



OFFICE OF INSPECTOR GENERAL

MEMORANDUM

DATE: December 14, 2000

TO: Inspector General

THRU: Thomas Bennett
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FROM: Robert Shipp
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SUBJECT: Survey of Mass Media Bureau (MMB) Multipoint Distribution System/Instructional TV, Fixed Services (MDS/ITFS) System

The Office of Inspector General (OIG) has completed a survey of the Mass Media Bureau (MMB) Multipoint Distribution System/Instructional TV, Fixed Services System (MDS/ITFS)¹ development and implementation. The objective of the survey was to: (1) obtain information about the MDS/ITFS development project; (2) evaluate project documentation to assess whether MMB developed and implemented the system in an economic and efficient manner; and (3) determine the nature and extent of any subsequent review work. The purpose of this survey memorandum is to summarize the results of the survey, document significant observations, and identify areas where additional audit work should be performed.

BACKGROUND

MMB took over administering the MDS development project from the Associate Managing Director – Information Management (AMD-IM) in September 1996. This project was initially a Department of Justice (DOJ) contract vehicle, beginning in FY 1994, that AMD-IM used to begin developing an electronic licensing system that efficiently processes and issues licenses for broadcast stations that are awarded through auctions. DynCorp Information & Electronic

¹ MMB developed the MDS/ITFS as a replacement for the Instructional TV, Fixed Service portion of its Broadcast Application Processing System (BAPS) and to incorporate Multipoint Distribution Service (MDS) licensing functions. In the third quarter of FY 2000, MMB renamed MDS/ITFS as the Broadband Licensing System (BLS). However, for consistency, this memorandum will reference the system as MDS/ITFS.

Technology (hereafter referred to a “DynCorp”) is the contractor the FCC tasked with developing the MDS and integrating the ITFS licensing service into the MDS/ITFS electronic licensing system.

MMB’s goals for implementing MDS/ITFS included streamlining staff resources; providing a fast, efficient processing method for furthering competition in the mass media spectrum area; and improving public access to broadcast records. To accomplish this, MMB required the developer to create a fully documented MDS/ITFS that:

- performs engineering studies;
- provides for electronic data filing;
- issues licenses;
- provides public access;
- accepts modifications and amendments;
- tracks status;
- reports on speed of disposal;
- processes fee sufficiency;
- reports on all output and data conversion; and,
- provides application processing modules.

MMB accomplished this by tasking DynCorp to develop the MDS/ITFS as a client-server PowerBuilder/Sybase application processing system that supports electronically filed MDS and ITFS broadcast application forms. This provides electronic forms filing, authorization of service processing, internet public access, report processing, and speed of disposal reporting to licencees. MMB’s MDS/ITFS development and implementation began as a \$403,000 project in FY 1994 that was finally delivered in February 2000 after encountering numerous project delays, which escalated to a final development cost of over \$2.24 million. Please refer to the Appendix for a contract chronology of events highlighting the history of the MDS/ITFS project, including incomplete deliveries and contract delays.

SCOPE OF SURVEY WORK PERFORMED

This project was conducted as a survey. A survey is the preliminary audit work done before an audit and is not an audit conducted in accordance with Government Auditing Standards (i.e., GAO “Yellow Book” standards). The purpose is to gather general working information on important aspects of an entity, activity, or program, such as MDS/ITFS and to determine the nature and extent of any subsequent audit effort.

We conducted this survey to examine the progress of the MDS/ITFS project, report the results to the Inspector General, and recommend the next course of action. To meet this goal, this survey provides an overview of the MDS/ITFS, analyzes and reports identified problems in the projects development process, and reports whether any aspects of the MDS/ITFS needs further OIG involvement and review.

OIG auditors employed the following methodology to accomplish the survey objectives:

- Interviewed the MMB Program Manager, Contracting Officer Technical Representatives (COTR), MMB engineers assigned to the MDS/ITFS development project, and the Information Technology Center (ITC) Customer Service Representative (CSR); and
- Reviewed MDS/ITFS development project progress reports, chronologies of events, contract statements of work, and the task order cost sheets.

SUMMARY OF OBSERVATIONS

As part of the survey process, we evaluated MDS/ITFS development and implementation to identify areas where weaknesses or inefficiencies exist, which may require more comprehensive audit coverage. MDS/ITFS represents a measurable improvement over the largely manual systems it replaced for processing MMB auctions license applications. However, we did identify significant cost overruns that resulted from delays and disruptions in MMB's development and implementation of MDS/ITFS.

