Chapter 10- Integration of Information Technology (IT) Systems

10.1   Information Technology (IT) initiatives by AIL

The TAP also included implementation and integration of IT solutions as an essential activity for turnaround of the Company. In all, four airline specific IT systems were to be implemented in AIL besides the SAP-ERP. These are:

- Passenger Service System (PSS) implemented in February 2011 for managing booking of tickets, passenger handling and revenue management.

- RAMCO system for Maintenance Repair and Overhaul (MRO) implemented in November 2012 covering procurement process, inventory management and repair and maintenance based on MRO activities.

- Flight Planning System (FPS) for optimal flight planning solutions and flight operation support systems was still under implementation.

- Central Planning and Control System (CPCS) for network planning, scheduling, flight operations control and crew management had been partially implemented.

Audit had already reviewed PSS and RAMCO systems and the findings had been reported in the para no. 2.7 of Report No.21 of 2015 (Volume I) of CAG of India. Though both the systems have been implemented by AIL, several shortcomings were noticed in audit. These included delay in their implementation as well as non-achievement of expected efficiencies apart from non-integration with SAP-ERP system. Audit noticed that FPS is partially operational and has resulted in efficiencies to that extent. A number of modules of the CPCS system, however, are yet to be implemented and hence this system was selected for a detailed study in audit to appreciate the concerns involved.

10.2   Central Planning and Control System- an overview

CPCS comprises of three sub systems:

- Network Planning and Scheduling (NP&S) system which provides solutions for long term, medium term and short term scheduling including daily departures. CPCS had three component systems, namely network planning and scheduling (NP&S), hub control centre/ operations control centre (HCC - OCC) systems and Crew Management System (CMS).

- System for Operations Control Centre and Hub Control Centre (OCC-HCC) intended to support decisions to react to disruptions and for restoring normal operations.

- Crew Management System (CMS) intended to maximise crew utilisation ensuring crew availability and minimising creeping delays by proactive planning.

10.3   Procurement of CPCS

A tender was issued on selective basis (October 2009) to identify a single solution provider for all critical IT enablers constituting CPCS. M/s Lufthansa Systems (LH) and M/s Sabre Solutions (Sabre), were identified by AIL as market leaders and M/s Sabre emerged as the best fit for AIL requirements. Audit observed that,

(i)   AIL had a pending dispute at the time of entering into the new agreement with M/s Sabre (December 2009) on a receivable worth USD 5.335 million since 2004. M/s Sabre had offered (May 2008) an out-of-court settlement of USD 2 million for this past dispute and another USD 1.5 million, if considered for development of Passenger Service System (PSS). This offer of M/s Sabre, was however, not accepted by AIL. However, during price negotiation for CPCS, an amount of USD 0.95 million was only offered by M/s Sabre towards settlement of past dues. This was accepted by AIL. This led to short receipt of USD 1.05 million (₹5.64 crore) by AIL.

Management in its reply (02 February 2016) stated that the offer of M/s Sabre for an out-of-court settlement of USD 3.5 million in 2008 was against the cost of USD 120 million for implementation of PSS and since the value of CPCS project was only USD 24 million, the Committee accepted the offer of USD 950000.

MoCA, reiterating the Management's contention, linked (2 September 2016) the offer of USD 3.5 million made by M/s Sabre in 2008 to the award of PSS while stating at the same time that the offer of USD 3.5 million was a combined offer broken up into USD 2 million upfront and USD 1.5 million if PSS was awarded.

MoCA's reply linking the offer of USD 3.5 million made by M/s Sabre in 2008 to the award of contract for PSS is contradictory to their own statement in the reply that the offer of USD 3.5 million was a combined offer broken up into USD 2 million upfront and USD 1.5 million if PSS was awarded. Further, the documents made available to Audit clearly indicated that the out-of-court settlement for USD 2 million offered by M/s Sabre was unconditional without any link to the implementation of PSS. The additional amount of USD 1.5 million, alone, had been offered against PSS contract. AIL, while concluding the Selective Tendering process by placement of Work Order (WO) on M/s Sabre, should have made sincere efforts to bring M/s Sabre to settle past dues to at least USD 2 million, which was offered in 2008.

(ii)   The CPCS system was required to be operationalised before the Commonwealth Games in October 2010. The contract signed by AIL with M/s Sabre for procurement of CPCS did not have any specific timeline for delivery, nor was any penalty specified in the contract for delay in implementation. Audit noticed that M/s Sabre had implemented only seven out of the 13 modules till date (February 2016). Though CMS has not yet been implemented AIL paid M/s. Sabre ₹1.34 crore towards System Implementation and Professional Service Fee and Travel Incidentals even as alternate interim arrangements had to be made for its implementation. No penalty could be levied by AIL. By not

incorporating timeline and penalty clause in the contract, AIL compromised its commercial and financial interests.

Management in reply (02 February 2016) admitted its failure to incorporate a penalty clause in the master agreement.

MoCA did not offer any specific remarks.

