

**For discussion  
5 July 2021**

**Legislative Council Panel on Financial Affairs  
Development of Financial Data Analytic Platform  
for the Hong Kong Police Force**

**PURPOSE**

This paper sets out the proposal to develop a financial data analytic platform (“FDAP”) for the Joint Financial Intelligence Unit (“JFIU”) of the Hong Kong Police Force (“HKPF”), with a view to enhancing the HKPF’s capability in developing financial intelligence and harnessing advanced technologies to combat increasingly sophisticated financial crimes.

**JUSTIFICATIONS**

**Recommendation of the Financial Action Task Force**

2. Over the years, Hong Kong has built a robust anti-money laundering and counter-terrorist financing (“AML/CTF”) system in accordance with the recommendations of the Financial Action Task Force (“FATF”), an inter-governmental body which sets international standards for combating money laundering and terrorist financing (“ML/TF”) and oversees global compliance through a peer review process called “mutual evaluation”. In the latest round of mutual evaluation conducted by FATF, Hong Kong has become the first jurisdiction in the Asia Pacific region to have attained an overall compliant result. While Hong Kong is commended for having a strong legal foundation and effective system for combating ML/TF, the FATF has also put forth a number of recommendations on areas requiring further efforts. One of the

recommendations<sup>1</sup> is for the JFIU to enhance its information technology (“IT”) system and make better use of advanced technologies to assist its work in processing suspicious transactions reports <sup>2</sup> (“STRs”) and developing financial intelligence for further investigations.

### **Suspicious Transaction Report and Management System**

3. Jointly run by staff members of the HKPF and the Customs and Excise Department (“C&ED”), the JFIU is the designated authority in Hong Kong for receiving and processing STRs, cultivating intelligence based on STRs, and disseminating value-added intelligence to assist investigations by local and overseas law enforcement agencies (“LEAs”). The outputs of the JFIU range from case-specific intelligence, criminal typologies and STR trends to strategic intelligence reports on selected themes for facilitating the formulation of enforcement operations, regulatory/supervisory approaches and policy responses. Intelligence products of the JFIU such as STR trends and criminal typologies are published on a regular basis to help build the capacity of the private sector and the public in detecting and combating ML/TF.

4. At present, the JFIU relies on the Suspicious Transaction Report and Management System (“STREAMS”) to receive, process and disseminate STRs. Based on the outputs of STREAMS, JFIU officers will conduct further analysis and communicate with the reporting entities or other authorities as appropriate. STREAMS has the following key functions –

- (a) Maintaining data of STRs: STREAMS serves as the STR database for Hong Kong. Reporting entities (including

---

<sup>1</sup> The FATF also recommends the HKPF to establish a dedicated Financial Intelligence and Investigation Bureau within the HKPF to strengthen its capability in developing intelligence and conducting ML/TF investigations. With the approval of the Finance Committee of the Legislative Council on 21 May 2021, a supernumerary Chief Superintendent of Police post has been created for five years to head the newly established Financial Intelligence and Investigation Bureau under the HKPF.

<sup>2</sup> Pursuant to section 25A(1) of the Organized and Serious Crimes Ordinance (Cap. 455) and the Drug Trafficking (Recovery of Proceeds) Ordinance (Cap. 405), as well as section 12(1) of the United Nations (Anti-Terrorism Measures) Ordinance (Cap. 575), where a person knows or suspects that any property (a) in whole or in part directly or indirectly represents any person’s proceeds of, (b) was used in connection with, or (c) is intended to be used in connection with drug trafficking or an indictable offence; or that any property is terrorist property, the person shall as soon as it is reasonable for him to do so, file an STR with the JFIU.

financial institutions<sup>3</sup> and designated non-financial businesses and professions (“DNFBP”)<sup>4</sup>) may submit STRs to the JFIU by completing an electronic template through STREAMS or in paper form which would then require manual input of the information contained therein. The reporting template contains information such as details of the reporting source, transaction and property arousing ML/TF suspicion, financial account involved, suspected crime, suspicious indicators, etc.. STREAMS will transform data in completed templates to formatted versions for verification and review by JFIU officers manually;