As detailed in the Appendix, MDS/ITFS development and delivery encountered numerous MMB and contractor caused delays and disruptions before delivery was finally made in February 2000. This combination of MMB and DynCorp actions caused contract performance delays, disruptions, and contract changes significantly contributed to costs escalating from approximately \$403 thousand initial contract amount in FY 1994 to more than \$2.4 million when MDS/ITFS development was finally complete and the system was implemented in February 2000. MMB recognized and noted the inherent project problems in its third quarter FY 99 project review when MMB cited the following risks that may threaten the project schedule, cost, or ability to meet project objectives:

1. Existing MDS database conversion tasks or software modification requirements may take longer than anticipated to implement.
2. Required systems upgrade to newly installed year 2000 compatible software and server environment may take longer than anticipated to implement.

MMB's quarterly review also represented that the ITFS was implemented and in production mode on February 15, 1999 and the MDS portion was targeted for implementation by the end of August 1999. However, based on discussions with the two MMB COTRs and the Customer Service Representative from ITC, full implementation of MDS/ITFS did not happen until mid-January 2000.

FCC officials cited a variety of Commission and contractor deficiencies that contributed to the MDS/ITFS development and implementation delays, including:

- The FCC's AMD-IM administered the initial project under a DOJ contract from FY 1994 through September 3, 1996 using basically a "hands-off" approach for technically managing the project. As a result, a detailed specifications document for the project as never developed. Because of this, the Commission underestimated the

size and cost of the project. Additionally, MMB received a substantially incomplete product when they took over the project on September 4, 1996.

- It took the MMB approximately six months to figure out what to do with the service after taking over the project. MMB assumed that the project was near completion when they took over, however, the project was inadequately documented, which did not provide the contractor with the necessary details for project development. Today, the MMB project manager believes that the \$400,000 initial project development estimate was unrealistically low and estimates that the cost should have been at least \$1.5 million to develop and implement.
- Even though MMB provided extensive documentation to the contractor, the Bureau faced initial obstacles such as: (i) FCC personnel assigned to the project did not understand project management, and (ii) the contractor experienced rapid employee turnover that involved a constant re-indoctrination and education process. The contractor's employee turnover rate especially adversely affected project continuity. For instance, the first project manager left DynCorp only a few months after project was initiated. As a result, DynCorp assigned less experienced personnel to head up the project at various times in the beginning stages of the project, including assigning a Technical Writer as project manager for approximately six months, followed by another DynCorp employee with limited data base experience who designed the system.
- MMB added ITFS development to the MDS project during the middle of application development. This significantly complicated the project, because the MDS and ITFS were based on to completely different licensing schemes. MDS was based on the Common Carrier Bureau's licensing process and the ITFS was based on MMB's licensing process.
- MMB accepted delivery of the MDS/ITFS, which was not adequately tested and no "hard-core" design documents describing what the MDS/ITFS should or should not do were produced.

CONCLUSION

Based on the results of this survey, the Office of Inspector General should not perform any additional audit work on the MDS/ITFS system. Instead, the OIG should focus on Information Technology (IT) Capital Planning and should continue to monitor the progress of the proposed Licensing Bureau's working group. An audit of MDS/ITFS development would just reiterate the findings of this survey, only in more detail. Further audit work by the OIG solely on MDS/ITFS would most likely duplicate the work being done to streamline the licensing process. Also, a focus on one system in a single Bureau is counterproductive to the goals of the Draft Strategic Plan.

Although we identified weaknesses and inefficiencies with MDS/ITFS development effort, we believe that the Commission's recent adoption of a Commission-wide Systems Development

Life Cycle (SDLC) will address causal factors that contributed to the problems with the MDS/ITFS development process identified during our survey. Further, we believe that an audit of Information Technology (IT) capital investment planning² scheduled for this fiscal year will address additional factors that contributed to the weaknesses and inefficiencies we identified. Finally, the Draft Strategic Plan for the Federal Communications Commission included a plan for the Commission to restructure and streamline its licensing activities. This goal resulted in the establishment of the Licensing Working Group. The group developed a set of viable alternatives for streamlining the licensing function. The group documented its findings in its report, “Improving the Commission’s Licensing and Authorization of Service Functions.” The Office of Inspector General should continue to monitor the progress of the Licensing reorganization process. The OIG will observe these activities to determine if they are consistent with the goals of the Draft Strategic Plan consistent with its audit mission of providing an independent, systematic assessment of an FCC program.

2 The objective of the IT capital investment planning process is to determine its effectiveness and its compliance with Office of Management and Budget (OMB) Circular No. A-130.

