

ITEM FOR FINANCE COMMITTEE

CAPITAL WORKS RESERVE FUND

HEAD 710 – COMPUTERISATION

Hong Kong Police Force

New Subhead “Development of Centralised Digital Image Platform for the Hong Kong Police Force”

Members are invited to approve the creation of a new commitment of \$358,909,000 for the development of the Centralised Digital Image Platform for the Hong Kong Police Force.

PROBLEM

The Hong Kong Police Force (HKPF) needs to develop a Centralised Digital Image Platform (CDIP) to store, process, retrieve and share digital images with evidential or intelligence value in order to enhance its operational efficiency, investigative and intelligence capabilities, as well as to improve information security.

PROPOSAL

2. The Commissioner of Police, with support of the Secretary for Security and the Government Chief Information Officer, proposes to create a new commitment of \$358,909,000 for the development of CDIP.

JUSTIFICATION

Room for Improvement in the Current Digital Image Handling Arrangements

3. Frontline police officers and crime officers in HKPF’s operational formations may, in the light of operational needs, record or collect video footage during the course of duty for the purpose of evidence collection, case investigation,

/etc.

etc. Currently, all collected videos¹ are duplicated into “master copy” and “working copy” through the terminal of the Integrated Digital Storage Media Duplication System (Duplicating Station) and stored in DVDs². During the process of duplicating the videos, the officers in charge of the case must remain at the Duplication Stations to ensure the successful duplication of the videos into the DVDs and prevent unauthorised interference and access. The above arrangements for handling digital images still have room for improvement. It is necessary for HKPF to develop a CDIP to replace the use of DVDs for storage and enhance work efficiency. The relevant justifications are as follows –

(a) The demand for handling video footage continues to increase

In recent years, the number of videos and the data capacity of files processed by HKPF have been increasing steadily. Duplication of videos through the Duplicating Stations has also become more frequent. Compared to 2018, the annual number of video duplication has increased by varying percentages ranging from 18% to 70%. Additionally, the data capacity of video files has increased by 2.6 times its previous size over the past three years. In 2023, the average data capacity processed per video duplication is estimated to be around 80 GB, which is almost three times the 27 GB capacity in 2018. The demand for collecting videos by HKPF has been growing to meet various operational needs. Moreover, with improvement in the video resolution, it is expected that the volume of video processing will continue to increase.

(b) The efficiency of searching, retrieval and sharing of video footage falls short of expectations

Currently, police officers responsible for duplicating videos must store the videos onto DVDs through the Duplicating Stations. These DVDs are then stored securely in their respective offices as working copies. However, due to the lack of a centralised storage repository for videos, other police officers need to make access requests to the relevant teams in order to view certain videos. This leads to a lack of a systematic and real-time identification and viewing of videos with investigative or intelligence value. The process of sharing and

/accessing

¹ Sources of videos include HKPF’s camera devices, close-circuit televisions (CCTVs) installed in public places and the Internet, etc.

² Police officers will first seal the master copies in tamper-evident property envelopes and store them in evidence room for use as court exhibits. HKPF’s technical experts will also prepare a testimonial to be submitted to the court, demonstrating the integrity of the master copies. The working copies, on the other hand, will be stored in the case files and managed by the supervisors of the respective video teams for access by the relevant personnel.

accessing videos is also cumbersome. The current decentralised storage model for DVD creates inconvenience to police officers working in different locations, thereby reducing the efficiency of intelligence sharing and affecting criminal investigations by HKPF.

(c) Insufficient transmission speed of digital images

Since the current network infrastructure is not designed for frequent and high-speed data transmission of a large number of high-resolution, or ultra-high-resolution multimedia files such as 4K or 8K CCTV video clips, and the network speed needs to be shared with other applications within HKPF, the actual average transmission speed is around 10 Mbps only. The current inefficient transmission not only hinders video sharing but also increases reliance on the current mode of duplication and storage of DVDs, thus causing inconvenience to criminal investigations.

(d) Information security risks associated with DVDs

During the investigation, police officers will attach working copies of DVDs to physical file documents, which puts the DVDs at risk of being lost or damaged during storage. In addition, under the current procedure, the usage trail of the discs relies on manual recording, which may lead to errors and omissions.

