

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

### **HEAD 710 – COMPUTERISATION**

### **Independent Commission Against Corruption**

### **New Subhead “Implementation of a New Generation Operations Department Information System”**

Members are invited to approve a new commitment of \$57,457,000 for the implementation of a New Generation Operations Department Information System of the Independent Commission Against Corruption.

### **PROBLEM**

The Independent Commission Against Corruption (ICAC) needs to replace the existing Operations Department Information System (OPSIS) with a new generation OPSIS to meet evolving information technology (IT) and operational needs and better support the entire investigation process and case management of its Operations Department (OPS).

### **PROPOSAL**

2. With the support of the Government Chief Information Officer, the ICAC proposes to create a new commitment of \$57,457,000 to implement a new generation OPSIS to replace the existing OPSIS.

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## JUSTIFICATION

### The Existing OPSIS

3. The OPS is the investigative arm of the ICAC responsible for receiving, considering and investigating alleged corruption and related offences. OPSIS, currently supporting around 700 users, is the mission-critical information system of the OPS to support the entire investigation cycle including, but not limited to, complaint receiving, investigation management, court case management, and statistical compilation and reporting.

4. With the advent of globalisation, IT revolution and rapid changes in the financial market, criminals are quick to exploit IT and sophisticated financial tools to facilitate their illicit activities. This accentuates the need to make use of the latest technologies to investigate corruption and related crimes. The existing OPSIS was launched in 2000. While it has remained reliable, its architecture and design cannot be flexibly adapted to cope with the growing complexity of investigations. It does not allow the OPS to fully reap the benefits of the latest IT tools to enhance its investigative capability. The existing OPSIS faces the following limitations –

*(a) Maintenance*

The existing OPSIS was developed on client-server technologies and its maintenance service will end in March 2012. The hardware and software are reaching the end of their serviceable lives.

*(b) Data correlation and analysis*

Relationships between criminals are getting more indirect and insidious nowadays, and intensive efforts are required to uncover their relationships and suspicious patterns to detect corrupt and related criminal activities. The existing OPSIS does not have the required advance analytical tools to assist investigating officers to conduct analysis.

*(c) Search engine*

The existing OPSIS cannot accommodate a more advanced search engine. As a result, officers have to conduct multiple rounds of checking for retrieving the required information, which is labour intensive and hinders operational efficiency.

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(d) ***Reporting tool***

The existing reporting tool does not allow flexible selection of criteria for report generation, and data collected during the course of investigation such as accounting and financial records cannot be readily processed electronically. Long lead time is required to process these data for further analysis and generating reports.

(e) ***Data entry***

In addition to the existing OPSIS, six other administrative IT systems were built at different times to support the operational requirements of the OPS. Their different data structures entail duplicated efforts for data input. The different architectures, programming languages and input interfaces also result in data storage in different formats, causing difficulties in subsequent data processing and retrieval.

### **The Proposed New OPSIS and its Benefits**

5. The proposed new OPSIS will replace the existing one using the latest technologies and riding on a new design of system architecture and data model. It will provide customised case management functions covering the entire investigation cycle through the use of modern IT tools. It will also replace the six separate administrative IT systems developed over the years to facilitate case management and maintenance in the same environment.

6. The new OPSIS will bring about the following benefits –

(a) ***Improved case data correlation and analysis capabilities***

A new data mining tool with enhanced capacity will be introduced to allow automatic uncovering and extract of suspicious and matching patterns. A modern data analysis tool will be provided to enhance the efficiency and effectiveness in analyzing data, such as accounting and financial records, asset tracing, fund flows, etc. A more advanced visual tool will also be provided to present relationships of selected objects in required pictorial formats in order to give a complete and clear overview of the case.

(b) ***Enhanced searching efficiency***

The new OPSIS will support free text search and document search with sophisticated sorting and filtering capabilities to enhance search

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efficiency. The core functions and features of the existing OPSIS and the other six administrative IT systems will be incorporated into the new OPSIS to provide a consolidated view of all information relating to a case.