MDS/ITFS Chronology of Events

- Fiscal Year (FY) 1996: MMB established a task order under the Commission's contract with DynCorp, Task Order No. 96-10, to conduct systems development work on this project. As part of this task order, DynCorp I&ET was to provide MMB with the following deliverables:
 1. *Project Definition*: Deliver a project definition document by the second week of the contract.
 2. *Current Form Data Entry Database (Forms DB) and Data Entry Mechanism (DEM) for Form 304, 430, Statement of Intention (SOI)*: By week 4, successfully input into the Current Forms DB through the Current Form DEM Forms 304, 430, and SOI data with printouts of Sybase stored procedures.
 3. *Data Download Processes*: For each database (Altos, Ingres, Current Forms DB), data downloads will be demonstrated and copies of Sybase stored procedures and use of basic APS screens for data verification to be delivered in week 10.
 4. *Database Update Processes and Forms DB Redesign*: Copies of Sybase stored procedures, new Forms DB document, and preliminary process DB design document to be delivered by week 11.
 5. *Application Processing System (APS) and Database (Phase I)*: By week 14, this deliverable requires APS executable applications and libraries with functionality as described for MDS/ITFS engineering studies (Mileage Search Engineering Program); application disposals (granting and rescinding to be functional through APS and licenses & BTA authorizations will print through APS); amendments (Status 80-82); and application process for status 30-32 and 40-49. It also requires printouts of Sybase store procedures, a Public Notice printing demonstration, and identified pending reports to be printing through the APS.
 6. *MDS/ITFS Engineering Studies*: By week 18, the contractor to deliver completed and functional engineering studies and demonstrate the process and provide printouts of C code and Sybase stored procedures where appropriate.
 7. *Reports*: The ability to produce all other reports identified in the Project Definition will be printing through the APS by week 20.
 8. *New Forms Data Entry Mechanism (DEM)*: The contractor will demonstrate the DEM for Form 304 by week 10, with other MDS and ITFS forms demonstrated as they become available. The New Forms DEM demonstration for each form will show data validation, public access capability, and fee processing. The DEM screens will be used for editing

“held” data (e.g., data successfully submitted into the Forms DB but not accepted into the Process DB (i.e., amendment application data). Form submission for FCC acceptance will begin by week 12 and will be completed by week 22. Forms will be developed as prioritized by MDS and ITFS in the Project Definition. This deliverable requires the ability for data entry and editing; printouts of HTML, CGI, and PERL code; and printouts of Sybase stored procedures required for data conversion to the Process DB for each form by week 22.

9. *Response to Reporting Requirements*: The contractor will fulfill this deliverable by weekly demonstrations, when appropriate, of project progress and by prototype demonstrations performed as application processes become available for FCC review.

10. *Fully Implemented MDS/ITFS System (Application Processing System and Database [Phase 2])*: By week 25, the contractor will have completed the MDS/ITFS data download processes and downloads (final refresh download of data prior to system turnover to the FCC); all forms for New Forms DB implemented; through APS, Application Disposals and Application Process Status for all other processes are completed and functional (including output requirements); Public Notice Output; and System Documentation (program, maintenance, and user guide). APS executable application and libraries with functionality as described, printouts of Sybase stored procedures, and System Documentation is scheduled for delivery at week 23. Deliverable 5 only described the Grant Function, additional functions were not included. Deliverables 6 through 10 were not produced, but were incorporated, as needed, into T.O. 97-10.

- FY 1997: FCC contract no. 96-06, Task Order No. 97-10, administered by MMB as an extension to T.O. 96-10. Time & Materials (T&M) extension to T.O. 96-10. This T.O. was extended two different times with final closeout on June 24, 1998. The following deliverables were still in the development/test stage after the closeout date:

- Forms data entry,
- Studies,
- System completion, and
- Public access.

User acceptance was for newly filed MDS Form 304 Application grant only.

- Oct 97 – Dec 12, '97: FCC contract no. 96-06, Task Order No. 98-04, administered by MMB for data conversion. This T.O. provided the initial download of the MDS/ITFS legacy data and APG support training. Corrections and modifications to the download function was supported by follow-on T.O. 98-07

- Oct 97 – mid Feb, '98: FCC contract no. 96-06, Task Order No. 98-07, administered by MMB for maintenance & enhancements. This T.O. was terminated in mid-February '99 with the following deliverables still in the test mode:

- Validation Module,
- Action Activities, and
- Engineering Studies.

- FY '99: FCC contract no. 96-06, Task Order No. 99-05, administered by MMB for maintenance & enhancements is a T&M contract providing ongoing MDS/ITFS maintenance and enhancement support.
- MMB issued Task Order 99-05 in order to modify its new MDS/ITFS system as they identified problems and requested enhancements, so that broadcast stations can submit and FCC staff can process applications more efficiently and effectively. Under this Task Order and upon MDS/ITFS implementation, the MMB tasked DynCorp I&ET to:
 - Correct system problems that prevent FCC staff from doing their work properly;
 - Correct problems that prevent broadcast stations from entering applications properly via the internet;
 - Provide enhancements that are required to work more efficiently and effectively or are the result of rule or procedural changes and provide user and system documentation for changes made;
 - Provide programming support for upgrading programming and database software releases; and,
 - Provide technical information to FCC programming staff on the programming approach taken in developing various system components.