LCQ18: Development and application of artificial intelligence

Following is a question by the Hon Elizabeth Quat and a written reply by the Secretary for Innovation, Technology and Industry, Professor Sun Dong, in the Legislative Council today (January 24):

Question:

Regarding the development and application of artificial intelligence (AI), will the Government inform this Council:

(1) given that the Government advocates the development of a smart city and a smart government, whether the Government will further promote the introduction of AI into and its application in public services by government departments; if so, of the details; if not, the reasons for that;

(2) as the 2023 Policy Address has proposed to further strengthen the promotion of STEAM (Science, Technology, Engineering, the Arts and Mathematics) education in primary and secondary schools, of the measures the Government has put in place to further strengthen the research and education work on AI and enhance teachers' and students' knowledge and application of AI, e.g. introducing into primary and secondary schools courses on teaching the use of ChatGPT or other AI tools or introducing AI to assist in day-to-day teaching and learning, so as to help analyse students' performance and provide targeted support, thereby enhancing the effectiveness of teaching and learning, etc;

(3) as there are views pointing out that the pictures or contents generated by AI can pass off as genuine, or may cause hidden information security hazards such as information leakage and fabricated contents, and in reply to a question raised by a Member of this Council on May 31 last year, the Government indicated that it would closely monitor the technological advancement, application and development of AI in Hong Kong with a view to making appropriate responses, of the progress of the relevant work;

(4) as the Government has stated in the Policy Statement on Facilitating Data Flow and Safeguarding Data Security in Hong Kong (Policy Statement) that it will study amending the Personal Data (Privacy) Ordinance (Cap. 486) to strengthen personal data protection and address the challenges posed by cyber technologies, how the Government strikes a balance between protecting personal data and facilitating the healthy development of generative AI technologies;

(5) as there are views that the data sources of generative AI technologies come from their training datasets with contents almost covering all human digitised information that can be collected, which may give rise to intellectual property issues, and the Government has stated in the Policy Statement that it will explore enhancing the protection afforded by the

Copyright Ordinance (Cap. 528) to the development of AI technologies, of the progress of the relevant work; and

(6) as the United States has expanded its restrictions on the export of high-end chips to China and Hong Kong can no longer be supplied with high-end computing chips, of the measures the Government has put in place to expedite the promotion of the development of the local technology ecology and local talents, so as to ensure the risk-resistant capacity and long-term competitiveness of Hong Kong's innovation and technology as well as research and development in the Mainland and global markets in the next few years?

Reply:

President,

In response to Hon Elizabeth Quat's question, in consultation with the Education Bureau (EDB), the Security Bureau, the Constitutional and Mainland Affairs Bureau and the Commerce and Economic Development Bureau, my reply is as follows:

(1) The Government has been actively applying artificial intelligence (AI) technology to promote the development of smart city and digital government. The Office of the Government Chief Information Officer (OGCIO) has formulated the Ethical AI Framework to provide government bureaux and departments (B/Ds) with guidelines on implementing projects that involve the use of AI technology. In view of the latest development of generative AI, the OGCIO has updated the Ethical AI Framework in August 2023 to provide clearer guidelines to B/Ds on developing applications with AI-related technologies. The OGCIO also launched the big data analytics platform in 2020 to promote B/Ds' use of technologies such as AI and big data analytics more efficiently and cost-effectively for the implementation of more e-government service projects for the convenience and benefit of the public and the business sector.

So far, a number of e-government services projects have applied AI technologies. For example, the OGCIO and the Transport Department jointly developed the "Traffic Data Analytics System" to apply big data analytics to various traffic, transport and weather data. The Lands Department and the Highways Department also used image analytics technology assisted by AI in 2021 to mask human faces and car plates in street view images used internally for privacy protection.

To further expedite the development of smart city and digital government, the OGCIO carried out the e-government audit from 2022 to review the information systems and services of B/Ds and recommend information technology (IT) initiatives leveraging advanced technologies (e.g. AI, blockchain, big data analytics, geospatial analytics) to enhance public services. The audit was completed in end-2023. B/Ds will progressively launch from this year onwards over a hundred of digital government and smart city initiatives including various initiatives involving AI, such as enhancing security in public cargo working areas by employing AI technology and enhancing the 1823 enquiry service through AI chatbot.

(2) To dovetail with the statement in the Chief Executive (CE)'s 2023 Policy Address to step up the promotion of STEAM education in primary and secondary schools, enhance students' interest and abilities in science and innovation and technology (I&T), as well as foster their creative thinking and problem solving skills, the EDB will continue to update school curricula, strengthen teacher training, and provide schools with resource support to promote I&T learning for all.