- (b) Conducting automated checks against historical records and other databases/systems: STREAMS performs automated data matching of STRs received with records contained therein and in other databases/systems of the HKPF and the C&ED for identification of criminal records, connections and linkages or other threads. STREAMS will then identify relevant ML/TF cases (e.g. ML/TF cases sharing the same key data such as personal particulars) for further review by JFIU officers;
- (c) Assessing the risk level of STRs received: STREAMS also conducts automated checks against keywords contained in STRs to facilitate the categorisation of STRs into different risk levels. This will help JFIU officers assess the intelligence value of the STRs and facilitate their decisions on further gathering of intelligence or dissemination of the STRs to relevant investigation units, other LEAs or regulators for follow-up actions; and
- (d) Providing feedback to reporting entities: STREAMS allows JFIU officers to provide feedback on the STRs received to reporting entities, such as on advising them on how to handle the relevant property reported in an STR.

---

<sup>3</sup> Including banks, securities firms, insurance companies, money service operators, stored value facility operators, money lenders and virtual assets service providers.

<sup>4</sup> Including legal professionals, accounting professionals, estate agents, trust or company service providers, and dealers in precious metals and stones.

## Limited Capabilities of STREAMS

5. Since its inception in 2006, STREAMS has undergone only minor and technical improvements (focusing on capacity expansion and provision of online access) mainly for meeting the JFIU's operational needs. The functions of STREAMS are confined to data maintenance and mechanical data checking notwithstanding technological advancement over the past decade. As STREAMS is not equipped with any advanced data mining or analytical tools, it is unable to perform in-depth, advanced strategic analysis which is instrumental to facilitate financial investigation.

6. Owing to STREAMS' limited capabilities, at present, JFIU officers have to manually review each STR generated from STREAMS. Further analyses are conducted manually based on the checking outcomes of STREAMS and intelligence collected from other sources. JFIU officers often need to initiate wider searches of databases to perform network analysis and mapping exercises, so that they can refine the scope in identifying syndicates. As the review and analysis process is largely manual and heavily reliant on the experience and expertise of individual JFIU officers, it could be labour-intensive and time-consuming for the JFIU to determine the proper way to deal with each and every case. For instance, depending on the amount and complexity of data involved, it could take up to six weeks for JFIU officers<sup>5</sup> to come up with an informed decision on further handling of the relevant property reported in an STR.

7. The limitation of STREAMS is amplified by a continuous influx and increased complexity of STRs. The number of STRs received by the JFIU has increased from 23 282 in 2012 to the peak of 92 115 in 2017, before levelling to 57 130 in 2020 due to substantial efforts devoted by the JFIU to improve the quality of reporting. It is anticipated that the number of STRs received will continue to grow alongside the increasing number of reporting entities. The number of the so-called "super STRs" is also on the rise, with each STR involving hundreds of suspects, thousands of accounts and numerous transactions. Extensive mapping and cross-database analysis is required for super STRs in order to develop further intelligence for operational use. STREAMS, however, does not support data mining and mapping to facilitate the identification of seemingly

---

<sup>5</sup> Currently, 40 disciplined officers in eight teams are responsible for screening of each and every STR. They conduct in-depth analysis and value-added development on STRs, liaise with reporting entities and other agencies for further intelligence cultivation and conduct ML/TF network mapping. These officers are overseen by two Chief Inspectors of Police.

unrelated syndicated networks and criminal associations. In the absence of advanced analytical tools, it takes JFIU officers considerable time to identify syndication and association of criminals through manual analysis of STRs. A lengthy process may cause delay in disseminating value-added intelligence to domestic and overseas counterparts for investigation, enforcement and recovery actions, which in turn might cause more financial losses to victims, in particular for cases of fraud and deception cases<sup>6</sup> due to delay in stopping payments. The surge in the number of STRs received over the past years has added to the challenge and posed enormous pressure on the existing set-up of JFIU.

