For discussion
on 6 December 2011

Legislative Council Panel on Security

Development of Asset Management and Maintenance System in the Fire Services Department

PURPOSE

This paper consults the Panel on the proposal to develop the Asset Management and Maintenance System (AMMS) in the Fire Services Department (FSD) to improve the efficiency and effectiveness of its asset management[1].

BACKGROUND

2. Currently, FSD has about 19 000 types of assets including general vehicles, various types of fire appliances and ambulances, vessels, operational equipment, personal gear, uniform, computer system and office equipment, medicine and consumable items, etc. The effective management and maintenance of these assets is of paramount importance to the discharge of duties by frontline staff and the operations of the department.

3. At the Panel meeting on 17 January 2011, we briefed Members on the findings of a management study conducted by the Efficiency Unit (EU) for FSD on procurement and related management issues. One of the main issues pointed out in the study was the absence of an integrated computer system in FSD, which causes much of the procurement work to be done manually. In addition, the lack of readily available management information also makes it difficult for the department to monitor the effectiveness of procurement and inventory control, evaluate suppliers' performance and support the procurement planning work. In light of the above, the study recommended FSD to develop an integrated computer system to improve its efficiency and effectiveness in procurement work.

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[1] **Asset management** includes procurement planning, acquisition, inventory control, asset maintenance and disposal.

THE PROPOSED DEVELOPMENT OF AMMS

4. The AMMS proposed by FSD will be developed on the basis of an off-the-shelf enterprise resource planning system[2]. FSD will suitably modify the system to meet its needs. The system will provide an integrated electronic platform for different units in the department to carry out work on procurement planning, acquisition, inventory control, asset management and repair and maintenance for their assets and equipment. The major functions of the proposed AMMS are as follows:

(a) providing a centralised database that will systematically store all asset related information (such as purchasing price, location of storage, stock quantity and transaction history, etc) for the staff of different units to access and retrieve the information readily;

(b) automating existing manual operations as far as possible. For instance, the system would automatically issue reminder for stock replenishment and prepare purchase order when the quantity of a stock item falls below a pre-defined level. It would also issue notices to relevant units to carry out maintenance basing on the maintenance schedule of the equipment; and

(c) analysing different types of data, and generating statistical and management reports to enable close monitoring and proper planning by FSD. For instance, the system would forecast future demand of spare parts based on the quantity of equipment and the past consumption pattern of spare parts, thereby supporting planning work. The system can also produce maintenance information reports which will facilitate the department in developing better preventive maintenance programme or replacement plan for equipments that have a higher degree of wear and tear. Moreover, the system will generate reports on the status of procured items (e.g. delivery and payment status and the distribution of the delivered items, etc.), thus facilitating FSD in monitoring the progress of procurement and take timely actions.

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[2] **An enterprise resource planning system** refers to an off-the-shelf software package which could meet the organizational needs on asset management and deployment of other resources through providing a centralised database and integrated functions.

EXPECTED BENEFITS

5. The EU has completed the business process study for the proposed AMMS, and considered that it could bring improvement to the procurement and asset management work of FSD, as follows:

(a) Enhance decision making - the system will capture a large amount of asset information and conduct systematic analysis to facilitate decision-making. For instance, it can provide support in monitoring procurement progress, assessing the effectiveness of maintenance work, projecting budget requirements, and formulating asset replacement schedule, etc.

(b) Enhance asset performance monitoring - information such as maintenance and purchase records stored in the system can be instantly accessed. Through analysing the concerned information and the data on supplier performance, relevant staff can observe the trend and make early identification of problems, hence minimizing possible impact on the concerned services.

(c) Enhance inventory control - the system will capture information such as stock level, procurement lead time, demand data and past consumption pattern to facilitate concerned staff in determining the right time and amount of replenishment, thus reducing the space and cost for storage. Excessive or shortage of stock can be avoided as well.

(d) Increase asset availability - the system will take into account the number of maintenance staff, availability of spare parts and supply of maintenance reserve in formulating the preventive maintenance schedule. Hence, the waiting time for the spare parts or maintenance staff will reduce and the availability of the asset will increase.

