Policy Statement on
Responsible Application of Artificial Intelligence in
the Financial Market

This statement issued by the Financial Services and the Treasury Bureau ("FSTB") sets out the Government's policy stance and approach towards the responsible application of artificial intelligence ("AI") in the financial market.

Artificial Intelligence

2. AI is a field of science focusing on developing machines and software that simulates human intelligence. It encompasses the subfields of machine learning and deep learning, which enable the developments of predictive analytics, speech recognition, computer vision and other areas.

3. In the financial services industry, AI could be deployed to various aspects from risk management to customer services, leading to new products and services that improve efficiency, security and customer experience. The public release of generative AI[1] products and services in 2022 has presented ample opportunities to the industry.

4. In March 2024, the Central People's Government mentioned launching the "AI+" action in the government work report for the first time, with a view to facilitating the high-quality development of digital economy. The Mainland is one of the global leaders in the development of AI. According to statistics in 2022, over 60% of the AI patents originated from the Mainland, and there were more than 290 000 industrial robots manufactured in the Mainland in the same year.

5. In Hong Kong, the financial services industry is very receptive to deploying AI in their business. According to a survey in 2023[2], the adoption of generative AI in Hong Kong financial institutions was the highest (38%) among all markets and well above the global average (26%).

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[1] **Generative AI** refers to a subset of AI which involves training a model on datasets to detect complex patterns and create new content, such as text, image, audio, or video which is similar to the input data.

[2] The *"Financial Services: State of the Nation Survey 2023"* conducted by Finastra, a global financial software company.

6.   The HKSAR Government has been actively applying AI to promote the development of smart city and digital government.   More background information is set out at **Annex A**.   We have also been working closely with financial regulators and industry players to promote the development of Fintech sector through different initiatives[3].

7.   As an international financial centre, Hong Kong is open and inclusive towards the application of AI in the financial market.   AI has so far been applied in different financial services sectors in Hong Kong, including banking, securities, insurance, accounting, retirement protection, as well as green and sustainable finance.   Details are set out in **Annex B**.

Dual-track Approach to Promote Development and Address Challenges

8.   We recognise that the application of AI in the financial services sector has three key attributes, which can be summarised in three "Ds" –

(a)   **Data-driven** – the financial services is data-driven and AI helps analyse data.   With the aid of AI, the financial services industry will significantly improve efficiency and competitiveness;

(b)   **Double-edged** – Despite its power and potential, improper use of AI can bring considerable risks and the financial institutions should mitigate the relevant risks comprehensively.   It is worth noting that AI should <u>not</u> replace human judgment and analysis.   AI should be regarded as a tool that complements and enhances human capabilities, enabling more informed and efficient decision-making process; and

(c)   **Dynamic** – AI will help cultivate more new and innovative businesses, thereby enriching the ecosystem of the financial services industry.

9.   Given the nature of AI, we consider that adopting a **dual-track approach** is most ideal for AI application in the financial services sector in Hong Kong, such that we can promote development of AI adoption by the financial services industry, while at the same time addressing the potential

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[3]   Fintech Proof-of-concept Subsidy Scheme: encouraging collaboration between Fintech companies and financial institutions to drive innovation in financial services, including AI applications; Fintech Supervisory Sandbox: facilitating financial institutions and their partnering technology firms to conduct pilot trials of their Fintech initiatives, including AI initiatives; and Nurturing talents: continuing our efforts on equipping financial practitioners with necessary skills and knowledge in Fintech, including AI applications.

challenges such as cybersecurity, data privacy and protection of intellectual property rights. We will work hand in hand with the financial regulators and industry players to foster a healthy and sustainable market environment, thereby facilitating the financial institutions to seize the opportunities and adopt AI in a **responsible** manner. After all, it is a balancing act – capturing opportunities and mitigating risks.

