [Accessed October 2018].
12. Ministry of Transport. (2018a) *Cycling Oral Reply by Senior Minister of State for Transport Dr Janil Puthuchearu to Parliamentary Questions on Steps Taken on oBike's exit from Singapore's market*. Available from: <https://www.mot.gov.sg/news-centre/news/Detail/oral-reply-by-senior-minister-of-state-for-transport-dr-janil-puthuchearu-to-parliamentary-questions-on-steps-taken-on-obike-s-exit-from-singapore-s-market> [Accessed October 2018].

13. Ministry of Transport. (2018b) *Parking Places (Amendment) Bill Second Reading Opening Speech by Senior Minister of State Dr Lam Pin Min*. Available from: [https://www.mot.gov.sg/news-centre/news/Detail/parking-places-\(amendment\)-bill-second-reading-opening-speech-by-senior-minister-of-state-dr-lam-pin-min/](https://www.mot.gov.sg/news-centre/news/Detail/parking-places-(amendment)-bill-second-reading-opening-speech-by-senior-minister-of-state-dr-lam-pin-min/) [Accessed October 2018].
14. Ministry of Transport. (2018c) *Speech by Senior Minister of State for Transport and Health, Dr Lam Pin Min, at the Ministry of Transport's Committee of Supply Debate 2018*. Available from: <https://www.mot.gov.sg/news-centre/news/Detail/speech-by-senior-minister-of-state-for-transport-and-health-dr-lam-pin-min-at-the-ministry-of-transport-s-committee-of-supply-debate-2018> [Accessed October 2018].
15. Ministry of Transport. (undated) *Cycling*. Available from: <https://www.mot.gov.sg/About-MOT/Land-Transport/Cycling/> [Accessed October 2018].
16. *Parking Places Act*. (1974) Available from: <https://sso.agc.gov.sg/Act/PPA1974> [Accessed October 2018].
17. UN Environment. (2016) *Global Outlook on Walking and Cycling 2016*. Available from: <http://wedocs.unep.org/bitstream/handle/20.500.11822/17030/globalOutlookOnWalkingAndCycling.pdf?sequence=1&isAllowed=y> [Accessed October 2018].
18. Urban Redevelopment Authority. (2017) *Cycling for All*. Available from: <https://www.ura.gov.sg/Corporate/Planning/Master-Plan/Key-Focuses/Transport/Cycling-for-All> [Accessed October 2018].

London

19. Financial Times. (2018) *Dockless bike companies want right to operate across London*. 3 June. Available from: <https://www.ft.com/content/1feac6c6-65af-11e8-90c2-9563a0613e56> [Accessed October 2018].

20. Greater London Authority. (2013) *The Mayor's Vision for Cycling in London*. Available from: https://www.london.gov.uk/sites/default/files/cycling_vision_gla_template_final.pdf [Accessed October 2018].

21. Greater London Authority. (2015) *Review of cycle hire scheme as Santander sign sponsorship deal*. Available from: <https://www.london.gov.uk/press-releases/assembly/cycle-hire-scheme> [Accessed October 2018].

22. Greater London Authority. (2018) *Mayor's Transport Strategy*. Available from: <https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf> [Accessed October 2018].

23. London Assembly Transport Committee. (2018a) *London's cycling infrastructure*. Available from: https://www.london.gov.uk/sites/default/files/londons_cycling_infrastructure_0.pdf [Accessed October 2018].

24. London Assembly Transport Committee. (2018b) *Future transport: How is London responding to technological innovation?* Available from: https://www.london.gov.uk/sites/default/files/future_transport_report_-_final.pdf [Accessed October 2018].

25. London Council. (2018) *London Council's TEC Executive Sub Committee*. 19 July. Available from: <https://www.londoncouncils.gov.uk/download/file/fid/22920> [Accessed October 2018].

26. Mayor of London. (2017) *The London Plan 2016*. Available from: <https://www.london.gov.uk/what-we-do/planning/london-plan/current-london-plan/london-plan-2016-pdf> [Accessed October 2018].

27. Transport for London. (2015a) *Cycling Portfolio Update – Delivering the Mayor's Vision for Cycling*. Available from: <http://content.tfl.gov.uk/stp-20151022-part-1-item07-mayors-cycling-vision.pdf> [Accessed October 2018].

28. Transport for London. (2015b) *Developer Guidance*. Available from: <http://content.tfl.gov.uk/developer-guidance-for-santander-cycles.pdf> [Accessed October 2018].
29. Transport for London. (2017) *Dockless Bike Share Code of Practice for Operators in London*. Available from: <http://content.tfl.gov.uk/dockless-bike-share-code-of-practice-september-2017.pdf> [Accessed October 2018].
30. Transport for London. (2018a) *Cycle hire performance*. Available from: <https://tfl.gov.uk/corporate/publications-and-reports/cycle-hire-performance> [Accessed October 2018].
31. Transport for London. (2018b) *Santander Cycles*. Available from: <https://tfl.gov.uk/modes/cycling/santander-cycles> [Accessed October 2018].