**(c) *Improved overall operational efficiency***

A business process re-engineering (BPR) study was conducted in 2010 and identified opportunities to save the effort required in processing investigation data. Based on the study result, the new OPSIS will provide high-speed scanning solution and effective document management functions which are estimated to reduce the time for producing document exhibits by at least 50%. More advanced features will also be introduced to enhance the efficiency and effectiveness in recording the movements of case properties and files, etc.

**(d) *Enhanced reporting tools***

The new OPSIS and the underlying statistical database will be re-designed to enhance flexibility in the generation of investigation and statistical reports. Advanced reporting tools which allow flexible selection of multiple reporting criteria will be introduced to improve efficiency and effectiveness in report generation.

**(e) *Standardised investigation data taxonomy and enhanced data structure***

The new OPSIS design will support standardisation of investigation data taxonomy. Input validation features will be enhanced and comprehensive pre-defined list will be provided for various input fields. More investigation-related forms will be provided with automatic data filling feature, thereby minimising data re-entry. The data structure will be re-designed and system data will be better organised for more effective enquiry.

**(f) *Enhanced security***

The ICAC has stringent control over data and system security. Access control, audit trail and encryption features are implemented in the existing OPSIS. The new OPSIS will be further equipped with enhanced information security features. For example, authentication using ICAC warrant card/staff card will be introduced to restrict access to selected functions where appropriate. Besides, more

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advanced firewall will be installed to safeguard the new system from unauthorised access. Risk assessments will be conducted to ensure appropriate measures are in place regarding authenticity, integrity, confidentiality and non-repudiation of the access to and use of information as well as the protection of personal data from unauthorised or accidental access, processing, erasure or other use.

### **Cost Saving/Avoidance**

7. We estimate that the successful implementation of the new OPSIS will result in saving of \$11,368,000 per year, with breakdown as follows –

- (a) realisable saving of \$6,838,000, being the recurrent maintenance cost of the existing OPSIS. The saving will be used to offset part of the recurrent cost of the new OPSIS; and
- (b) net notional saving of \$4,530,000, mainly due to saving in staff cost of the Commission Against Corruption grade officers through the BPR made possible by the new OPSIS. The notional staff saving will be redeployed to undertake other duties in OPS.

8. We estimate that the implementation of the new OPSIS will also bring about a one-off cost avoidance of \$35,681,000<sup>1</sup> which will be required for upgrading the existing OPSIS to a more advanced platform if it is not replaced. This includes upgrading the programming language, procuring additional hardware and software, and integrating the existing OPSIS with the six separate administrative IT systems.

Encl. 9. A cost and benefit analysis for the proposed development and implementation of new OPSIS is set out at Enclosure.

## **FINANCIAL IMPLICATIONS**

### **Non-recurrent Expenditure**

10. We estimate that the implementation of the new OPSIS will require a non-recurrent cost of \$57,457,000 over a four-year period from 2011-12 to 2014-15, with breakdown as follows –

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<sup>1</sup> The cost avoidance includes \$3,052,000 for hardware, \$3,335,000 for software, \$26,051,000 for implementation service and \$3,243,000 for contingency.

	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>Total</b>
	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>
(a) Hardware	-	2,037	6,967	-	9,004
(b) Software	-	2,598	7,784	-	10,382
(c) Implementation service	2,422	9,687	9,860	10,667	32,636
(d) Site preparation	-	27	101	-	128
(e) Consumables and miscellaneous	-	14	55	15	84
(f) Contingency	242	1,436	2,477	1,068	5,223
<b>Total</b>	<b>2,664</b>	<b>15,799</b>	<b>27,244</b>	<b>11,750</b>	<b>57,457</b>

11. On paragraph 10(a) above, the estimate of \$9,004,000 is for the acquisition of computer hardware, including network and storage equipment including firewall, load balancing equipment, storage area network, etc., various types of servers for web, application, database, authentication, data mining, optical character recognition, etc., and peripheral equipment including scanners, printers and associated computer equipment, etc.