(e) Continuous management and maintenance of DVDs consume resources

A high-definition video often needs to be stored in multiple DVDs, which increases the time and number of discs required for video duplication. This not only requires more storage space for the discs but also adds inconvenience to the work of police officers. Moreover, owing to the limited lifespan of DVDs, the contents stored needs to be duplicated onto new discs every five years at present. Additional resources are therefore required, which also resulted in the need for continuous management and maintenance of DVDs.

The Proposed CDIP

4. The proposed CDIP will provide a centralised information system that allows frontline officers from different units to store, process, retrieve, and share digital images with evidential or intelligence value from various sources in a more secure and efficient manner.

/Expected

Expected Benefits

5. The following benefits are expected to be derived from the proposed project –

(a) ***Enhancing the efficiency of handling digital images***

The image data uploaded to the proposed CDIP will be automatically backed up with a master copy and a working copy. The master copy will be securely stored in the proposed CDIP's centralised encrypted repository to ensure its integrity and preservation for future use as court exhibits. As for the working copy, authorised personnel can access the proposed CDIP for investigative or intelligence gathering purposes. They can quickly identify the required videos through extensive metadata, tags and default parameters associated with the digital images. This allows for efficient correlation analysis and simultaneous viewing of related videos, thus enhancing the efficiency of criminal investigation work.

(b) ***Reducing the workload of duplicating videos and maintaining DVDs***

In future, videos will only be uploaded to the proposed CDIP without the need for duplication onto DVDs, which will reduce the related workload. This can also reduce the workload and resources involved in duplicating videos and maintaining DVDs, and frees up the manpower and resources currently dedicated to handling digital images, effectively improving the operational efficiency and enhancing overall efficiency of police service.

(c) ***Increasing the transmission speed of digital images***

HKPF will optimise the corresponding network infrastructure to improve the transmission speed of file upload to and download from the proposed CDIP. This includes significantly improving the communication speed of the network connecting the Police Headquarters as well as 45 offices and six Regional Headquarters, which enables efficient upload and download of high-definition and ultra-high-definition multimedia of large file sizes, thereby enhancing work efficiency. After optimising the network, uploading a 4GB video to the proposed CDIP will take one minute only, which is approximately 30 minutes less than the time required for the original duplication arrangement.

/(d)

(d) Strengthening information security

Digital images, after encryption, will be uploaded to the proposed CDIP's centralised encrypted server. In order to access to the videos, police officers will be required to undergo identity verification and access control, which can effectively minimise the current risk of unauthorised access to digital images. Also, by phasing out the use of DVDs, the proposed CDIP avoids data leakage due to the loss of DVDs and strengthening information security. The proposed CDIP's audit tracking function also effectively enhances the management of digital image storage and records the usage trail of personnel using the platform, thus reducing the possibility of improper use of data and violation of the Personal Data (Privacy) Ordinance.

FINANCIAL IMPLICATIONS**Non-recurrent Expenditure**

6. HKPF has conducted parallel tendering for the proposed development of CDIP. After considering the returned tender prices from parallel tendering, the estimated non-recurrent expenditure for the proposed CDIP for the period from 2024-25 to 2028-29 is \$358,909,000, with breakdown as follows –

	2024-25 (\$'000)	2025-26 (\$'000)	2026-27 (\$'000)	2027-28 (\$'000)	2028-29 (\$'000)	Total (\$'000)
(a) Hardware	126,063	-	-	-	111,875	237,938
(b) Software	16,076	-	-	-	-	16,076
(c) Communication Network	10,699	10,459	20,917	-	-	42,075
(d) Implementation Services	1,056	1,000	3,872	2,112	-	8,040
(e) Contract Staff	5,747	9,370	5,697	663	-	21,477
(f) Site Preparation	101	101	203	-	-	405
(g) Training	-	-	100	-	-	100
(h) Others	-	85	85	-	-	170
(i) Contingency	15,974	2,102	3,087	278	11,187	32,628
Total	175,716	23,117	33,961	3,053	123,062	358,909

7. On paragraph 6(a) above, the estimated expenditure of \$237,938,000 is for acquisition of computer hardware, including server, storage devices and system backup equipment, etc.

8. On paragraph 6(b) above, the estimated expenditure of \$16,076,000 is for acquisition of related computer software, including system management software, application server, database, video streaming, video processing and system backup, etc.

