

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

#### **HEAD 710 – COMPUTERISATION**

##### **Hong Kong Police Force**

##### **New Subhead “Development of Financial Data Analytic Platform for the Hong Kong Police Force”**

Members are invited to approve the creation of a new commitment of \$698,113,000 for the development of a Financial Data Analytic Platform.

### **PROBLEM**

The Hong Kong Police Force (HKPF) needs to develop a Financial Data Analytic Platform (FDAP) for the Joint Financial Intelligence Unit (JFIU) in order to enhance its capability in developing financial intelligence and harnessing advanced technologies to combat increasingly sophisticated financial crimes.

### **PROPOSAL**

2. The Commissioner of Police, with the support of the Secretary for Financial Services and the Treasury and the Government Chief Information Officer, proposes to create a new commitment of \$698,113,000 to develop an FDAP.

### **JUSTIFICATION**

#### **Recommendation of the Financial Action Task Force**

3. 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

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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”. Following the latest round of mutual evaluation conducted by the 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 (STREAMS)**

4. 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 foreign law enforcement agencies (LEAs). The output of the JFIU ranges 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.

5. At present, the JFIU relies on the STREAMS to receive, process and disseminate STRs. Based on the output 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.

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

<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.

(a) *Maintaining data of STRs*

STREAMS serves as the STR database for Hong Kong. Reporting entities (including financial institutions<sup>3</sup> and designated non-financial businesses and professions<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, transactions and properties arousing ML/TF suspicion, financial accounts involved, suspected crimes, 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 C&ED for identification of criminal records, connections and linkages or other threads. STREAMS will then identify relevant ML/TF cases (e.g. 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 the 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.

(d) *Providing feedback to reporting entities*

STREAMS allows JFIU officers to provide feedback on the STRs received to the reporting entities, such as advising them on how to handle the relevant properties reported in the STRs.

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<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

6. 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 and advanced strategic analysis which is instrumental in facilitating financial investigation.

7. 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.

8. 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", i.e. complex STRs involving hundreds of suspects, thousands of accounts and numerous transactions, is also on the rise. 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 unrelated syndicated networks and criminal associations. In the absence of advanced analytical tools, it takes JFIU officers considerable time to identify

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<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.

syndication and association of criminals through manual analysis of STRs. Such lengthy analysis and processing may lead to delay in disseminating value-added intelligence to domestic and foreign counterparts for investigation, enforcement and recovery actions, which in turn might cause more financial losses to victims, in particular for 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 the JFIU.

### **The Need for Upgrading IT Infrastructure to Combat ML/TF**

9. 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 the 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.

10. 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 the JFIU. To keep pace with the technological advancement in financial institutions and ensure that the JFIU maintains sufficient capabilities of processing financial intelligence provided by 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

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<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 billion 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.

closer interface with the databases/systems of other government agencies while capitalising on intelligence obtained from additional information sources. The development of the proposed FDAP will not only improve the quality of financial data analysis conducted by the JFIU and support the modern-day need of law enforcement, but also help ensure that Hong Kong's intelligence system will not fall behind that of other jurisdictions.<sup>8</sup>

### **Proposed FDAP and Expected Benefits**

11. To supplement STREAMS in developing financial intelligence, we propose to develop a new FDAP for operation and oversight by the JFIU. While STREAMS will continue to receive and maintain STRs, the proposed FDAP will be equipped with data processing and analytic capabilities 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 its counterparts in a more efficient and timely manner.

#### *AML/CTF analytical tools*

12. 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 a growing amount of data stored and observations of trends.

13. The proposed FDAP will be embedded with interfaces to obtain information from the databases/systems of other government agencies in a bid to expedite data exchanges amongst them. 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., and help save much effort in web browsing and manual updating.

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<sup>8</sup> In many advanced economies including Australia, Korea, Israel, Russia, Singapore and the United States, LEAs have already developed advanced financial intelligence analytical systems which apply advanced technologies such as automatic analytical tools, data mining and big data analytics in developing intelligence and facilitating criminal investigation.

14. 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 when 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.

15. 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 properties involved in STRs can be provided to reporting entities within one week.

#### *Internal user portal*

16. 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 provide, update, analyse and disseminate intelligence so as to facilitate investigation of ML/TF cases. System interfaces with the HKPF's other internal systems, such as STREAMS and the Electronic Stop Payment System 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 to users to identify crime trends and other significant observations, and to automate the generation of intelligence reports and letters.

#### *External user portal*

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

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<sup>9</sup> Structured data refers to data with a predefined data model, or data organised in a predefined manner such as name, date or address in pre-set format; whereas unstructured data refers to data in different forms and not structured in a predefined manner, such as email, text 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.

### Hybrid Development Approach

18. With reference to local needs and overseas experiences, the HKPF, in consultation with the Office of the Government Chief Information Officer (OGCIO), plans 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 proposed FDAP 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 specific system development.

### 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 as follows –

Item	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	Total
	(\$'000)						
(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>



20. On paragraph 19(a) above, the estimate of \$73,556,000 is for acquiring computer hardware for the proposed FDAP, including servers, storage devices, backup devices, etc.