Capturing Opportunities

10.   AI applications may bring significant benefits to the financial services industry by developing innovative products and services, promoting financial inclusion as well as streamlining the workflow. The opportunities arising from AI applications for now include –

(a) Research, data analysis and supporting investment decision-making: AI automates the process of gathering information for research purpose, as well as analysing data and conducting analysis to identify trends, thereby facilitating users to make informed investment decision;

(b) Investment and wealth management: AI-powered algorithms optimise investment strategies, achieve diversification and improve portfolio management;

(c) Customer service and personalisation: AI-driven chatbots and virtual assistants enhance customer service with "24x7 availability" by providing personalised recommendations, answering customer enquiries promptly and streamlining processes, with the opportunity for offering better protection to customers;

(d) Risk assessment and management: AI automates risk assessment for financial institutions by analysing a large volume of data;

(e) Fraud and financial crime prevention and detection: AI identifies patterns and anomalies in financial transactions, thereby enabling early detection and prevention of fraudulent and money laundering activities; and

(f) Workflow automation: AI may automate repetitive and routine tasks, thereby relieving human resources to focus on more complex and value-added activities including supervision, system development and quality assurance.

Mitigating Risks

11.　　To ensure responsible use of AI, the Government emphasises the importance of protection of privacy and intellectual property rights, human oversight, accountability, operational resilience, information security, as well as job security.

12.　　Financial institutions should formulate an **AI governance strategy** to provide direction on how AI systems should be implemented and used. A **risk-based approach**[4] should be adopted in the procurement, use and management of AI systems and human oversight will be crucial to mitigating the potential risks.　The following sets out different types of risk associated with the use of AI and the corresponding mitigation measures –

(a) Cybersecurity, data privacy and protection of intellectual property rights: AI applications rely on a vast amount of data for training, including personal and confidential information.　AI users should put in place robust cybersecurity measures to safeguard and protect personal and confidential information, as well as the AI model itself[5].　It is also crucial to respect the data privacy of individuals and ensure compliance with applicable personal data privacy laws, as well as the protection of intellectual property rights when using AI applications since personal data and copyrighted materials could respectively be used to train AI models;

(b) Bias, hallucination risk, data and model governance: AI models are highly dependent on the quality, diversity and representativeness of training data.　A lack of diversity in the data may lead to unfair generalisation by the model.　The availability of a balanced and representative set of training data is therefore critical.　The prevention of hallucination[6] is equally important.　AI models provide output through building an internal representation of training data and discovering patterns to make predictions.　It may not understand the actual relationship between the data, leading to

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[4]　In adopting a risk-based approach, the types and extent of risk mitigation measures should correspond with and be proportionate to the levels of the risks.

[5]　AI users should be aware of the adversarial attacks where bad actors may try to manipulate AI models to produce incorrect outputs.

[6]　**Hallucination** refers to the situation where the AI produces outputs that are, for example, not grounded on or faithful to the source data; or incorrectly decoded by the transformer.　Hallucination may also arise when the AI model is overfitted or trained to produce output results based on probabilities.

outputs that seem realistic but are factually incorrect, incomplete, or lack important information or relevance to the context. Having sufficient human oversight, including a human-in-the-loop approach[7], is therefore important in ensuring the proper usage of AI, as it allows for critical evaluation, validation, and correction of AI-generated outputs. We will promote the prudent use of AI among financial institutions and AI systems should also be subject to ongoing monitoring to address the issue of model drift[8];

(c) <u>Model transparency, disclosure, consumer and investor protection</u>: Financial institutions should define key principles behind model algorithms when engineering AI models, in particular for generating business decisions, in order to mitigate conduct risk such as discrimination and unfair or biased treatment of customers. Investors and customers should be well informed about the extent to which AI is deployed in delivering products and services. It enables investors and customers to understand how their data is collected, processed, and utilised, thereby allowing them to exercise control over their personal information and preferences;

(d) <u>Financial stability risks and operational resilience</u>: AI training typically involves sizeable training datasets and requires significant computational power, which could only be properly handled by the large cloud service providers. The concentration of AI service provision by a limited group of technology firms, and the potential herding behaviour of AI models resulting from the use of common data sources and modelling approaches may potentially lead to financial stability concerns. It should therefore be necessary for financial institutions to establish contingency plans to ensure operational continuity in the event of any disruption or failure in the service providers or AI models;

(e) <u>Availability of AI resources</u>: Unlike large-scale multinational enterprises, small-to-medium sized financial institutions and accounting firms may not have sufficient resources to get access to AI models for their daily use (such as analysing reports), which would weaken their competitiveness in the market;

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[7] A **"human-in-the-loop"** approach means that human actors retain control of the decision-making process to prevent and mitigate errors, improper output and/or decision made by the AI.