In respect of curriculum, the EDB has launched the "Module on AI for Junior Secondary Level" in mid-2023. The content of the curriculum covers topics on AI basics, AI ethics, computer vision, computer speech and language, AI and future of work, etc, which also includes the latest development of AI and generative AI ChatGPT. The EDB also launched the "Enriched Module on Coding Education for Upper Primary Level" to assist primary schools in planning and optimising the promotion of coding education so as to enhance students' computational thinking skills in a more systematic way. This will help primary school students further study the basics and applications of AI later in secondary schools. The above modules are launched for adoption by primary and secondary schools starting from this school year. Besides, the updated senior secondary Information and Communication Technology Curriculum, incorporating I&T topics (e.g. AI), has been implemented at Secondary Four since the 2022/23 school year with increased lesson time for the teaching of coding. The updated curricula above can help students understand the latest development and application of technology and IT, enabling them to make good use of I&T and IT to solve problems.

The EDB continues to organise professional development programmes (including workshops) for teachers, and will provide sufficient training places for schools to enable teachers to further master relevant teaching strategies, including strategies for assessing student learning. Besides, the EDB provides professional development programmes related to AI covering diversified topics, including the development of AI, strategic planning of applying AI in education, and application of AI tools in different subjects. The IT in Education Centre of Excellence Scheme of the EDB also provides training and on-site support services to schools, as well as shares with schools relevant good practices and successful experiences.

Besides, the Quality Education Fund of the EDB allocated $500 million for implementing e-Learning Ancillary Facilities Programme to facilitate in-depth and cross-sectoral collaboration among the school sector, tertiary institutions, educational bodies, and business sector to jointly develop and provide quality education e-learning ancillary facilities. A total of 22 projects are funded under the Programme, which have commenced at the beginning of the 2023/24 school year. These projects will deploy innovative technologies, including big data and AI, to enhance learning and teaching effectiveness in a wide array of subjects, as well as develop adaptive learning platforms with the use of data analysis to provide instant feedback to cater learner diversity and nurture students' self-directed learning capability. It is expected that by the end of the 2024/25 school year, the deliverables of some projects will be released for use by local schools.

AI technology may give rise to issues of concerns related to laws and

regulations, ethics, authenticity of information, privacy protection, intellectual property (IP) rights, addiction, excessive dependence, etc. In the light of the above, while strengthening IT and I&T education, we also attach great importance to establishing students' positive values and attitudes, and focus on cultivating students' media and information literacy in the digital technology era. Therefore, we provide schools with the "Information Literacy for Hong Kong Students" learning framework, and continue to strengthen the learning elements related to information literacy in primary and secondary school curricula, including the adding of ethical issues arising from the application of I&T in the updated learning framework announced in 2022, so as to teach students to refrain from unethical use of emerging and IT technologies. At the same time, we organise a series of teacher training courses and develop teaching materials to nurture students to become ethical users of IT.

Beyond the school curriculum, the OGCIO implements the "IT Innovation Lab in Secondary Schools" and "Knowing More About IT" programmes to provide funding support for secondary and primary schools respectively to organise extra-curricular activities related to IT, including AI-related courses, workshops and competitions, etc. As at mid-January 2024, the two programmes have supported about 4 400 activities organised by around 940 schools, with around 20 per cent of the activities involving AI.

(3) Internet is not an unreal world that is beyond the law. Under the existing legislation in Hong Kong, most of the laws enacted to prevent crimes in the real world are in principle applicable to the online world. There are various provisions in place under the existing legal framework to deal with the dissemination of untrue or inappropriate information. For instance, the Crimes (Amendment) Ordinance 2021 introduced the offences of publication or threatened publication of intimate images without consent. The offence is also applicable to intimate images that have been altered (including that altered by AI technology).

The development of AI (including generative AI technology) is evolving. The related technological development and application have brought changes to scientific research, teaching and various industries. Hence, the Government has commissioned the InnoHK research centre specialised in generative AI to study and suggest appropriate rules and guidelines on the accuracy, responsibility and information security in the technology and application of generative AI technologies. We will study the appropriate strategy and measures with reference to suggestions by industry experts, with a view to balancing the need to develop AI technology and safeguarding security, etc.