12. On paragraph 10(b) above, the estimate of \$10,382,000 is for the acquisition of computer software, including operating system and related software for various types of servers for web, application, database, authentication, data mining, optical character recognition servers, etc., and software for associated computer equipment.

13. On paragraph 10(c) above, the estimate of \$32,636,000 is for system implementation services, including system analysis, design and development, system installation and testing, system commissioning and project management.

14. On paragraph 10(d) above, the estimate of \$128,000 is for site preparation including installation of the required ducting, patch panels and network cables.

15. On paragraph 10(e) above, the estimate of \$84,000 is for the acquisition of start-up consumables, including backup tape cartridges and printer toners, etc.

16. On paragraph 10(f) above, the estimate of \$5,223,000 represents a 10% contingency on the total estimated expenditure for items set out in paragraphs 10(a) to (e) above.

### Other Non-recurrent Expenditure

17. The proposed implementation of the new OPSIS will entail a non-recurrent staff cost of \$6,897,000. The cost represents a total of 110 man-months of officers for managing the project.<sup>2</sup> The ICAC will absorb the non-recurrent staff cost through internal re-deployment.

### Recurrent Expenditure

18. We estimate that the annual recurrent expenditure for the proposed system will be around \$8,978,000 in a full year from 2017-18 onwards, broken down as follows –

	2013-14 \$'000	2014-15 \$'000	2015-16 \$'000	2016-17 \$'000	2017-18 onwards \$'000
(a) Hardware maintenance	-		464	925	1,570
(b) Software licences and maintenance	268	917	1,826	1,826	1,826
(c) On-going system support and maintenance	-	3,222	5,523	5,523	5,523
(d) Consumables and miscellaneous	-	34	59	59	59
<b>Total</b>	<b>268</b>	<b>4,173</b>	<b>7,872</b>	<b>8,333</b>	<b>8,978</b>

The annual recurrent expenditure will be partially offset by the realisable savings, with the remainder absorbed by the ICAC.

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<sup>2</sup> It consists of 22 man-months of Commission Against Corruption Officer (Upper), 44 man-months of Commission Against Corruption (Middle/Lower) and 44 man-months of Project Coordinator.

19. On paragraph 18(a) above, the estimated annual expenditure of \$1,570,000 is for hardware maintenance of servers, storage area network, network equipment, firewall, load balancing equipment and peripheral hardware facilities.

20. On paragraph 18(b) above, the estimated annual expenditure of \$1,826,000 is for software maintenance and subscription of software licences.

21. On paragraph 18(c) above, the estimated annual expenditure of \$5,523,000 is for on-going system support and maintenance services, including tuning, bug-fixing, patching and minor enhancement.

22. On paragraph 18(d) above, the estimated annual expenditure of \$59,000 is for the procurement of consumables, including backup tape cartridges and printer toners, etc.

## **IMPLEMENTATION PLAN**

23. We plan to implement the new OPSIS according to the following schedule –

<b><u>Activity</u></b>	<b><u>Target completion date</u></b>
(a) Tender preparation, tendering and award of contract	January 2012
(b) System analysis and design	May 2012
(c) System development and testing	July 2013
(d) User acceptance test	December 2013
(e) System installation	February 2014
(f) System rollout and migration	August 2014

24. In implementing the new OPSIS, the ICAC will ensure that all data stored in the existing OPSIS will be removed by means of de-magnetisation and the hard disks physically destroyed before they are disposed of in accordance with the relevant government procedures.



**PUBLIC CONSULTATION**

25. We consulted the Legislative Council Panel on Security on the proposal on 10 February 2011. A demonstration to Members on the limitations of the existing OPSIS vis-à-vis the improvements that will be brought about by the new OPSIS was conducted on 15 March 2011. Members supported the proposal.