[8] **Model drift** refers to the degradation of AI model performance over time.

(f) <u>Fraud, social engineering attacks and cybercrime</u>: AI can be abused by bad actors to perpetrate sophisticated frauds, social engineering attacks[9] and cybercrimes. For example, there have been cases of generative AI being used to make realistic looking deepfake videos and images to propagate misinformation and induce unwary investors to make investments in fraudulent schemes. Enhancement of AI detection systems is needed to identify and counteract fraudulent activities. Industry-wide collaboration is also conducive to sharing best practices and developing robust measures to detect and prevent misuse of AI for criminal purposes; and

(g) <u>Job displacement</u>: As AI automates routine tasks, low-end roles relying on repetitive activities may be displaced. Similarly, middle management positions overseeing operations and data analysis may also be affected. Reskilling and upskilling are needed for employees to adapt to the evolving job market shaped by AI technologies.

Way Forward

13.   The Government and financial regulators will work closely to provide a clear supervisory framework and create a conducive and sustainable market environment, with a view to promoting responsible AI applications in the financial services sector. As the AI technology is constantly evolving, we will keep an open mind, closely monitor market developments and draw on international experience in promoting the use of AI in the financial services sector.

14.   "The proof of the pudding is in the tasting". We consider it important to promote responsible AI applications in our financial services sector in Hong Kong and there are plenty of AI models and infrastructures available to financial institutions, accounting firms and solution providers. One notable example is the InvestLM developed by the Hong Kong University of Technology and Science ("HKUST") and its computing resources, which will promote development in two key areas, namely

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[9]   **Social engineering attacks** manipulate people into sharing information that they should not share, downloading software that they should not download, visiting websites they should not visit, sending money to criminals or making other mistakes that compromise their personal or organisational security.

inferencing[10] and training[11].   HKUST will make InvestLM available to Hong Kong's financial services industry, offering advisory and training services for on-premises deployment or Application Programming Interface and Web Interface options using HKUST's computing resources.   Fine-tuning models via access to computing resources will also be provided, fostering development of localised models tailored to Hong Kong's financial market rules, regulations, and linguistic requirements.   We encourage our financial institutions, accounting firms and solution providers to make use of all these AI models and infrastructures.

15.   As for financial regulatees, the potential risks posed by AI have been suitably reflected in the relevant regulations and/or guidelines issued by financial regulators[12].   To keep pace with the latest developments of AI and international practice, such as the emergence of explainable AI[13], financial regulators will continuously review and update the existing regulations and/or guidelines as appropriate.

16.   More specifically, the financial regulators will, wherever appropriate, assess the opportunities and risks associated with emerging technology (including AI), monitor the adoption of AI in the financial services industry, review supervisory guidelines on AI to keep up with the

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[10] Utilising trained AI models for predictions or decision-making.

[11] Developing AI models with data for task-specific performance.

[12] In 2019, the **Hong Kong Monetary Authority ("HKMA")** issued two circulars titled "High-level Principles on Artificial Intelligence" and "Consumer Protection in respect of Use of Big Data Analytics and Artificial Intelligence by Authorized Institutions" for the reference of banks to observe principles of management oversight, explainability, data protection and data privacy, fairness and transparency when designing and adopting their AI applications.   In addition, in 2024, the **HKMA** updated the Supervisory Policy Manual on capacity building to advise the banking industry on manpower planning and training in view of the AI development, and issued a circular "Consumer Protection in respect of Use of Generative Artificial Intelligence" setting out a set of guiding principles in the use of generative AI in customer-facing applications.

Meanwhile, the **Securities and Futures Commission ("SFC")** has already covered the potential risks posed by AI in the existing rules and regulations, which are in line with the recommendations on AI put forward by the International Organisation of Securities Commissions.