(4) The Personal Data (Privacy) Ordinance (PDPO) (Cap. 486) is a piece of legislation that is technology-neutral and principle-based. The provisions and principles on personal data protection therein apply equitably to any technical means of collecting, using, storing, retaining and transferring personal data. PDPO's regulation covers six personal data protection principles (i.e. purpose and means of personal data collection; accuracy, storage and retention of data; use of data; data security; transparency of data policies; and data access and correction), so as to ensure that the entire process of the handling of personal data is subject to legal

safeguards. These principles are in line with internationally-adopted standards. When organisations develop and use AI process personal data, they would have to comply with the relevant requirements and six Data Protection Principles under the PDPO.

The Office of the Privacy Commissioner for Personal Data (PCPD) published in 2021 the "Guidance on the Ethical Development and Use of Artificial Intelligence" (the AI Guidance), so as to help organisations understand and comply with the relevant requirements to protect personal data privacy under the PDPO when they develop and use AI. The AI Guidance incorporates recommended data stewardship values and ethical principles for AI, and provides practical guidance on AI strategy governance to help organisations devise appropriate AI strategy and management models, conduct risk assessments and devise relevant oversight arrangements, etc. The values and principles contained in the AI Guidance already reflect internationally recognised norms. Furthermore, the PCPD also proactively conducts compliance checks on the use of AI by organisations, and plans to publish the results of the compliance checks in the first quarter of this year.

The Government and the PCPD appreciate that the PDPO needs to keep pace with the times, so that it could provide appropriate protection for personal data privacy while at the same time contributing to Hong Kong's societal, economic and technology developments including AI. In fact, there is no inherent conflict between the development of AI and the protection of personal data privacy under the PDPO. The Government and the PCPD will actively make reference to the experience of other jurisdictions in promoting AI innovation with regard to the handling of personal data, including the studying of the relevant legal provisions, and the PCPD will review and update the AI Guidance as appropriate.

(5) The act of using others' IP for the development, training and enhancement of a generative AI system is regulated by the Copyright Ordinance (Cap. 528) and other relevant local IP laws (including the Patents Ordinance (Cap. 514), the Registered Designs Ordinance (Cap. 522) and the Trade Marks Ordinance (Cap. 559), if applicable). In this regard, if there is use of a work protected by copyright, the legal principles of the Copyright Ordinance currently in force is applicable to the relevant case. More specifically, the Copyright Ordinance expressly provides that a copyright owner has the exclusive right to do "acts restricted by copyright" in relation to his/her work, which includes copying his/her copyright work, communicating his/her copyright work to the public through any electronic means, and making an adaptation of his/her copyright work. Unless the relevant "act restricted by copyright" falls within the scope of exceptions specified in the Copyright Ordinance, any person who, without the consent of the copyright owner, does or authorises another to do the "act restricted by copyright" would infringe copyright, and may attract civil and/or criminal liabilities.

In view of the copyright issues arising from the rapid development of AI technology, the Government is studying the relevant issues and will conduct a consultation this year to explore further enhancement of the relevant protections provided by the Copyright Ordinance so as to ensure that Hong Kong's copyright regime remains robust and competitive.

(6) On the promotion of AI technology ecosystem, the CE announced in last year's Policy Address to expedite the establishment of AI Supercomputing Centre (AISC) to facilitate AI development. Cyberport is now actively making preparation for the establishment of AISC in phases from this year onwards, so as to support the strong demand for computing power among universities, research institutions, government departments and related sectors, enhance Hong Kong's research and development (R&D) capabilities in various technological research and application fields and to promote industrial development.

Furthermore, we have established an AIR@InnoHK research cluster focusing on AI and robotics technologies under the InnoHK initiative, which includes a research and development (R&D) centre specialising in generative AI technology. We will also establish the Hong Kong Microelectronics Research and Development Institute within this year to lead and facilitate collaboration among universities, R&D centres and the industry, which would include exploring the third-generation semiconductor core technology, promoting the "1 to N" transformation of scientific research outcomes, assisting the industry in enhancing efficiency as well as achieving upgrading and transformation, and enhancing Hong Kong's I&T ecosystem.

Separately, the Government has all along been enlarging our local I&T talent pool through a series of initiatives. For example, through the Research Talent Hub scheme, we provide funding support for eligible organisations and companies to engage university graduates to conduct R&D work. Besides, the Technology Talent Admission Scheme provides a fast-track arrangement for admitting overseas and Mainland technology talents to undertake R&D works in Hong Kong. We anticipate that the AISC could attract overseas and Mainland talents and companies to Hong Kong, which will help enhance Hong Kong's research standards and boost digital economy development, and facilitate international and regional AI-related collaboration.