Performance Audit of AST System using the CoBiT Framework

The AST module, a part of ITD Applications, was conceptualized as an on-line, menu driven software capable of carrying out all assessment and related functions. The objective of AST is to "assist the assessing officer in doing assessments and related proceedings". The system was to also monitor the progress and results of a case at various stages viz. assessments, re-assessments, appeal, revision, rectification, penalty, waiver, settlement commission, penalty proceedings as well as prosecutions and audit objections. In practice, however, the software is being used for processing Income Tax returns under section 143 (1) and rectification under section 154. This system was conceptualized in 1994 and development was completed in 1997. Audit evaluation focused on the activities and performance of the system from 2001-02 to 2004-05.

AST is currently operational at 60 stations of a total of 514 stations in the country. In terms of number of assessing officers 2571 out of 4436 are using the system. An in-house application called TMS is used at the other stations. Twelve out of these 60 stations, where AST is currently operational, were selected for audit. The selection covers approximately 50% of the total number of assessing officers using AST.

Methodology

The Audit of the AST system was conducted using the CoBiT framework of the IT Governance Institute, which has been adopted by the Comptroller and Auditor General of India as the framework for conducting Information Technology Audits. The Management was familiarized with the methodology used through an entry conference.

SQL Query:

The errors in the output thrown up in the sample selected, which were systemic in nature, were sought to be further validated by running queries on the entire data at the concerned RCCs. SQL queries were accordingly designed to substantiate systemic issues.

Major Audit Conclusions

Inadequate technical feasibility study of AST system has limited the usefulness of the system and also delayed its implementation as AST is dependent on network connectivity and stabilization of PAN. The dependence of AST on network connectivity has affected its implementation as well as use as the system is not fully available to users on a 24/7 basis. All stations are yet to be brought on the network although eight years have passed since its commencement in 1997.

In the absence of measurable parameters for benefits from the system and details of the cost of the project the economic feasibility of AST could not be assessed.

The envisaged benefits of AST system in terms of increased efficiency have apparently not accrued as the country wide pendency has increased and the number of cases processed on the system had actually declined at two of the selected stations due to both problems of communication links and links with other modules

AST application has been designed and developed without proper synchronization with the enterprise data model, which has a centralized data base of PAN (AIS) functioning as the index key between decentralized ITD applications like OLTAS, TDS and AST. This has led to problems in their implementation as inputs from OLTAS and e-TDS are not reaching AST.

The heavy unreconciled balances in the OLTAS system indicated that the bank validated input regarding the payment of tax, is not available at the time of processing returns. The assessing officer cannot verify through the AST system whether the amount claimed to be paid by the assessee has actually been paid. A similar situation exists for tax deduction at source. Prior period data in respect of arrear demand is also unreliable. This entails a risk of loss of critical information relating to revenue due to the government. Inputs from OLTAS and e-TDS are not reaching AST through IRLA due to problems in the working of this index key of PAN, affecting the processing integrity of the system.

Audit found that although the manual Blue Book and other Registers had been replicated in the AST Module they were not reengineered to take advantage of the information available in the systems environment. The functionalities of these registers were also not in general use leading to controls which had existed in the manual environment being discontinued in the systems environment.

Input form design was not adequate to ensure integrity and completeness of data. The input form does not capture all the data which is required for processing of a return under section 143 (1).

There is no system in the AST software to ensure that all the returns received are being included in the bundles and processed. Field audit reports indicate input controls are inadequate and issues relating to authorization are not adequately addressed.

The control over data entry process was inadequate to detect errors indicating that the necessary verifications of input data were not being done. There was no check box for validation of the mandatory enclosures with a return of income .

There may be data processing errors in the system as indicated by the SQL query run on the

data. Data processing errors are also occurring due to the failure of linkages between modules and incorrect interfaces between modules. Data Processing Integrity was not ensured in the system as illustrated by errors thrown up by the control totals calculated by Audit. The results included cases which would need verification and manual rectification, if necessary. The process of verifying the data processing by running control totals was not in place. Mistakes in the processed returns were being rectified subsequently, on being pointed out either by the assessee or noticed by the department at the time of scrutiny assessment. The system does not evaluate the integrity of the output data by any other check.

A review of the changes carried out in AST revealed that majority of the changes were in the nature of rectifying design deficiencies. The fact that the system has required so many changes is indicative of the fact that there were weaknesses in communicating the User Requirements to the developer; inadequate scrutiny before acceptance of design; and incomplete User Acceptance Testing.

No systematic/inbuilt monitoring in respect of time taken to execute changes by RCCs is available. This could lead to errors remaining un-rectified in the system with risk of loss of revenue. There is no method of impact assessment for the changes carried out in the system.

In the absence of a system of categorization and prioritization of problems, there was a risk that problems of a critical nature, which may even have an impact on the core objectives of the department, may remain unresolved, or may be resolved symptomatically without addressing the cause.