In 2023, the **Insurance Authority ("IA")** outlined the responsibilities of insurers and intermediaries regarding the use of chatbots under the "regulated activities" regime, reminding them to uphold the principles of fair customer treatment and enable fully informed customer decisions.

In February 2024, the **Mandatory Provident Fund Schemes Authority ("MPFA")** issued a circular to its regulatees providing guidance on offering robo-advisor service.

[13] Explainable AI allows human users to comprehend the outputs generated by machine learning algorithms.   It helps characterise model accuracy, fairness, transparency and outcomes in AI-powered decision making.

latest developments, as well as issue circulars to remind regulatees of their existing regulatory obligations in relation to AI and provide guidance on how to manage the risks of generative AI.   Specific measures are as follows –

(a)   The **HKMA**, in collaboration with Cyberport, launched the new Generative AI Sandbox in August 2024 to empower banks to pilot their novel generative AI use cases within a risk-managed framework, supported by essential technical assistance and targeted supervisory feedback.   The HKMA has also embarked on research studies relating to nurturing talents.   An updated study on "Capacity Building for Future Banking" will be published in 2025 to identify skills gaps in the banking industry for the next five years (i.e. 2026 – 2030);

(b)   The **SFC** will issue a circular to licensed corporations by November 2024 to remind them of the existing rules and regulations, as well as the opportunities and risks associated with the generative AI.   In addition, the SFC is participating in the Fintech Task Force AI Working Group under the International Organization of Securities Commissions ("IOSCO")[14], and will keep in view any findings or recommendations from IOSCO to consider whether further regulatory guidance to SFC-licensed firms is necessary;

(c)   The **IA** is enhancing its Guideline on Cybersecurity by developing a Cyber Resilience Assessment Framework specific for the insurance sector.   Moreover, the IA will conduct a Fintech survey to evaluate current technology adoption trends in the insurance sector, focusing on AI and related cybersecurity measures;

(d)   The **MPFA** will keep monitoring the adoption of AI in the pension industry and issue further or updated guidance if necessary having regard to the market and regulatory development; and

(e)   The **Accounting and Financial Reporting Council** will assess the emerging opportunities and potential risks associated with the development of AI by audit firms.   Guidance will be developed to enhance awareness and support AI deployment by the accounting profession with an emphasis on the importance of upholding audit quality while ensuring alignment with quality management standards.

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[14]   The Working Group is reviewing the issues, risks and challenges presented by emerging AI technology from the perspectives of market integrity, financial stability and investor protection.

17.   In response to challenges on cyber policing posed by AI, the Police has been exchanging intelligence with the International Criminal Police Organisation, law enforcement agencies of different jurisdictions, and the AI industry.   The Police is also keeping track of the latest modus operandi and criminal trends around the globe, including the application of deepfake technology.   To combat technology crimes, the Police will continue to step up cooperation with different stakeholders and jointly explore and formulate effective measures[15].

18.   Regarding public education, the Investor and Financial Education Council will continue to work with stakeholders to raise public awareness and enhance understanding on the opportunities and risks presented by AI technology in terms of retail investing and financial management.

19.   In addition, we attach great importance to nurturing Fintech talents so as to support the sustainable development of Fintech in Hong Kong.   For example, experienced Professional in Fintech has been included in the Talent List since 2018.   We will continue to closely monitor the industry's demand and cultivate more Fintech talents through implementing various support measures, including training and subsidy schemes.

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[15]   Since August 2024, the Police has, in collaboration with HKMA, extended the coverage of the Suspicious Account Alert for internet banking and physical branches transactions.   The Suspicious Account Alert warns customers of "High Risk" of fraud based on information of "Scameter", a scam and pitfall search engine launched by the Police in September 2022, initially covering fund transfers using the Faster Payment System ("FPS") proxy IDs (including mobile phone number, email address and FPS identifier).

