Intelligent Mail: Realizing Revenue Assurance Benefits

Audit Report

August 30, 2011

Report Number DA-AR-11-010

OFFICE OF INSPECTOR GENERAL
UNITED STATES POSTAL SERVICE

HIGHLIGHTS

August 30, 2011

Intelligent Mail: Realizing Revenue Assurance Benefits

Report Number DA-AR-11-010

IMPACT ON:
U.S. Postal Service revenue protection and commercial mailers participating in the Intelligent Mail (IM) program.

WHY THE OIG DID THE AUDIT:
Our objective was to assess the IM program's ability to achieve revenue assurance benefits.

WHAT THE OIG FOUND:
The Postal Service postponed implementing an original IM program objective (automated revenue assurance) to focus on implementing other aspects of the program. With postmaster general approval, the Postal Service removed the automated revenue assurance requirement from the original Decision Analysis Report (DAR). Without fully automating full-service IM verification, the Postal Service may be unable to reduce the $293 million it spends annually on business mail acceptance personnel salaries and benefits or confirm the $26 billion in annual business letter mail revenue.

Our analysis of full-service IM barcode scan rates indicates that some mailings that met business mail acceptance requirements exhibited low scan rates when processed on mail processing equipment. The Postal Service must develop a tolerance level for these rates to use for exception reporting and a process for identifying the cause(s) of the rates, which results in additional processing costs. The Postal Service has to use more expensive manual processing when scan rates are low. If 4.6 percent of total full-service IM mailpieces cannot be processed on mail processing equipment, the Postal Service would have to spend an additional $165,607,452 in manual mail processing costs annually, or $331,214,904 over the next 2 years regardless of who is responsible for the low scan rates.

WHAT THE OIG RECOMMENDED:
We recommended the vice president, Mail Entry and Payment Technologies, establish timeframes for implementing enhanced automated verifications as described in the original DAR, develop a tolerance level for low scan rates to use for exception reporting, and develop a process for identifying the cause(s) of these rates for customer follow-up as warranted.

WHAT MANAGEMENT SAID:
Management partially agreed with the recommendations and plans to complete a proof-of-concept by January 2013. The results will be the basis for requirements, system development, and deployment of automated verifications.

AUDITORS' COMMENTS:
Management's planned actions are responsive to the recommendations; however, the timeline for planned action would defer implementation of a developed solution for several years.

Link to review the entire report

August 30, 2011

MEMORANDUM FOR: PRITHA MEHRA
VICE PRESIDENT, MAIL ENTRY AND PAYMENT
TECHNOLOGIES

E-Signed by Mark Duda
VERIFY authenticity with e-Sign
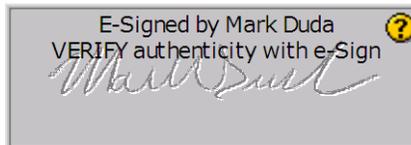
FROM: Mark W. Duda
Deputy Assistant Inspector General
 for Support Operations

SUBJECT: Audit Report – Intelligent Mail:
Realizing Revenue Assurance Benefits
(Report Number DA-AR-11-010)

This report presents the results of our review of the U.S. Postal Service's Full-Service Intelligent Mail Program (Project Number 11YG004DA000).

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Miguel Castillo, director, Engineering and Facilities, or me at 703-248-2100.

Attachments

cc: Ellis A. Burgoyne
Corporate Audit and Response Management

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Introduction

This report presents the results of our audit of the U.S. Postal Service's Full-Service Intelligent Mail (IM) program (Project Number 11YG004DA000). Our objective was to assess the IM program's ability to achieve revenue assurance benefits. We conducted this self-initiated audit based on strategic risks associated with the IM Program. See Appendix A for additional information about this audit.

The Postal Service relies heavily on information technology to support its mission of providing prompt, reliable, and efficient mail. IM barcodes (IMb) for mailpieces were implemented in May 2009 and the enabling technology has been deployed to support mail visibility in the Postal Service network. IM is the technology platform for the next generation of mailing services, features, and products. Mailers and the Postal Service gain end-to-end visibility into the mailstream with IMb.

