

18 April 2017
Discussion Paper

LEGISLATIVE COUNCIL PANEL ON FINANCIAL AFFAIRS

Development of Financial Technologies

INTRODUCTION

This paper provides an update on the local financial technologies (Fintech) landscape and measures to support the development of the industry.

BACKGROUND

2. The Financial Services and the Treasury Bureau previously briefed the Panel on 11 April 2016 regarding the Government's strategies and measures to support the development of Fintech, after the 2016-17 Budget had announced a range of Fintech-related development measures.

IMPLEMENTATION OF SUPPORT MEASURES

3. The Government, financial regulators, and innovation organisations have been working closely, together with the industry and other stakeholders, to roll out a range of measures over the past year to support Fintech development in Hong Kong (Annex). These measures have brought about a more vibrant and conducive ecology for Fintech development in Hong Kong through enhancing communication between regulators and the industry to implement new initiatives; providing supervisory frameworks to encourage innovation accompanied by proper consumer protection; fostering collaboration among existing financial institutions, start-ups and other innovators; supporting the scaling up of Fintech start-ups as well as the development and adoption of Fintech by existing financial institutions; and nurturing the next generation of Fintech talents.

A more vibrant Fintech ecology

4. Thanks to the effort of the relevant stakeholders and industry players, the local Fintech ecology has progressed markedly in the past 12 months or so, as highlighted below.

5. The number of Fintech start-ups operating in co-working spaces and incubator/accelerator programmes in Hong Kong increased by 60% between August 2015 (86) and August 2016 (138), according to Invest Hong Kong (InvestHK)'s Start-up Profiling Survey.

InvestHK's Start-up Profiling Survey

	Number of Start-ups in Hong Kong	<i>Of which : Fintech Start-ups</i>	
		Number	Share
November 2014	1 065	74	6.9%
August 2015	1 558	86	5.5%
August 2016	1 926	138	7.2%

6. Hong Kong attracted about US\$400 million of venture capital (VC) investment in Fintech companies during 2014-2016, lower than the Mainland and India (both of which are economies with huge domestic markets) but ahead of regional peers such as Australia, Japan and Singapore¹.

Asia-Pacific Fintech VC Investment, 2014-2016

Economy	VC Investment in Fintech Companies (US\$ million)
Mainland China	13,359
India	2,239
Hong Kong	394
Australia	311
Japan	273
Singapore	141

7. Banks are keen to explore Fintech and have been increasingly proactive in rolling out innovative products and services. For instance, two banks have each established an innovation laboratory/centre with the Hong Kong Applied Science and Technology Research Institute (ASTRI) (in July 2016 and October 2016 respectively). Another multinational bank is sponsoring the second round of its Fintech Accelerator Programme, which is held in Cyberport between January and April 2017, to support both growth-stage Fintech start-ups and mature-stage global Fintech companies. Against this background, the Hong Kong Monetary Authority (HKMA)'s Fintech Facilitation Office (FFO) has added impetus to the development by acting as a platform for connecting and engaging key stakeholders, regulatory interface, initiating industry research and nurturing talents.

¹ Source: Accenture Research FinTech Watchtower 2017 Edition, based on data © CB Information Services, Inc.

8. Insurers, through its industry body, the Hong Kong Federation of Insurers (HKFI), are also working with ASTRI regarding collaboration in cyber security. Subject to the consultation to be carried out by HKFI, it is anticipated that a cyber security platform will be established in the second half of 2017 for purposes such as exchanging intelligence of cyber security threat and handling security incidences among participating insurers.

9. Currently, there are several Securities and Futures Commission (SFC)-licensed corporations (LCs) providing financial services that represent the principal types of Fintech, including on-line fund distribution, robo-advice, and a fund structure that invests in peer-to-peer (P2P) loan market. Taking advantage of the fast advancement in technology, SFC has also initiated an internal Regtech project whereby it is actively assessing which technologies it can adopt and use to supplement its standing operations.