Background of AI development in Hong Kong

Given the rapid development of AI in recent years, the Government has been applying AI to promote the development of smart city and digital government. The Hong Kong Innovation and Technology Development Blueprint promulgated by the Innovation, Technology and Industry Bureau in December 2022 has listed AI and data science as one of the technology industries of strategic importance for the furtherance of Hong Kong's innovation and technology development.

2. In view of the latest developments of generative AI, in August 2023, the Digital Policy Office issued the updated "Ethical Artificial Intelligence Framework" to provide government bureaux and departments ("B/Ds") a set of practical guides when implementing projects that involve the use of AI technology, and to identify and manage the potential risks and other issues including privacy, data security and management. In addition, in June 2024, the Office of the Privacy Commissioner for Personal Data ("PCPD") issued the "Artificial Intelligence: Model Personal Data Protection Framework[16]" to provide recommendations and best practices to assist organisations in procuring, implementing and using AI, including generative AI, in compliance with the requirements of the Personal Data (Privacy) Ordinance (Cap. 486), thereby facilitating them to harness the benefits of AI while safeguarding personal data privacy. The Commerce and Economic Development Bureau also conducted a public consultation from July to September 2024 to explore further enhancement of the Copyright Ordinance (Cap. 528) regarding the protection for AI technology development, with a view to ensuring that Hong Kong's copyright regime remains robust and competitive.

3. Various B/Ds, including the Companies Registry, the Census and Statistics Department, the Government Logistics Department, the Inland Revenue Department, the Rating and Valuation Department and the Treasury, are exploring to deploy AI technology in their daily work to improve public services, enhance operational effectiveness and strengthen cybersecurity. The Government has also commissioned the Hong Kong Generative AI

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[16] In 2021, the PCPD issued the "Guidance on the Ethical Development and Use of AI" to help organisations understand and comply with the relevant requirements of the Personal Data (Privacy) Ordinance (Cap. 486) when developing or using AI.

Research and Development Center, an InnoHK research centre[17] dedicated to generative AI technology related to research and development works such as the generative AI document processing co-pilot application for the Government, to study and suggest rules and guidelines in the application of AI technology in Hong Kong.

4.　　In terms of infrastructural support, Cyberport is proceeding at full speed with the establishment of an AI Supercomputing Centre ("AISC") in phases to support the computing demand of local universities, research & development institutes, AI industry, etc. The first phase of the facility is expected to come into operation in the second half of 2024.

5.　　In October 2024, the Government launched a three-year AI Subsidy Scheme, with an allocation of $3 billion, to mainly support eligible users in leveraging the computing power of Cyberport's AISC to achieve scientific breakthrough.

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[17] InnoHK is an initiative under ITIB to develop Hong Kong as the hub for global research collaboration. This involves the establishment of world-class research clusters at the Hong Kong Science Park with research laboratories set up by renowned universities and research institutes to conduct collaborative researches.

Current AI Application in Financial Services Sector in Hong Kong

(a) <u>Banking</u>: customer-facing activities (e.g. chatbots and virtual assistants, identity authentication, and credit assessment); identifying suspicious trends and patterns to monitor transactions and prevent fraudulent activities; back-office functions of banks such as operational automation and document processing;

(b) <u>Securities</u>: AI-powered algorithms to analyse historical market data, news sentiment, and social media trends to make data-driven investment decisions, as well as help optimise investment strategies, achieve diversification and improve portfolio management;

(c) <u>Insurance</u>: strengthening risk assessment capabilities through AI applications; an industry-wide Insurance Fraud Prevention Claims Database to leverage on AI data analytics to assist in detecting and preventing insurance fraud;

(d) <u>Accounting</u>: automating audit processes (e.g. analysis of financial data and identification of irregularities) to enable more effective allocation of resources on areas requiring professional judgement and decision-making; helping monitor compliance and flag anomalies in financial transactions to ensure adherence to legal requirements;

(e) <u>Retirement Protection</u>: providing enhanced management of investments in pension funds; and

(f) <u>Green and Sustainable Finance</u>: assessing climate risk, formulating sustainability goals and incorporating them in the decision-making process; and utilising AI algorithms to identify investment opportunities in relation to green and sustainable finance.