### **The Need for Upgrading IT Infrastructure**

8. As an international financial centre, Hong Kong is facing various challenges brought by a fast-evolving financial landscape. Financial crimes have become increasingly complex and diverse. Criminals engaging in ML/TF activities use increasingly sophisticated techniques to disguise funds obtained from illegal activities such as drug trafficking, corruption, tax evasion and fraud, and in particular higher-end crimes involving professional syndicates operating across borders. The emergence of virtual assets, development of financial technologies and proliferation of cybercrimes in recent years has posed an additional challenge to conventional means of law enforcement. To stay ahead of criminals, it is of vital importance for the HKPF to apply advanced technologies to support intelligence development work and facilitate financial investigation.

9. In recent years, reporting entities (international financial institutions in particular) have already adopted regulatory technology (“RegTech”)<sup>7</sup> tools to enhance AML/CTF monitoring, reporting and compliance. The use of RegTech strengthens the capabilities of reporting entities in identifying emerging ML/TF risks and detecting suspicious transactions for onward submission to JFIU. To keep pace with the technological advancement in financial institutions and ensure that the JFIU maintains sufficient capabilities of processing financial intelligence

---

<sup>6</sup> Fraud and deception are the predominant crimes investigated and prosecuted for ML in Hong Kong. In 2020, 2 594 stop payment requests were processed with \$3,067 million withheld. With live intelligence fed by the banks, 95 arrests were coordinated when the culprits approached the banks for operating the money laundering accounts.

<sup>7</sup> RegTech is a sub-set of financial technologies that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively.

provided by its reporting entities, it is necessary for the JFIU to be equipped with a more sophisticated IT infrastructure leveraging on advanced technologies and data analytics solutions such as big data analytics, network analysis, machine learning and artificial intelligence (“AI”). This will assist the JFIU in expediting the processing of STRs and, more importantly, in performing sophisticated intelligence cultivation work and producing value-added analyses of strategic value through closer interface with the databases/systems of other government agencies while capitalising on intelligence obtained from additional information sources. There is a genuine need to develop the proposed FDAP to improve the quality of the HKPF’s financial data analysis and support the modern-day need of law enforcement.

## **THE PROPOSAL**

### **Financial Data Analytic Platform**

10. To supplement STREAMS in developing financial intelligence, we propose to develop a new financial data analytic platform for operation and oversight by the JFIU. While STREAMS will continue to receive STRs, the proposed FDAP will be equipped with data processing and analytic capabilities to be supported by advanced technologies such as data mining, machine learning and AI, with a view to supporting the JFIU in conducting strategic analysis and disseminating value-added intelligence to counterparts in a more efficient and timely manner.

#### *AML/CTF analytical tools*

11. The proposed FDAP will be equipped with sophisticated AML/CTF analytical tools for performing risk assessment on STRs received through STREAMS and intelligence collected by the JFIU. With inputs of specific risk indicators and parameters such as ML/TF risks of certain geographical locations, characteristics of high-risk entities, etc., the proposed FDAP will be able to identify anomalies and alert JFIU officers. The proposed FDAP will also be equipped with functions such as fund flow analysis and network analysis by performing extensive mapping of multiple data sources to help uncover illicit fund flow as well as hidden network in a more efficient and effective manner. The analysis can be further refined by data mining, machine learning and AI over time with growing amount of data stored and observations of trends.

12. The proposed FDAP will be embedded with interfaces to obtain information from other systems of various government departments to expedite the data exchanges amongst the departments.<sup>8</sup> Additional functions such as automatic crawling of information will streamline data collection from open sources, such as sanction lists of the United Nations, ML/TF-related news etc., saving much effort in web browsing and manual updating.

13. In terms of data processing, the proposed FDAP will enable processing of both structured and unstructured data<sup>9</sup>, which can help ensure accuracy in data matching process, in particular in conducting parallel investigations. The proposed FDAP will be able to extract unstructured data from different sources such as media reports and typology reports, and analyse relevant information through the use of optical character recognition and natural language processing.

