

**For discussion
on 21 May 2021**

Legislative Council Panel on Transport

Proposed Regulatory Framework for Autonomous Vehicles

PURPOSE

This paper invites Members' views on the Government's preliminary proposal for establishing a new regulatory framework to provide favourable conditions for the long-term development of autonomous vehicles ("AVs") in Hong Kong.

BACKGROUND

2. With the promising advantages of enhancing road safety by eliminating human errors and optimising the use of limited road space, AV technologies have considerably advanced in recent years with various road trials being conducted worldwide. In Hong Kong, the facilitation of trials of AVs is one of our Smart Mobility initiatives mentioned in the Hong Kong Smart City Blueprint released by the Government in December 2017. The vision of materialising AV trials on public roads or even introducing autonomous driving for public transport was further set out in the Smart Mobility Roadmap for Hong Kong, published by the Transport Department ("TD") in July 2019.

Constraints of the Operation of AVs in Hong Kong

3. Under the existing regulatory framework, a motor vehicle must be classified, registered and licensed by TD under a particular vehicle class defined under the Road Traffic Ordinance (Cap. 374) ("RTO") if it is to be driven on roads. In this connection, RTO and its subsidiary legislation long serve to regulate conventional motor vehicles. As a matter of fact, the operation of RTO

and its subsidiary legislation, including many of the regulatory requirements, fundamentally presumes the presence of a human driver on board the vehicles at all times. While there is yet to be a universal definition adopted worldwide, AVs generally mean motor vehicles each equipped wholly or substantially with an autonomous system enabling the operation of the vehicle concerned without the active physical control of, or monitoring by, humans. AVs are normally not designed, constructed or operated following technical standards and even driving rules of conventional motor vehicles. As such, AVs cannot be registered and licensed in Hong Kong under the existing RTO framework.

4. Despite the above constraints, TD has been facilitating the trials of AVs by issuing Movement Permits in accordance with the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374E) (“RT(R)R”) since 2017. The authorisation of each AV trial is vetted on a case-by-case basis, and customised conditions are individually imposed and specified in each Movement Permit issued pursuant to RT(R)R. To provide guidance to organisations interested in conducting trials of AVs, TD issued in 2017 a “Guide on the Application for Movement Permit for Test, Trial and/or Demonstration of Autonomous Vehicles on Roads within Designated Sites in Hong Kong”. To allow interested organisations to safely conduct AV trials with due regard to the existing regulations, TD issued a new set of “Guidance Notes on Trials of Autonomous Vehicles” in December 2019 and a further updated version in December 2020. As at end April 2021, Movement Permits were issued to six organisations in respect of 11 AVs.

Limitations under the Existing Regulatory Regime

Vehicle Registration and Licensing

5. Pursuant to RT(R)R, the Movement Permit mentioned above should be issued to a vehicle which is not licensed and not normally used on roads, and is driven on roads only for the purpose of proceeding from one site to another (e.g. machineries for construction use driven on roads for the purpose of proceeding from one construction site to another), for a maximum period of 12 months. In other words, its applicability is limited and it is temporary in nature. We can so far manage to regulate AV trials by issuing Movement Permits.

However, as AV technologies mature over time, the design of AVs will be refined progressively to better meet market needs. Accordingly, we expect to see much wider application of AV technologies, and a continuous increase in the demand for using AVs in Hong Kong for the daily transportation purpose of carrying goods or passengers. In the long run, Movement Permits would no longer be the suitable and sustainable tool for facilitating the development of AV technologies or for regulating AVs, whether in their trial stage or not. Therefore, the regulatory regime has to be brought up-to-date to provide for the proper licensing of AVs.

Passenger Services

6. As mentioned above, under the existing regulatory regime, a motor vehicle must be registered and licensed as a particular vehicle class in order to be driven on roads. For non-franchised buses and light buses¹, Passenger Service Licence will additionally be required for providing passenger services. Yet, since vehicles issued with Movement Permits in general cannot be used to carry passengers, AVs driven on roads by virtue of Movement Permits are restricted from providing passenger services in Hong Kong. Given that the demand for using AVs to carry passengers will continuously increase in Hong Kong, a new regulatory framework for AVs is required for the purpose of allowing and regulating the provision of passenger services on AVs.

Obligations and Liabilities

7. Under the existing regulatory regime, the legal obligations and liabilities of drivers or vehicle owners are set out so as to ensure that vehicles on roads are driven with due regard to the safety of other road users. Yet, the operation of AVs under “driverless” mode is controlled by autonomous systems, which may render certain driver’s obligations and liabilities inapplicable. For current AV trials, all relevant obligations are set out as conditions imposed to the Movement Permits issued by TD, and penalties that are stipulated in RT(R)R (liable on conviction to a fine at level 1, i.e. \$2,000) rest on the Movement Permit holder (regardless of whether the holder is the vehicle owner or operator). For more robust and systematic regulation of AVs in the long run, we need to put in place a new regulatory regime setting out the obligations of different parties and

¹ Except non-school private light buses.

consequences in cases of violation, while customised conditions or requirements could still be specified for individual trials or uses of AVs as necessary.

PROPOSED REGULATORY REGIME

8. The new regulatory framework to be put in place by the Government would enable the wider trial and use of AVs, with a view to paving the way for the long-term development of AVs in Hong Kong. TD set up in November 2019 the Technical Advisory Committee on the Application of AV Technologies in Hong Kong (“the Committee”), which comprises stakeholders and experts from the AV trade, testing organisations and relevant research and development institutes². The Committee has been exploring support measures to promote the development of AV technologies, including the suitable regulatory framework for Hong Kong.