Although user manuals were prepared, these were not available to all the users. The user awareness of the system features was also limited. This resulted in the suboptimal utilization of the features of the software. The process of updating the manuals, as changes take place in computer systems due to changes in the business rules was not in place.

The absence of an operating manual points to incomplete inputs given to operating personnel and a consequent lack of knowledge of procedures.

The process of "Training Needs Identification" was weak. The users were generally not satisfied with the training and wanted more exposure to the features of the AST System. As a result, in most of the instances the full features of the AST software were not being used. Multiplicity of agencies in training organization led to a blurring of efforts and lack of focus.

There was no coherent policy regarding identification of the areas where third party service providers should interface with the organization. There was no uniformity or clarity on the issue of third party contracts. The relationship with the third party service provider was not adequately safeguarded, with reference to security and confidentiality issues, by appropriate provisions in

the contract and supporting processes in a standardized manner.

Major Recommendations

Department should institute a process of conducting specific and detailed technological feasibility studies of projects before taking them up. The existing information architecture with reference to the communication links and AIS as an index key requirement of the ITD Applications needs to be reviewed.

Guidelines need to be laid down for assessing economic feasibility of IT projects. Cost benefit analysis of the AST application development and implementation needs to be carried out. Cost data for each module of the ITD Applications including AST should be separately maintained.

A valid enterprise data model for ITD applications and feasible information architecture to synergize the IT efforts needs to be defined. The linkages should be improved or be made less critical to the functioning of the system. A national database of information in ITD applications is desirable to enable better and efficient MIS reporting and reconciliation of data from different applications. A time bound action plan to link the arrear demand data to AST system is required to ensure that no revenue due to government is lost sight of.

Since availability of the application to the users, is and remains a crucial factor, it is recommended that the Department may consider solutions for connectivity including virtual private networks with the appropriate technology.

A control register of the basic source data which has all necessary pieces of information should be designed within the AST System with inputs as necessary from all the information available in all the modules of ITD Applications. This could be a reengineered format of the Blue Book.

Department may review the source document formats and ensure that they provide for all the information that is necessary for processing of a return. The acceptance of returns and giving of acknowledgement numbers should be made a part of the AST module. Data from the Annual Information Returns should be linked and entered. Crucial information from the Profit & Loss Account and Balance Sheet could also be captured to increase the efficiency of picking up cases for scrutiny through CASS.

Department may institute procedures to ensure that all the returns are entered into the system, in the proper order and all the returns entered are processed in the proper order, by devising reports such as gap-analysis at various stages.

Guidelines for authorization of data before it is entered in the system, for cases when it is done by outside parties etc. need to be laid down. Assessing officers should be issued strict guidelines for verifying the entries made and supervisory authorities should ensure adherence.

A process to check correctness of data entry needs to be instituted. Checks like Control totals of source data and data as input should be devised. A procedure may be considered for detection of data entry error and resubmission under proper authorisation. Department should devise methods for ensuring DP Integrity through an adequate use of control totals run as checks. The department may consider automatic generation of mismatch report and its reconciliation being made a prerequisite for processing.

A method of minimising DP errors and setting benchmarks for acceptable levels of errors must be done. The software may be reviewed with respect to such benchmarks. Procedures for controlling errors and establishing accuracy of outputs have to be put in place and enforced.

The evaluation of data processing, as done by Audit through SQL queries, needs to be done at regular intervals by the department itself. The PAN database in the AIS module needs to be made error free expeditiously since none of the modules including AST can function if the PAN database is faulty.

User Acceptance Testing should be reviewed. The contracts for changes in the software should be given after following the due procedure.

An impact assessment feature should be built into the software and used after the incorporation of changes. A monitoring system for recording and tracking changes should be built into the software.

The user manuals of the system need to be made available to all the users of the system through a process of dissemination and monitoring. All the features of the system may be taught to the users so that all the functionalities of AST are put to use. User manuals of AST should be updated to reflect all the changes carried out in the software.

A separate Operational Manual may be prepared and issued to the personnel at the RCC so that they are helped in the proper upkeep and maintenance of the database.

The department should carry out training needs analysis for various categories of users of the system. Training modules may accordingly be prepared including refresher trainings; when buying off the shelf trainings, the linkage between the training and actual job requirement should be clearly established.

A policy document on nature and kind of services that can be outsourced to third parties should be prepared. Guidelines regarding hiring of third party services and a model contract

should be worked out incorporating all the concerns that need to be considered while outsourcing activities. Security and confidentiality issues should be identified, explicitly stated and agreed to.

An exit conference was held with the CBDT on 12th January 2006 where the major recommendations were discussed. Department stated that they would look into the issues raised by audit. They also stated that some of the issues raised by audit were expected to be addressed in Phase III of the computerization programme as also during the Business Process Reengineering programme expected to commence shortly which could include re writing of the software.