14. With the proposed AML/CTF analytical tools, it is expected that the decision-making process of the JFIU can be streamlined. For instance, it is expected that the feedback on consideration of handling property involved in STRs can be provided to reporting entity within one week.

#### *Internal user portal*

15. Apart from the aforesaid analytical tools, the proposed FDAP also provides an internal platform for JFIU officers and other specialised formations<sup>10</sup> of the HKPF to facilitate investigation of ML/TF cases, as well as to provide, update, analyse and disseminate intelligence. System interfaces with the HKPF's other internal systems, such as STREAMS of the JFIU and the systems used by the Anti-Deception Coordination Centre, will also be established for consolidating data from multiple internal sources to support ML/TF case investigation. Business intelligence and reporting tools for visualising the intelligence information will be provided

---

<sup>8</sup> The project has already covered additional costs that may arise from the enhancement of other databases/systems interfacing with the new system.

<sup>9</sup> Structured data refers to data with a pre-defined data model, or data organised in a predefined manner. Unstructured data refers to data in different forms and not structured in a predefined manner, such as email messages, images, etc..

<sup>10</sup> Other specialised formations of the HKPF include the Money Laundering and Terrorist Financing Risk Assessment Unit, Anti-Deception Coordination Centre, as well as Fraud and Money Laundering Intelligence Taskforce.

to users to identify crime trends and other significant observations, and to automate the generation of intelligence reports and letters.

#### *External user portal*

16. The proposed FDAP provides an external portal which is a secured channel for the JFIU to exchange criminal intelligence, typologies and trends with other domestic and overseas LEAs. It will also facilitate the JFIU to expedite the processing of requests for intelligence and investigation support from foreign counterparts.

### **Implementation**

17. We plan to adopt a hybrid approach for developing the proposed FDAP, involving the procurement of a commercial-off-the-shelf (“COTS”) solution and development of a bespoke system. The hybrid approach has two major benefits. On one hand, procuring COTS solution allows the system to leverage on the highly specialised solution developed by AML/CTF domain experts with international sources of intelligence and global experience. On the other hand, the development of a bespoke system provides flexibility and allows customisation of the analytical modules to cater for local investigative needs and help mitigate the risk of over-reliance on COTS solution.

18. Subject to funding approval of the Legislative Council, the HKPF will carry out tendering for the proposed FDAP as soon as possible, with a view to awarding contract(s) in around the second quarter of 2022. To enable early implementation, the project will be divided into sub-projects for implementation in parallel. The AML/CTF analytic tools and the external user portal are expected to be rolled out in the fourth quarter of 2022. Customisation of the AML/CTF analytic tools and the internal user interface will be rolled out in phases from 2024 to 2027. Full commissioning of the FDAP is targeted in 2027. A tentative implementation schedule is at **Annex A**.



## **FINANCIAL IMPLICATIONS**

### **Non-recurrent Expenditure**

19. The proposal will involve an estimated non-recurrent expenditure of \$698,113,000 over a six-year period from 2021-22 to 2026-27, with breakdown at **Annex B**.

### **Other Non-recurrent Expenditure**

20. In addition, the implementation of the proposed FDAP will require a project team comprising officers with the necessary knowledge and expertise in AML/CTF for developing and customising data analysis models of the proposed FDAP. This entails a total staff cost of \$45,148,000 from 2021-22 to 2026-27, which will be absorbed by the existing resources of HKPF.

### **Recurrent Expenditure**

21. The estimated recurrent expenditure for the proposed FDAP will be \$25,770,000 per annum in 2025-26 and 2026-27, and will increase to \$47,635,000 per annum from 2027-28 onwards. The recurrent expenditure will mainly cover hardware and software maintenance, cloud services, system maintenance, engagement of contract staff and regular user trainings. The cost breakdown is at **Annex C**.

### **Cost Savings**

22. Upon the full commissioning of the FDAP, it is estimated that an annual notional saving of \$4,552,000 will be generated from 2027-28 onwards. The notional savings will be achieved through staff efficiency gain as a result of automation of data input and processing.