Taipei

32. Department of Transportation, Taipei City Government. (2015) *Public Bike Sharing System in Taipei*. Available from: http://www.openreport.taipei.gov.tw/OpenFront/report/show_file.jsp?sysId=C104AW911&fileNo=2 [Accessed October 2018].
33. *YouBike*. (2018) Available from: <https://www.youbike.com.tw/intro.html> [Accessed October 2018].
34. 消費者保護處：《自行車租賃定型化契約應記載及不得記載事項》，2017年5月11日，網址：<https://www.ey.gov.tw/Page/DFB720D019CCCB0A/dd42e492-7262-413d-b8d6-039a4640ad55> [於 2018 年 10 月登入]。
35. 《退燒？北宜花 oBike 大減上千台》，《聯合報》，2018年6月21日，網址：<https://udn.com/news/story/11322/3211810> [於 2018 年 10 月登入]。

36. 臺北市政府交通局：《105 年公共自行車租賃站設置準則》，2015 年，網址：<https://www-ws.gov.taipei/Download.ashx?u=LzAwMS9VcGxvYWQvMzkwL3JlbGZpbGUvMTk3MjYxMzMyNzEwMS82ODgxNjEzNTM3MS5wZGY%3d&n=Njg4MTYxMzUzNzEucGRm&icon=.pdf> [於 2018 年 10 月登入]。
37. 臺北市政府交通局：《公共自行車(YouBike)》，2018 年，網址：https://www.dot.gov.taipei/Content_List.aspx?n=3148437F6CE9C1F0 [於 2018 年 10 月登入]。
38. 臺北市政府交通局：《市府對 oBike 之停車管理作為》，2018 年 8 月 6 日，網址：https://www.dot.gov.taipei/News_Content.aspx?n=D739A9F6B5C0AB95&s=CDA33DE8245023E4 [於 2018 年 10 月登入]。
39. 臺北市政府交通局：《臺北市交通政策白皮書》，2018 年 2 月，網址：<https://www-ws.gov.taipei/Download.ashx?u=LzAwMS9VcGxvYWQvMzkwL3JlbGZpbGUvMTc5MTQvMTA2Njc5LzU2NTI5ZTk3LTZlMWEtNDIyMi04ZDgzLTAYnZg3YjEwZWV4Zi5wZGY%3d&n=6le65YyX5biC5Lqk6YCa5pS%2f562W55m955qu5pu4LnBkZg%3d%3d&icon=..pdf> [於 2018 年 10 月登入]。
40. 臺北市政府交通局：《臺北市對 oBike 營運及車輛投放管理作為》，2017 年 7 月 10 日，網址：<http://tcgwww.taipei.gov.tw/ct.asp?xItem=318422811&ctNode=82924&mp=108051M> [於 2018 年 10 月登入]。
41. 臺北市政府法務局：《制定「臺北市共享運具經營業管理自治條例」》，2017 年 10 月 27 日，網址：<http://www.laws.taipei.gov.tw/flowchart/wfStatusList.aspx?id=2173> [於 2018 年 10 月登入]。
42. 臺北市停車管理工程處：《本市現有自行車停車位數量統計》，2018 年 7 月 31 日，網址：<https://pma.gov.taipei/News.aspx?n=4607259A307FB982&sms=DEC2983A6B9900CF> [於 2018 年 10 月登入]。

43. 臺北市審計處：《臺北市公共自行車租賃系統建置及營運管理計畫執行情形專案審計報告》，2017年6月，網址：<https://www.audit.gov.tw/p/405-1000-3599,c158.php?Lang=zh-tw> [於2018年10月登入]。

Others

44. Feng, T. (2013) Analysis on Public Bicycle Traffic Characteristic. *Advanced Materials Research*, Vols. 694-697, pp. 3306-3309. Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.825.8006&rep=rep1&type=pdf> [Accessed October 2018].
45. Institute for Transportation & Development Policy. (2018) *The bike-sharing planning guide*. Available from: <https://www.itdp.org/publication/the-bike-share-planning-guide/> [Accessed October 2018].
46. International Transport Forum. (2018a) *Integrating Urban Public Transport Systems and Cycling*. Available from: https://www.itf-oecd.org/sites/default/files/docs/integrating-urban-public-transport-systems-cycling-roundtable-summary_0.pdf [Accessed October 2018].
47. International Transport Forum. (2018b) *The safety of bike share systems*. Available from: <https://www.itf-oecd.org/sites/default/files/docs/safety-bike-share-systems.pdf> [Accessed October 2018].
48. Russell Meddin. (2018) *The Bike-sharing World Map*. Available from: www.bikesharingmap.com [Accessed October 2018].