10. Universities such as The Chinese University of Hong Kong and The Hong Kong Polytechnic University will launch dedicated, publicly-funded first-year first-degree and senior year programmes in Fintech starting from the 2017/18 academic year. Moreover, The University of Hong Kong's School of Professional and Continuing Education has been offering a part-time, four-month programme, Executive Certificate in Internet Finance. Furthermore, some self-financing post-secondary institutions are also offering undergraduate programmes in Fintech, and the Government is considering whether to include some of these programmes under the Study Subsidy Scheme for Designated Professionals/Sectors so that a certain number of students enrolled in such programmes would be subsidised starting from the 2018/19 academic year.

MEASURES TO FURTHER SUPPORT FINTECH DEVELOPMENT

11. The Chief Executive and the Financial Secretary have further announced an array of measures to promote the development of Fintech in the 2017 Policy Address and 2017-18 Budget, with particular focuses on enhancing the local payment services ecology and establishing Hong Kong as a hub for the application and setting of standards for cutting edge Fintech. In particular, we would like to highlight five areas.

Electronic and mobile payment

12. For payment services, the general public is increasingly receptive to new products and services, as Stored Value Facility (SVF) operators are launching new services while banks are rolling out new payment services (such as a note-issuing bank's mobile App which enables cross-bank P2P fund transfer

through mobile messaging). Building on the momentum from the introduction and development of various new payment channels in the market, the Government will strive to provide more convenient means for settling government bills and fees, such as making on-line credit card payment through digital wallets in mobile phones. HKMA will also work with the Government to explore with the industry ways of improving the payment infrastructure (such as introducing the Faster Payment System in 2018) and encouraging more standardisation in payment applications across various services providers, including the use of QR codes in streamlining the payment process, and facilitating the development of new electronic and mobile payment channels by the Government for various government services.

Promotion and outreaching

13. InvestHK will continue to showcase Hong Kong's unique advantages in developing Fintech through organising signature Fintech events like the Hong Kong Fintech Week (scheduled for the fourth quarter of 2017) and sponsor large-scale events such as Finovate Asia and the Fintech Finals 2018 conference and start-up competition in Hong Kong. In addition, InvestHK will join overseas events and organise roadshows proactively throughout the year to highlight the development of the Fintech industry in Hong Kong and the various support measures being made available.

14. The Government, regulators and Cyberport will take steps to strengthen cooperation with other economies to enhance market access for Fintech start-ups in Hong Kong as well as to attract start-ups from around the world to establish presence in Hong Kong and launch regional business. As an example, a Cooperation Agreement on Fintech was signed between HKMA and the UK's Financial Conduct Authority (FCA) in early December 2016, covering referrals of Fintech firms, joint innovation projects, information exchange and experience sharing. The Office of the Commissioner of Insurance (OCI)/the independent Insurance Authority is also exploring the signing of a cooperation agreement with FCA. Meanwhile, SFC is currently formulating similar agreements with a few other regulatory authorities, in addition to having led the International Organization of Securities Commissions' research efforts on financial technologies which resulted from extensive global regulatory cooperation.

15. The Government will continue to explore with major Fintech hubs the establishment of a government-to-government dialogue, closer cooperation among regulators, and investment and industry cooperation. Apart from cooperation between regulators and their overseas counterparts, reciprocal soft-landing programmes with other Fintech hubs are being explored so that Hong

Kong Fintech start-ups will receive appropriate support when they expand into the Mainland and overseas markets, while start-ups in the partnering economies will be encouraged to establish operations in Hong Kong to take advantage of the arrangements.

Talent grooming and networking

16. Leveraging on the experience arising from the growing clustering effects of initiatives from HKMA, Cyberport and ASTRI such as the Smart-Space Fintech, Fintech Innovation Hub and the Haccelerator programme, the Government will encourage stakeholders to further strengthen the linkages between financial institutions and different types of Fintech talents through hackathons, accelerator programmes, short collaborative projects (including prototypes and proof-of-concept projects targetting to solve particular business problems) and attachment programmes, demos and pitching, experience sharing, and demo days to provide a bridge to connect the start-ups/talents with different sectors in the industry, e.g. insurers, investment advisors, asset managers, etc., or particular financial institutions.