## **ADVICE SOUGHT**

23. Members are invited to support the proposal, which will go a long way towards enhancing the HKPF's capability in developing financial intelligence and combating financial crimes. Subject to Members' views, we will proceed to seek the funding approval of the Finance Committee within this legislative session.

**Financial Services and the Treasury Bureau  
Hong Kong Police Force  
June 2021**

**Tentative Implementation Schedule  
for the Financial Data Analytic Platform**

<b>Task</b>	<b>Target Completion Date</b>
(a) Tender preparation, tender evaluation and award of contracts	Q2 2022
(b) Initial roll-out of the AML/CTF analytic tools	Q4 2022
(c) Roll-out of the external user portal	Q4 2022
(d) Roll-out of the customised AML/CTF analytic tools	Q1 2024
(e) Roll-out of the first phase of the internal user portal	Q2 2024
(f) Roll-out of the last phase of the internal user portal	Q1 2027
(g) Full commissioning of the proposed FDAP	Q1 2027
(h) System nursing	Q2 2027

**Non-recurrent Expenditure  
for the Provision of Financial Data Analytic Platform**

<b>Item</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>	<b>2024-25</b>	<b>2025-26</b>	<b>2026-27</b>	<b>Total</b>
	<b>(\$'000)</b>						
(a) Hardware		73,556					73,556
(b) Software		106,635					106,635
(c) Communication Network		592					592
(d) Cloud Services		1,137	1,137	1,137	1,137	1,137	5,685
(e) Implementation Services		500	96,860	67,900	8,880	6,380	180,520
(f) Contract Staff	11,193	60,084	64,424	64,424	31,067	28,898	260,090
(g) Site Preparation			112				112
(h) Training		2,486	2,486	2,486			7,458
(i) Contingency	1,119	24,499	16,502	13,595	4,108	3,642	63,465
<b>Total</b>	<b>12,312</b>	<b>269,489</b>	<b>181,521</b>	<b>149,542</b>	<b>45,192</b>	<b>40,057</b>	<b>698,113</b>

**Note:**

- Item (a): The estimate of \$73,556,000 is for acquiring the computer hardware for the proposed FDAP, including servers, storage devices, backup devices, etc..
- Item (b): The estimate of \$106,635,000 is for acquiring related computer software, including servers application, database application, backup application, analytical tools, etc..
- Item (c): The estimate of \$592,000 is for acquiring communication network, including network switches, etc..
- Item (d): The estimates of \$5,685,000 is for rental of the Government Cloud Infrastructure Services to host the proposed external user portal.

- Item (e): The estimate of \$180,520,000 is for engaging service providers for implementation and support services. Main implementation activities include system analysis and design, application development, system installation and configuration, infrastructure implementation at data centres, production rollout and nursing, etc.
- Item (f): The estimate of \$260,090,000 is for hiring contract IT professional staff to carry out project management duties, including project planning and monitoring, development of application, infrastructure, enhancement of other systems interfacing with the new system, and conducting system acceptance tests.
- Item (g): The estimate of \$112,000 is for site preparation in respect of installation of network ports, power sockets and cabling channels etc. at data centres.
- Item (h): The estimate of \$7,458,000 is for providing relevant training service for external and internal stakeholders.
- Item (i): The estimate of \$63,465,000 represents a 10% contingency on the items (a) to (h) above.

**Annual Recurrent Expenditure  
for the Financial Data Analytic Platform**

<b>Item</b>	<b>2025-26</b>	<b>2026-27</b>	<b>2027-28 onwards</b>
		<b>(\$'000)</b>	
(a) Hardware and Software Maintenance	23,073	23,073	23,073
(b) Communication Network	70	70	70
(c) Cloud Services	-	-	1,137
(d) System Maintenance	1,570	1,570	7,450
(e) Contract Staff	-	-	14,848
(f) Training	1,057	1,057	1,057
<b>Total</b>	<b>25,770</b>	<b>25,770</b>	<b>47,635</b>