The Postal Service offers two different IM service options: basic and full-service. Under the basic option, mailers can use either the IMb or the POSTNET[1] barcode on their letters and flat mailpieces. Under the full-service option, mailers must apply unique IMbs on their letters and flat mailpieces, trays and sacks, and other containers of mail. Full-service mailers also must electronically submit postage statements and mailing documentation. Additionally, a unique IMb on each mailpiece allows the Postal Service to scan, track, and capture data on every mailpiece as it flows through the system – giving true visibility into the mailstream. The Postal Service's intent for revenue assurance was to compare mail processing equipment (MPE) scan data to the mailing data to verify that the mail is prepared as claimed by the mailer.

Conclusion

The Postal Service postponed implementing an automated revenue assurance for the IM program to focus on implementing other aspects of the program. With the approval of the postmaster general, the Postal Service removed the automated revenue assurance requirement in the original Decision Analysis Report (DAR)[2]. Without this automation, the Postal Service may not be able to reduce the $293 million it spends annually on business mail acceptance personnel salaries and benefits or confirm the $26 billion in annual business letter mail revenue.

Additionally, full-service IMb scan rate data indicates that some mailings that met business mail acceptance requirements exhibited low scan rates when processed on MPE. The Postal Service needs to develop a tolerance level for low scan rates to use for exception reporting and a process for identifying the cause(s) of low scan rates. Low scan rates result in additional processing costs since the Postal Service has to use

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[1] POSTal Numeric Encoding Technique is the Postal Service's developed barcode method to encode Zone Improvement Plan (ZIP) Code™ information on mail that can be read for sorting by automated machines.
[2] *Infrastructure to Support Intelligent Mail Barcodes, Service Performance & Seamless Acceptance*.

more expensive manual processing when the barcodes cannot be read by MPE equipment.

Original IM Program Revenue Assurance Requirement Should Be Reinstated

In July 2008, the Board of Governors approved a $63.9 million DAR titled *Infrastructure to Support Intelligent Mail Barcodes, Service Performance & Seamless Acceptance* (original DAR) to create an infrastructure that automates several business mail verification activities among other program requirements. Since this was an infrastructure or sustaining DAR, it did not have a return on investment. However, the Postal Service has since removed the enhanced/expanded automated verifications requirement in the original DAR to focus on implementing other aspects of the IM program. In June 2009, the Postal Service requested a modification to the original DAR to change the milestone schedule and program scope. With appropriate approval and notification, the modification removed the following requirement:

> For Full-Service option mail, this program proposes to obtain scan data received from MPE and compare it to mailing data received electronically to verify that the mail is prepared according to the prices claimed by the mailer. This system can automate presort, barcode quality, piece count, verifications and drop shipment validations. These verifications are currently performed manually or manually with automation assistance from the [mail acceptance][3] equipment.

Management told us they plan to reinstate the requirement for automated revenue assurance. Management is developing plans to replace the current mail acceptance process for full-service mailers with an automated comparison of electronic mailpiece documentation with MPE scan data. Potential revenue recovery could be based on mailer performance trends against applicable tolerances over time. However, the Postal Service still needs to fully develop their plan, obtain funding, and establish a timeline for implementation.

As of March 2011, full-service IMb mailpiece volume for First-Class® and Standard Mail® accounted for about 36 percent of the total business mail volume for these classes. With the number of mailers using full-service IMb expected to grow, having the ability to electronically reconcile Postal Service MPE mailpiece scans to mailer-submitted electronic documentation becomes more important.

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[3] Mailing Evaluation Readability Lookup INstrument (MERLIN).