Application of cutting-edge technology

17. Regarding cutting-edge Fintech, HKMA commenced in late March 2017 a research and a proof-of-concept work on central bank digital currency (CBDC) in collaboration with the three note-issuing banks, the Hong Kong Interbank Clearing Limited and R3, a consortium of financial institutions and other stakeholders to explore the potential of Distributed Ledger Technology (DLT). The first phase of the research, which explores the feasibility of CBDC in performing domestic inter-bank payments, inter-corporate payment in the wholesale market and delivery versus payment (DvP) debt securities settlement, is expected to be completed in the fourth quarter of this year. Subject to the findings of the first phase, HKMA will map out the next steps.

18. In addition to the on-going study on DLT commissioned by HKMA which is expected to have another whitepaper delivered in the second half of 2017², a proof-of-concept project for trade finance has also been developed by HKMA in collaboration with a consultancy firm and five banks in Hong Kong. The work helps to demonstrate the applications of DLT in digitising paper-intensive processes, reducing the risk of fraudulent trades and duplicate financing, and improving the transparency of the entire trade finance process, and to explore

² The whitepaper will provide more detailed findings from the three proof-of-concept trials (covering mortgage loan applications, trade finance and digital identity management) and also address the regulatory implications and the general control principles for implementing DLT in the banking and payment industry.

the implications in areas such as operations, legal, regulatory, governance and data security.

19. Under the Cybersecurity Fortification Initiative (CFI) launched by HKMA's FFO to enhance cyber resilience of the banking sector, the Cyber Resilience Assessment Framework requires authorised institutions (AIs) to take part in a resilience assessment. The first phase, covering 30 AIs, will be completed by end-June 2018. Furthermore, the next round of training and certification examinations under CFI's Professional Development Programme (PDP) has been planned for the coming months. Holders of the relevant qualifications under the PDP³ may be qualified to perform AIs' assessments and testing under Cyber Resilience Assessment Framework of the CFI.

20. To raise awareness of LCs to the critical importance of cyber security, SFC has undertaken a series of initiatives detailed in its circulars, including a cybersecurity review in the fourth quarter of 2016 with a focus on assessing the cybersecurity preparedness, compliance and resilience of brokers' Internet and mobile trading systems.

Funding

21. While VC funding activities in Hong Kong were no less robust compared with regional peers, the Government is aware of the demand for strengthening private-sector VC funding for early stage Fintech start-ups. The \$2 billion Innovation and Technology Venture Fund (ITVF), to be launched in the first half of 2017, will jointly invest with VC funds in local innovation and technology start-ups to create a more vibrant start-up ecosystem in Hong Kong.

ADVICE SOUGHT

22. Members are invited to note the contents of this paper, and comment on the proposed measures.

Financial Services and the Treasury Bureau 6 April 2017

³ HKMA has also adopted a list of equivalent professional qualifications recommended by an expert panel comprising representatives from major IT professional associations, banks and universities. These professional qualifications are considered to be equivalent to the certification provided under the PDP.

Annex

Support Measures Implemented in 2016-17

Initiatives rolled out in 2016-17 and their key achievements are summarised below –

Measures	Key achievements
(a) Regulation	
(i) Fintech liaison platforms set up by HKMA, SFC and OCI respectively	<ul style="list-style-type: none"> - More than 200 regulatory-related enquiries received (up to end-March 2017), thus enhancing communications with the Fintech industry - HKMA's FFO has so far organised ten events in Hong Kong, gathering about 2 500 stakeholders from financial institutions, investors and Fintech firms to exchange ideas and cultivate collaboration
(ii) Payment Systems and Stored Value Facilities Ordinance	<ul style="list-style-type: none"> - Commenced full operation in November 2016 - 13 SVF licences granted, with licensees comprising retail payment companies from both within and outside Hong Kong
(iii) HKMA's Fintech Supervisory Sandbox	<ul style="list-style-type: none"> - 14 Fintech projects are currently using or completed testing under the Sandbox (as at March 2017), facilitating pilot trials involving banking services and a limited number of participating customers (such as staff members or focus groups of selected customers) without the need to achieve full compliance with HKMA's usual supervisory requirements during the trial period
(b) Facilitation	
(i) Cyberport's Fintech incubation programme and Smart-Space FinTech	<ul style="list-style-type: none"> - The Fintech community at the Cyberport has grown from about 90 companies a year earlier to more than 180 companies (including incubatees, startups operating in Smart-Space co-working space, office tenants, and service subscribers to its Collaboration Centre) - As at end-February 2017, a total of 54 Fintech start-ups have been admitted to Cyberport's