(iii) The contract signed with M/s Sabre for CPCS had a provision for Performance Bank Guarantee (PBG). Audit noticed that the PBG for CPCS contract had expired on 7 July 2011 and no steps had been taken by AIL for its re-validation, though the vendor was yet to fulfill its obligations.

Management, in its reply (02 February 2016) did not comment on its failure to get the validity of the PBG extended to cover the currency of the Contract.

MoCA in their reply (September 2016) stated that AIL was taking appropriate steps to validate the Bank Guarantee and to ensure that this Bank Guarantee remained valid till the end of the Project. MoCA has also stated in their reply that AIL has been directed to avoid recurrence of such lapses in future.

10.4   Implementation of CPCS

As stated at para 10.2 above, CPCS had three component systems of which only two namely network planning and scheduling (NP&S) and hub control centre/ operations control centre (HCC-OCC) systems have been implemented. The third system, namely Crew Management System (CMS) was yet to be completed by M/s Sabre.

Audit noticed that a number of available modules in NP&S were not utilised, as detailed below:

A.   Three unused modules of NP&S system

The NP&S system had five modules (schedule manager, fleet manager, slot manager, code-share manager and profit manager) all of which had been completed. Out of these, three modules viz. fleet manager, slot manager and code-share manager, have not been utilised at all by the Company. In fact, Market Planning Department, the user department for these modules had proposed (December 2014) that these modules be discontinued in view of their non-utilisation and to arrest the recurring expenditure incurred on them. The recurring fees of ₹15.23 crore paid by AIL (till June 2016) have thus been rendered infructuous.

Management in its reply (02 February 2016) stated that the functionality of the three modules were desired by AIL for the purpose of enhancing efficiency gains. It was also stressed that the utilisation of these three modules have deteriorated only in the last one year due to shortage of manpower and that a committee has been formed in October 2015 to revive utilisation of these modules.

MoCA in their reply (September 2016) stated *inter alia* that 5 modules of NP&S are used by Air India, Air India Express and Alliance Air for efficiency gains at various stages of schedule/flight forecasting, planning, construction and schedule implementation.

Audit noted that a Steering Committee has been constituted in December 2015 to re-operationalise the Planning and Scheduling Tool, after the internal communication of the Company in December 2014 regarding non-utilisation of three modules namely Fleet manager, Slot manager and Code-share manager.

B. Lack of vital input data and skilled resources led to non-utilisation of profit manager module

The profit manager module of NP&S system needed to be calibrated with origin and destination data for assigning the correct market shares and passenger traffic to the host airline. AIL evaluated the offers from both IATA (for Pax IS-level 5 data) and M/s Sabre (for Global Demand Data - GDD) and concluded that M/s Sabre was the lowest bidder.

The GDD database required supplemental data for calibration of profit manager module of NP&S. AIL obtained the supplemental data at a cost of ₹9.16 crore. Subsequently, however, M/s Sabre could not deliver the data analyser. AIL cancelled (April 2011) the contract with M/s Sabre. As there was no performance guarantee clause in the contract, no penalty for non-performance was levied on M/s Sabre. As such, the entire expenditure incurred by AIL during the period from April 2010 to September 2014 on the supplemental data was rendered infructuous.

Subsequently, AIL entered into agreement with IATA for the Pax IS data (October 2011). The IATA data could not be used after April 2012 to calibrate profit manager in the absence of skilled manpower. Thus the expenditure of ₹4.53 crore incurred by the Company on procurement of the data from IATA remained infructuous during the period from November 2012 to April 2014[62].

Thus, the Profit Manager Tool remained idle even after the Company incurred expenditure of ₹5.28 crore (monthly recurring U&S fee) and ₹13.69 crore (₹9.16 crore plus ₹4.53 crore) on input data procurement for the module which was not utilised.

Management in reply (02 February 2016) did not offer any comment on Performance Bank Gurantee (PBG) not being taken from M/s Sabre for the GDD data but highlighted that it has not paid any amount to M/s Sabre for data services. The Company also did not comment on the non-operation of profit manager module since April 2012 despite availability of IATA data.

MoCA in their reply (September 2016) stated that a separate PBG was not sought for Work Order 2 (WO2) as the same was provided by Sabre for the Master Agreement, which covered IOCC, CMS and NP&S, since the Global Demand Data was covered under the Master Agreement as WO2.

However, Audit observed that the Master Agreement specifically indicated only Work Order value of USD 3,150,000 relating to WO1. As a result, the WO2 comprising Data Services, Sales and Network Analyzer Module were not covered by the PBG.

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[62] *Only 6 invoices raised by IATA have been made available to Audit. Management did not confirm their finality and completeness.*

MoCA, however, has not offered any remarks on the infructuous expenditure on data procurement pointed out by Audit due to idling of Profit Manager Module.