FINANCIAL IMPLICATIONS

Non-recurrent Expenditure

6. We estimate that the implementation of the proposed AMMS will require a total non-recurrent expenditure of $49.830 million over four

financial years from 2012-13 to 2015-16 for acquisition of the computer hardware, software and related services. A detailed breakdown is at **Annex A**. At the same time, the implementation of the project will entail an additional non-recurrent staff cost of $2.773 million, involving a total of 58 man-months of fire services officers and civilian staff for managing the project. FSD will absorb the non-recurrent staff cost through internal redeployment.

Recurrent Expenditure

7. We estimate that the recurrent cost for the implementation of the proposed AMMS will be $4.520 million in a full year from 2016-17 onwards. Such requirements will be reflected in the Estimates of the relevant years. A detailed breakdown is at **Annex B**. FSD will deploy within the existing resources a total of 15 man-months of fire services officers, civilian staff and IT staff to manage the system and provide system support, entailing a recurrent staff cost of $0.877 million per annum.

Cost Savings

8. We estimate that the implementation of the proposed AMMS will bring about annual savings of $8.538 million in a full year from 2015-16 onwards, comprising -

(a) Realisable savings of $1.997 million per annum

The above savings include the annual maintenance cost of the existing standalone database systems, reduced cost from a decreased level of dead / excessive stock, and savings on maintenance as a result of the enhanced maintenance quality of the assets.

(b) Notional savings of $6.541 million per annum

The notional savings are achieved through productivity gains by automating some clerical work in planning, acquisitions, inventory control, maintenance and disposal of old equipment through the use of the AMMS. The notional savings in manpower will be internally redeployed to monitor and follow up on procurement projects, and support other clerical needs.

IMPLEMENTATION PLAN

9. Subject to Members' views, we plan to seek funding approval from the Finance Committee in January 2012. If the funding approval is granted, we expect that the implementation timetable would be as follows:

	Programme	**Target Completion Date**
(a)	Tender preparation, evaluation and award of contract	July 2012
(b)	System analysis and design	January 2013
(c)	Site preparation, procurement of hardware/software, system installation and modification	November 2013
(d)	System integration tests, data conversion/migration, and security risk assessment and audit[3]	March 2014
(e)	User training	May 2014
(f)	System live-run	June 2014

ADVICE SOUGHT

10. Members are invited to comment on the proposal.

Security Bureau
Fire Services Department
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[3] Since the proposed AMMS will store sensitive data such as tender information and vender details, a security risk assessment and audit on the AMMS is required in accordance with the guidelines of the Office of the Government Chief Information Officer.

Annex A

Non-Recurrent Expenditure for the Development of the Asset Management and Maintenance System

	Items	2012-13 ($'000)	2013-14 ($'000)	2014-15 ($'000)	2015-16 ($'000)	Total ($'000)
(a)	Hardware	4,251	8,547	-	-	12,798
(b)	Software	1,611	1,611	-	-	3,222
(c)	Implementation Services	1,954	1,426	11,723	3,908	19,011
(d)	Contract Staff	1,339	1,685	817	-	3,841
(e)	Site Preparation	-	960	-	-	960
(f)	Consumables	-	987	-	-	987
(g)	Data Conversion	-	4,048	-	-	4,048
(h)	Security Risk Assessment and Audit	-	273	-	-	273
(i)	Training	-	-	160	-	160
	Sub-total :	9,155	19,537	12,700	3,908	45,300
	Contingency :	915	1,954	1,270	391	4,530
	Total :	**10,070**	**21,491**	**13,970**	**4,299**	**49,830**

Annex B

Recurrent Expenditure for the Implementation of the Asset Management and Maintenance System

	Item	2016-17 onwards ($'000)
(a)	Hardware and Software Maintenance	1,478
(b)	System Support Services and Maintenance	2,698
(c)	Consumables	344
	Total :	**4,520**