9. On paragraph 6(c) above, the estimated expenditure of \$42,075,000 is for acquisition of communication and network equipment for connecting computers and server and for the set-up of high-speed data transmission lines among the Police Headquarters and various units.

10. On paragraph 6(d) above, the estimated expenditure of \$8,040,000 is for hiring of services from service provider to implement the project including system development and upgrade of the Duplicating Stations.

11. On paragraph 6(e) above, the estimated expenditure of \$21,477,000 is for engagement of IT contract staff to provide project management services, including project planning and supervision, preparation for tender-related matters, liaising with project stakeholders, coordinating site preparation work and the related infrastructure, supporting application development and conducting system acceptance tests.

12. On paragraph 6(f) above, the estimated expenditure of \$405,000 is for site preparation works and installation works of network ports, power socket and cabling at the offices of the relevant units (such as the Regional Headquarters).

13. On paragraph 6(g) above, the estimated expenditure of \$100,000 is for staff training.

14. On paragraph 6(h) above, the estimated expenditure of \$170,000 is for “Security Risk Assessment and Audit” and “Privacy Impact Assessment” of the proposed CDIP.

15. On paragraph 6(i) above, the estimated expenditure of \$32,628,000 represents a 10% contingency on the costs items set out in paragraphs 6(a) to (h) above.

/Other

Other Non-recurrent Expenditure

16. HKPF will need to establish a project team for the development of the proposed CDIP, including project management, provision of professional advice to contractors on user requirements and system development, and system acceptance tests. The project team will entail a non-recurrent staff cost of \$535,000 from 2024-25 to 2027-28, which will be absorbed by the existing resources of HKPF.

Recurrent Expenditure

17. The estimated recurrent expenditure for the proposed CDIP will be \$14,593,000 in 2026-27, and will increase to \$39,463,000 per annum from 2029-30 onwards. The recurrent expenditure mainly includes the cost of hardware and software maintenance, communication networks, system maintenance, contract staff and consumables, with the breakdown as follows –

	2026-27 (\$'000)	2027-28 to 2028-29 (\$'000)	2029-30 and onwards (\$'000)
(a) Hardware and software maintenance	14,593	14,593	18,647
(b) Communication Network	-	14,893	14,893
(c) System Maintenance	-	804	804
(d) Contract Staff	-	4,569	4,569
(e) Consumables	-	550	550
Total	14,593	35,409	39,463

18. On paragraph 17(a) above, the annual estimated expenditure of \$18,647,000 is for hardware and software maintenance services to support the proposed CDIP.

19. On paragraph 17(b) above, the annual estimated expenditure of \$14,893,000 is for maintenance services for the communication network appliances.

20. On paragraph 17(c) above, the annual estimated expenditure of \$804,000 is for maintenance and support services by the service provider for the proposed CDIP.

21. On paragraph 17(d) above, the annual estimated expenditure of \$4,569,000 is for hiring IT contract staff to work with the internal system support team for maintaining the applications and system infrastructure, as well as enhancing the functions of the proposed CDIP.

22. On paragraph 17(e) above, the annual estimated expenditure of \$550,000 includes consumables.

23. After offsetting the annual realisable savings of \$100,000 (as detailed in paragraph 24(a) below), the proposal will require a net annual recurrent expenditure of \$39,363,000 per annum from 2029-30 onwards.

Cost Savings

24. Upon the full commissioning of the proposed CDIP, it is estimated that the proposal will bring about total annual savings of \$88,328,000 from 2026-27 onwards, comprising –

(a) An annual realisable savings of \$100,000

Upon the commissioning of the proposed CDIP, there is no need for HKPF to purchase DVDs from 2026-27 onwards for storage of digital images, and hence the expenses for purchasing DVD discs, which amount to \$100,000, can be saved.

(b) An annual notional savings of \$88,228,000

The proposed CDIP eliminates the need for police officers to duplicate, maintain, query and deliver DVDs, thereby saving time and workload and improve efficiency. The notional staff cost savings from 2026-27 onwards amount to \$88,228,000. Since the relevant manpower is currently deployed for supporting other tasks as well, the cost savings cannot be realised through deletion of posts. However, the fragmented manpower saved will be redeployed to support other police duties.