Measures	Key achievements
	<p>designated incubation programme, on track to assist 150 start-ups by 2020</p> <ul style="list-style-type: none"> - Smart-Space FinTech has been fully operational from December 2016, providing 4 300 square meters of dedicated co-working space. At least two incubation/accelerator programmes will be held in the Smart-Space in 2017
(ii) Cutting-edge Fintech	<ul style="list-style-type: none"> - HKMA commenced in late March 2017 a research and a proof-of-concept work on CBDC in collaboration with the three note-issuing banks, the Hong Kong Interbank Clearing Limited and R3 - HKMA and ASTRI collaborated with a number of banks to explore the feasibility of applying DLT, and published a whitepaper on DLT in November 2016 - The Cyber Resilience Assessment Framework, Professional Development Programme and Cyber Intelligence Sharing Platform under HKMA's CFI were implemented in December 2016
(iii) HKMA-ASTRI Fintech Innovation Hub	<ul style="list-style-type: none"> - Since the Hub's formal launch in November 2016, five banks and three technology firms have used the Hub for trial or demonstration of five Fintech solutions that may have potential for industry-wide applications - The Hub supported the banking sector for developing prototypes for the use of DLT in trade financing and other aspects, so as to test how the concept can be applied in different operational scenarios
(iv) Haccelerator Programme	<ul style="list-style-type: none"> - HKMA launched the Fintech Haccelerator programme in late March 2017 in collaboration with Cyberport, offering banks and SVF licensees a platform for organising Hackathon and Accelerator competitions to explore innovative solutions, recruit talents and identify cooperation opportunities with Fintech startups and innovators

Measures	Key achievements
(c) Promotion	
(i) InvestHK dedicated Fintech team	<ul style="list-style-type: none"> - The inaugural Hong Kong Fintech Week was held in November 2016, attracting 2 500 participants from within and outside Hong Kong - Sponsorship for large-scale events such as Finovate Asia, a demo-only conference held in November 2016 alongside the Hong Kong Fintech Week, and the Fintech Finals 2017, a conference and start-up competition which took place in January 2017. The two events together enabled around 60 Fintech companies from around the world to showcase or compete by pitching their businesses in Hong Kong - Assistance rendered to around 40 Fintech start-ups over the past six months to encourage them to establish presence in Hong Kong
(d) Talents	
(i) Internship and immersion programme	<ul style="list-style-type: none"> - Under the HKMA-ASTRI Fintech Career Accelerator Scheme announced in December 2016, 12 participating banks and HKMA will offer over 100 Fintech-related internships in summer 2017 for undergraduate and postgraduate students from ten local tertiary education institutions - Under the Cyberport University Partnership Programme, 53 university students have already joined the Entrepreneurship Bootcamp in Silicon Valley arranged by the Stanford Graduate School of Business in 2016-17
(e) Funding	
(i) Innovation and Technology Fund	<ul style="list-style-type: none"> - The Enterprise Support Scheme, launched in 2015 by the Innovation and Technology Commission to provide funding support for enterprises to conduct in-house research and development and encourage private sector investment in innovation and technology, received over 20 Fintech-related applications, with two approved in-principle (as at end-February 2017)

Measures	Key achievements
	<ul style="list-style-type: none">- Technology Voucher Programme, which aims to subsidise local small- and medium-sized enterprises in using technological services and solutions to improve productivity, or upgrade or transform their business processes, received nine applications from companies in banking, insurance or other financial services (as at end-February 2017)