9. Given that AV technologies are still evolving, widely-accepted and comprehensive international standards in this regard have yet to emerge. Thus, it does not appear practicable for the Government to codify all the detailed technical and operational requirements at the current juncture. As a pragmatic first step, we plan to establish a regulatory regime that is flexible enough to embrace changes in AV technologies and allow the adoption of AVs as a new mode of transportation, at the same time ensuring public safety. In the long run, when AV technologies become more mature and when applicable international standards become available, we will further amend and refine the relevant legislation with reference to relevant developments.

10. It is thus proposed that the new regulatory framework be set up through creating a new piece of subsidiary legislation under RTO. Apart from adding definitions relating to the use of AVs into RTO, the new subsidiary legislation would specify the major provisions as set out in the ensuing paragraphs.

² Members include the Applied Science and Technology Research Institute, Hong Kong Productivity Council, Hong Kong Science and Technology Parks Corporation, Cyberport among others.

Creation of a New Licensing Regime

11. Under the new framework, anyone who would like to trial or use AVs or AV systems on certain roads will need to obtain an operation licence from the Commissioner for Transport (“Commissioner”), and each AV can be put on trial or use on roads only if it has been examined and issued with a permit. Besides specifying the procedures for applying for authorisation, the new subsidiary legislation will also cover requirements on insurance coverage, record keeping, incident reporting and investigation, obligations of different parties and consequences in cases of violation of the requirements specified under the legislation and the relevant licence or permit, etc. Applications for the operation licence or AV permit shall be considered by TD on a case-by-case basis, and authorisation would only be granted if requirements with respect to the vehicle design and construction, operation and maintenance, insurance, cybersecurity, etc. can be complied with.

12. This new licensing regime would allow the trials and uses of licensed AVs to be conducted on unfixed routes if safety and traffic conditions permit. Subject to the regular examination of AVs concerned, the new regime would also allow the trials and uses of AVs for a longer period than that allowed under the existing regime of Movement Permits.

Exemption Power

13. Even with the new licensing regime put in place, the existing provisions of RTO and its subsidiary legislation would still be applicable to AVs, and some of them may hinder the trials and uses of AVs in Hong Kong. For example, the driving rules specified in Regulation 44 of the Road Traffic (Traffic Control) Regulations (Cap. 374G) prohibit driver from vacating the vehicle without stopping the engine and applying parking brake. Accordingly, the driver may not get off an AV before switching its operation from manual mode to autonomous mode without first applying the parking brake and switching off the engine. In addition, the requirement of Passenger Service Licence or other relevant licences under the Road Traffic (Public Service Vehicles) Regulations (Cap. 374D) (“RT(P)R”) also renders the provision of passenger services on AVs legally impossible.

14. Therefore, we propose making legislative amendments to empower the Commissioner to exempt any person or AV from certain provisions of RTO and its subsidiary legislation³, on the condition that these provisions will continue to regulate conventional motor vehicles and their drivers. Exemption would be granted on a case-by-case basis and the applicants may be required to implement measures and / or fulfill certain conditions attached to the operation licence and / or the AV permits to be issued to ensure road safety.

Code of Practice

15. In addition, RTO shall be amended such that the Commissioner will be empowered to issue and revise a Code of Practice, which is administrative in nature, to illustrate to the industry the detailed technical and operational requirements for the trials and uses of AVs on matters such as vehicle design and construction, cybersecurity, vehicle maintenance, training, record-keeping, etc. In other words, the new subsidiary legislation will set out the general parameters for the trials and uses of AVs (see paragraph 11 above), while the Code of Practice will set out the detailed procedures and requirements under those parameters⁴. TD will keep abreast of the latest development of AV technologies and update the Code of Practice from time to time as necessary. The Commissioner may reject any applications for the trials or uses of AVs if any provisions of the Code of Practice are not complied with.

Offences and Penalties

16. For more effective regulation of the trials and uses of AVs as well as road safety, the new subsidiary legislation will also specify the legal obligations of AV operators and relevant licence and permit holders, as well as the relevant offences and penalties (e.g. failure to maintain the AVs concerned). Besides, it will be made an offence for any person who hinders or obstructs an

³ For example, the Commissioner may allow the carriage of passengers on an AV with relevant licence and permit by exempting the AV concerned from the relevant provisions under RT(P)R which require a Passenger Service Licence or other relevant licences for providing passenger services.

⁴ Similar arrangements are also found in RTO. For example, the Commissioner may issue, and from time to time revise a Code of Practice setting out practices and procedures to be followed and specifying the equipment to be used at car testing centres.

authorised AV trial or use, or interferes with any equipment/device of AVs under trial or use.

STAKEHOLDER CONSULTATION

17. TD has consulted the Committee on the proposed regulatory framework for AVs at the Committee's quarterly meetings. Committee members supported our proposals, which were considered to be beneficial to the development of AVs in Hong Kong. We will further consult the Committee as we draw up the detailed regulatory framework down the road.

WAY FORWARD

18. The Government is working on the details of the legislative amendments with relevant stakeholders. We aim at introducing the Bill into the Legislative Council in 2022, and Members will be consulted on the detailed legislation proposal before the introduction.

ADVICE SOUGHT

19. Members' views are invited on the preliminary proposal for establishing a new regulatory framework for promoting the development of AVs in Hong Kong.

**Transport and Housing Bureau
Transport Department
May 2021**