21. On paragraph 19(b) above, the estimate of \$106,635,000 is for acquiring related computer software, including server application, database application, backup application, analytical tools, etc.

22. On paragraph 19(c) above, the estimate of \$592,000 is for acquiring communication network, including network switches.

23. On paragraph 19(d) above, the estimate of \$5,685,000 is for rental of the Government Cloud Infrastructure Services to host the proposed external user portal.

24. On paragraph 19(e) above, the estimate of \$180,520,000 is for engaging service providers for implementation and support services, including system analysis and design, application development, system installation and configuration, infrastructure implementation at data centres, production rollout and nursing, etc. To support the interface with various databases/systems of other government agencies, the estimate also covers the costs for modification of such databases/systems.

25. On paragraph 19(f) above, 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 building, enhancement of other databases/systems interfacing with the proposed FDAP, and conducting system acceptance tests.

26. On paragraph 19(g) above, 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.

27. On paragraph 19(h) above, the estimate of \$7,458,000 is for providing relevant training services for external and internal stakeholders.

28. On paragraph 19(i) above, the estimate of \$63,465,000 represents a 10% contingency on the items set out in paragraph 19(a) to (h) above.

**/Other .....**

### Other Non-recurrent Expenditure

29. In addition, the implementation of the proposed FDAP will require a project team comprising officers with 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 the HKPF.

### Recurrent Expenditure

30. 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 breakdown is as follows –

	Item	2025-26	2026-27	2027-28 onwards
			(\$'000)	
(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>

31. Besides, ongoing system operation administration and monitoring of system performance will involve an annual staff cost of \$1,440,000 per annum from 2027-28 onwards. The HKPF will meet the requirement through internal staff redeployment.

### Cost Savings

32. Upon the full commissioning of the proposed FDAP, it is estimated that an annual notional staff 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.

Encl. 33. A cost and benefit analysis for the proposed FDAP is at Enclosure.

/IMPLEMENTATION .....

**IMPLEMENTATION PLAN**

34. To enable early implementation, the project will be divided into sub-projects for implementation in parallel. Subject to the approval of the FC, the HKPF will carry out tendering for the proposed FDAP as soon as possible, with a view to awarding contracts in the second quarter of 2022. The AML/CTF analytic tools and the external user portal are expected to be put in place 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 proposed FDAP is targeted in 2027. The HKPF and OGCIO will closely monitor the implementation progress throughout the project. The implementation schedule is as follows –

	<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

**PUBLIC CONSULTATION**

35. We consulted the LegCo Panel on Financial Affairs on 5 July 2021. Members supported the submission of the proposal to the FC for funding approval.

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Financial Services and the Treasury Bureau  
 Hong Kong Police Force  
 July 2021

**Cost and Benefit Analysis for the Development of Financial Data Analytic Platform**

Item	Cash flow (\$'000)								
	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	Total
<b>1. Non-recurrent</b>									
Expenditure	12,312	269,489	181,521	149,542	45,192	40,057	-	-	698,113
Staff cost	7,523	7,525	7,525	7,525	7,525	7,525	-	-	45,148
<b>Total Non-Recurrent Cost</b>	<b>19,835</b>	<b>277,014</b>	<b>189,046</b>	<b>157,067</b>	<b>52,717</b>	<b>47,582</b>	-	-	<b>743,261</b>
<b>2. Recurrent</b>									
Expenditure	-	-	-	-	25,770	25,770	47,635	47,635	146,810
Staff cost	-	-	-	-	-	-	1,440	1,440	2,880
<b>Total Recurrent Cost</b>	-	-	-	-	<b>25,770</b>	<b>25,770</b>	<b>49,075</b>	<b>49,075</b>	<b>149,690</b>
<b>Total Non-recurrent and Recurrent Cost (A)</b>	<b>19,835</b>	<b>277,014</b>	<b>189,046</b>	<b>157,067</b>	<b>78,487</b>	<b>73,352</b>	<b>49,075</b>	<b>49,075</b>	<b>892,951</b>
<b>3. Savings</b>									
Notional savings <sup>Note</sup>	-	-	-	-	-	-	4,552	4,552	9,104
<b>Total Savings (B)</b>	-	-	-	-	-	-	<b>4,552</b>	<b>4,552</b>	<b>9,104</b>
<b>Net Savings (C) = (B) - (A)</b>	<b>(19,835)</b>	<b>(277,014)</b>	<b>(189,046)</b>	<b>(157,067)</b>	<b>(78,487)</b>	<b>(73,352)</b>	<b>(44,523)</b>	<b>(44,523)</b>	<b>(883,847)</b>
<b>Net Cumulative Savings</b>	<b>(19,835)</b>	<b>(296,849)</b>	<b>(485,895)</b>	<b>(642,962)</b>	<b>(721,449)</b>	<b>(794,801)</b>	<b>(839,324)</b>	<b>(883,847)</b>	

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<sup>Note</sup> The notional savings will be achieved through staff efficiency gain as a result of automation of data input and processing.