C. Lack of trained manpower for optimum utilisation of the network planning and scheduling tools

After the initial training by M/s Sabre in May 2010-August 2010, no further training had been organised (March 2016). Meanwhile, Audit observed that, out of 21 officials trained in NP&S system in 2010, only seven remain and the rest have either retired, resigned or have been redeployed elsewhere within AIL. This concern regarding skilled manpower had also been voiced in the internal communications of the Company (November 2014).

Management stated in reply (02 February 2016) that AIL had conducted redeployment exercise to get manpower from within the organisation and to make good the shortfall, AIL had recruited experienced manpower from the IAF placement cell, conducted walk-in exercise to recruit experienced staff and fresh candidates. The Management was of the view that attrition was an inevitable risk due to market forces.

MoCA in their reply (September 2016) stated that the Internal Committee constituted to streamline the Project had already sanctioned the additional manpower requirement and had started allotting contractual employees for the Project. Additionally, the data calibration task was also being mobilised which would enable full utilisation of all the modules in the Tool.

The fact remains that the additional manpower as well as data calibration was yet to be put in place.

10.5 Delay in implementation of Crew Management System

The Contract for Crew Management System (CMS) was awarded to M/s Sabre on 31 December 2009 and was to be implemented by 31 May 2011. In order to implement the CMS, AIL was required to make available appropriate resources, finalise the organisational structure of future CMS department, infrastructure and facility set-up and define the processes of crew planning and data maintenance. The progress in this respect however was slow as also pointed out (September 2010) by Sabre who had continued to flag the same issues as late as in May 2012.

In the meanwhile (August 2011), DGCA issued a new set of Civil Aviation Rules and made it mandatory to implement them by 15 February 2012. When approached, M/s Sabre responded (February 2012) that the CMS system could be implemented by them only by March 2013. AIL adopted an interim solution offered by M/s Sheorey Digital Systems Limited, Mumbai (SDS) and advised M/s Sabre to reschedule the project plan timelines for cockpit and cabin crew combined cut-over by 31 March 2013. The Sabre system was yet to be implemented (February 2016) after a delay of two years. AIL entered into an agreement with SDS on 10 October 2012 for Flight Operations Sub System (FOSS) and Crew Management Sub System. The SDS system was not fully automated and manual interventions were required which persisted even till date.

Management (02 February 2016) did not comment on the delay in implementation of CMS.

The significant delay in implementation of the intended CMS of M/s Sabre resulted in non-adherence to time targets set by DGCA and implementation of an inferior interim system without a clear road map for completion of the Sabre-CMS.

MoCA in their reply (September 2016) stated that the ARMS CMS had to be adopted as a stop gap arrangement due to inability of the Sabre CMS system to meet CAR implementation timelines of DGCA. Sabre, when approached for CMS Implementation, informed about the withdrawal of CMS offered by them earlier and about the development of a new CMS System, which was under evaluation by AIL.

Absence of timely follow-up by AIL and penalty clause for delays in the Contract resulted in non-implementation of Sabre CMS package till date.

10.6	Implementation of Flight Planning System (FPS)

IATA in its Fuel Efficiency Gap Analysis (FEGA) (August 2008) had inter alia recommended a modern Flight Planning System (FPS) for AIL which would enable savings of around USD 55 million per year on account of reduced fuel cost. AIL signed an agreement with M/s. FWZ in March 2009 for implementing FPS and the user acceptance test (UAT) was scheduled to be conducted on 1 April 2010. The FPS is, however, yet to be fully implemented (February 2016). The delay in implementation of FPS was mainly attributable to the technical glitches faced by M/s. FWZ in the course of implementation.

The report (March 2013) of the Dholakia Committee on 'Cost Saving and Resource Optimization in Air India' had brought out that during 2011-12, a savings of ₹110 crore was achieved due to the "Flight Planning and Dispatch" component. The significant delay in implementation of FPS needs to be viewed in the context of partial achievement of anticipated savings.

MoCA, while stating in their reply (September 2016) that all Air India Flights are planned with the new FPS, had also detailed the plans for integration of FPS with the existing IT systems in the future. MoCA further stated that the exchange of data with the existing IT systems was pending due to technical issues.

The reply of MoCA has, however, not addressed the significant delay in implementation of FPS.

AIL, while entering into a contract with the solution provider for Central Planning and Control System (CPCS) did not make adequate efforts to negotiate an appropriate settlement of past dues (receivables) from the latter resulting in an opportunity for cost reduction being lost. Besides, the contract neither had a schedule for completion nor did it penalise delays.

Three out of five modules of Network Planning and Scheduling (NP&S) system were not being utilised despite their implementation as early as May 2010-July 2010. AIL failed to derive the full benefit of the profit manager module on account of problems in data procurement and non-availability of skilled manpower for its operation when the data became available. AIL did not make adequate efforts in development and retention of trained manpower for complete utilisation of the sophisticated NP&S Tools.

Though the urgent procurement of CPCS was meant to streamline the operations of AIL with a view to tap the opportunities presented by the Commonwealth Games (October 2010), there have been delays in the implementation of Crew Management System (CMS), a key component of CPCS, forcing AIL to adopt an alternate inferior solution as an interim measure.