**BACKGROUND**

26. In 2004, the ICAC commissioned a consultancy study to map out its IT strategic development plan on the integration and application of IT in the new ICAC Building. The consultant recommended a two-phased IT development plan. The first phase started in 2005 which focused on infrastructure building and system migration to the ICAC Building and implementation of new corporate information and resource management systems to enhance work efficiency. For the second phase, the consultant recommended a technological upgrade for the OPSIS which would become obsolete by around 2010. A separate BPR and feasibility study was completed in June 2010. The BPR and feasibility study proposed to replace the existing OPSIS with a new generation, integrated and enhanced system to support the entire investigation process and case management. System administration and maintenance effectiveness can also be enhanced under one single system environment. The six separate administrative IT systems, together with the existing OPSIS, will be dispensed with upon implementation of the new system.

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**Cost and Benefit Analysis for the Implementation of a New Generation Operations Department Information System**

	Cash Flow (\$'000)													
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
<b>Cost</b>														
<b>Non-Recurrent</b>														
Expenditure	2,664	15,799	27,244	11,750	-	-	-	-	-	-	-	-	-	57,457
Staff Cost	1,568	1,881	1,881	1,567	-	-	-	-	-	-	-	-	-	6,897
Sub-total	4,232	17,680	29,125	13,317	-	-	-	-	-	-	-	-	-	64,354
<b>Recurrent</b>														
Expenditure	-	-	268	4,173	7,872	8,333	8,978	8,978	8,978	8,978	8,978	8,978	8,978	83,492
Sub-total	-	-	268	4,173	7,872	8,333	8,978	8,978	8,978	8,978	8,978	8,978	8,978	83,492
<b>Total Cost</b>	<b>4,232</b>	<b>17,680</b>	<b>29,393</b>	<b>17,490</b>	<b>7,872</b>	<b>8,333</b>	<b>8,978</b>	<b>8,978</b>	<b>8,978</b>	<b>8,978</b>	<b>8,978</b>	<b>8,978</b>	<b>8,978</b>	<b>147,846</b>
<b>Savings</b>														
<b>Non-Recurrent</b>														
Cost Avoidance	-	-	-	35,681	-	-	-	-	-	-	-	-	-	35,681
Sub-total	-	-	-	35,681	-	-	-	-	-	-	-	-	-	35,681
<b>Recurrent</b>														
Realizable Savings	-	-	-	2,849	6,838	6,838	6,838	6,838	6,838	6,838	6,838	6,838	6,838	64,391
Notional Savings	-	1,437	2,874	3,530	4,449	4,476	4,503	4,530	4,530	4,530	4,530	4,530	4,530	48,449
Sub-total	-	1,437	2,874	6,379	11,287	11,314	11,341	11,368	11,368	11,368	11,368	11,368	11,368	112,840
<b>Total Savings</b>	<b>-</b>	<b>1,437</b>	<b>2,874</b>	<b>42,060</b>	<b>11,287</b>	<b>11,314</b>	<b>11,341</b>	<b>11,368</b>	<b>11,368</b>	<b>11,368</b>	<b>11,368</b>	<b>11,368</b>	<b>11,368</b>	<b>148,521</b>
<b>Net Savings</b>	<b>(4,232)</b>	<b>(16,243)</b>	<b>(26,519)</b>	<b>24,570</b>	<b>3,415</b>	<b>2,981</b>	<b>2,363</b>	<b>2,390</b>	<b>2,390</b>	<b>2,390</b>	<b>2,390</b>	<b>2,390</b>	<b>2,390</b>	<b>675</b>
<b>Net Cumulative Savings</b>	<b>(4,232)</b>	<b>(20,475)</b>	<b>(46,994)</b>	<b>(22,424)</b>	<b>(19,009)</b>	<b>(16,028)</b>	<b>(13,665)</b>	<b>(11,275)</b>	<b>(8,885)</b>	<b>(6,495)</b>	<b>(4,105)</b>	<b>(1,715)</b>	<b>675</b>	

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