Encl. 25. The cost and benefit analysis for the proposed CDIP is at Enclosure.

IMPLEMENTATION PLAN

26. As the proposed CDIP has undergone parallel tendering, subject to the funding approval of the Finance Committee (FC), it is anticipated that the contract will be awarded in September 2024. The proposed CDIP will be rolled out in two phases. Phase One is planned for launch in June 2026, allowing all digital images captured by HKPF's equipment to be uploaded to the proposed CDIP for police officers to view, tag and search digital images, and download the master copies as court exhibits; and Phase Two is planned for launch in February 2027,

/with

with features including map tracking, processing of CCTV digital images, and integration with the Case Management and Investigation System³ (CMIS) interface. The implementation timetable is as follows –

Milestone	Target Completion Date
(a) Award of contract	September 2024
(b) System analysis and design	December 2024
(c) System development	February 2026
(d) User acceptance tests	May 2026
(e) Phase One implementation	June 2026
(f) Phase Two implementation	February 2027

PUBLIC CONSULTATION

27. On 4 April 2023, we presented this proposal to the Panel on Security of the Legislative Council. During the meeting, members supported HKPF to develop the proposed CDIP, and welcomed the use of parallel tendering to ensure that the funding applications will take into account the returned tender prices and avoid the need to increase approved commitment due to higher-than-expected tender outturn prices which will lead to project delays. Subsequently, we conducted parallel tendering for the proposed CDIP. After considering the returned tender prices from the parallel tendering, we consulted the Panel on Security on the above proposal on 7 May 2024. Members supported the above proposal and the submission to FC for funding approval.

28. Comparing with the amount presented to the Panel on Security in April 2023, the non-recurrent cost of the proposed CDIP has decreased from around \$390 million to around \$359 million (reduced by 8% approximately), demonstrating that under market mechanism parallel tendering allows the returned tender prices to better reflect market situation, thereby facilitates project management and increases cost control effectiveness.

Security Bureau
Hong Kong Police Force
June 2024

³ CMIS is an existing application system used by HKPF to assist various units in electronically managing and investigating cases. Police officers can use the system to record, search, and extract case information, thereby optimising the process of handling cases.

Cost and Benefit Analysis for the Development of Centralised Digital Image Platform for the Hong Kong Police Force

Item	Cash flow (\$'000)									
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	Total
1. Non-recurrent										
Expenditure	175,716	23,117	33,961	3,053	123,062	-	-	-	-	358,909
Staff cost	89	223	178	45	-	-	-	-	-	535
Total Non-recurrent Cost	175,805	23,340	34,139	3,098	123,062	-	-	-	-	359,444
2. Recurrent										
Expenditure	-	-	14,593	35,409	35,409	39,463	39,463	39,463	39,463	243,263
Total Recurrent Cost	-	-	14,593	35,409	35,409	39,463	39,463	39,463	39,463	243,263
Total Non-recurrent and Recurrent Cost (A)	175,805	23,340	48,732	38,507	158,471	39,463	39,463	39,463	39,463	602,707
3. Savings										
Recurrent realisable savings ¹			100	100	100	100	100	100	100	700
Recurrent notional savings ²	-	-	88,228	88,228	88,228	88,228	88,228	88,228	88,228	617,596
Total Savings (B)	-	-	88,328	88,328	88,328	88,328	88,328	88,328	88,328	618,296
Net Savings (C) = (B) - (A)	(175,805)	(23,340)	39,596	49,821	(70,143)	48,865	48,865	48,865	48,865	15,589
Net Cumulative Savings	(175,805)	(199,145)	(159,549)	(109,728)	(179,871)	(131,006)	(82,141)	(33,276)	15,589	

¹ Upon the commissioning of the proposed CDIP, there is no need to purchase DVDs for storage of digital images, and hence the expenses for purchasing DVDs can be saved.

² The proposed CDIP eliminates the need for police officers to duplicate, maintain, query and deliver DVDs, saving time and workload, as well as and improving efficiency, thereby bringing about fragmented savings in staff cost. Since the relevant manpower is currently deployed for supporting other tasks as well, the cost savings cannot be realised through deletion of posts. However, the fragmented manpower saved will be redeployed to support other police duties.