IM Scan Rates Can be Used for Exception Reporting and Customer Follow-Up

Our analysis of full-service IMb scan rates indicate that some mailings that met business mail acceptance requirements exhibited low scan rates when processed on MPE. Our audit also revealed that the Postal Service does not have a tolerance level for low scan rates. Therefore, since there was no published scan rate requirements for full service IMb mailings, we used the MERLIN barcode readability thresholds[4] to help quantify our results. We chose these thresholds because they were already established as a business mail acceptance criteria.

We randomly selected 275 full-service IMb postage statements for review. The mailings for 262 of these postage statements were processed on MPE and had an average IMb scan rate of 96 percent. Scan rates for 235 of the 262 mailings (92.6 percent of the associated mailpieces) ranged from 90 to 100 percent and had an average scan rate of about 99 percent. Twelve and 15 of the 262 had scan rates between 80 and 90 percent or were below 80 percent, respectively. Mailings associated with the 262 postage statements had 1,070,148 mailpieces (or 4.6 percent) that required manual handling (see Table 1 for details). We excluded the remaining 13 of the 275 postage statements from our analysis as they were not finalized and scan data was not available.

Table 1 – OIG Scan Rates Analysis (First-Class and Standard Mail)

Scan Rates	Average Scan Rate	Postage Statements	Mailpieces Presented	Pieces at Risk for Manual Handling	Rate At Risk
90 -100%	98.8%	235	21,752,850	530,176	2.3%
80-89%	86.7	12	639,247	79,902	0.3
0-79%	59.1	15	1,111,195	459,970	2.0
Totals	**96.0%**	**262**	**23,503,292**	**1,070,148**	**4.6%**

Low scan rates can result from many factors such as the quality of mail preparation, weaknesses in the mail entry acceptance process, problems with the Postal Service's MPE, or external non-machine related factors. Postal Service engineering personnel have identified more than 40 contributing factors that can lead to low scan rates. Some notable Postal Service contributors to low scan rates include:

- Maintenance not properly adjusting the mail feeder.
- Double feeds by equipment.
- Operators not jogging the mail correctly.

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[4] Eighty to 89 percent is the automation readability rate for business mailers not participating in the full service IM program to receive at least partial automation discounts. Mailers are not eligible for discounts if readability rates are below 80 percent. This acceptance criteria is the Postal Service's internal control to encourage mailers to properly prepare mail for automation processing.

Likewise, mailer examples that contribute to low scan rates include:

- Barcode legibility.
- Envelope window glare or mail shift.
- An unreadable or incorrect IMb.

It was beyond the scope of this audit to identify all the specific causes of low scan rates; however, regardless of the cause(s), the Postal Service must use more expensive manual processing when employees cannot process the mail on automation equipment. The lower the scan rate, the more it costs the Postal Service to process the mail.

Therefore, the Postal Service needs to establish a tolerance for following up on full-service IM mailings with low scan rates. Since there were no defined tolerances for full-service IM, we calculated the additional cost of manually processing mail with tolerances set at 1 percent, 5 percent, and 10 percent. The additional cost for manually processing full-service IM mail ranged from $36 million to $360 million annually.

Table 2: Manual Mail Processing Costs At Various Tolerance Levels
(all amounts are in thousands)

Business Mail	Fiscal Year 2010[5]		Full Service IM Participation[6]		Tolerance Levels[7]		
	Volume	**Revenue**	**Volume**	**Revenue**	**1.0%**	**5.0%**	**10.0%**
Presort Letters and Cards	46,225,386	$15,975,300	16,641,139	$5,751,108	$16,649	$83,247	$166,495
Standard Letters	48,301,094	9,204,700	17,388,394	3,313,692	17,397	86,985	173,971
High Density and Saturation Letters	5,428,043	736,900	1,954,095	265,284	1,955	9,775	19,551
Total	**99,954,523**	**$25,916,900**	**35,983,628**	**$9,330,084**	**$36,002**	**$180,008**	**$360,016**

If our observation rate of 4.6 percent is applied to total full-service IM mailpieces, the Postal Service would have to expend an additional $165,607,452 in manual mail processing costs annually, or $331,214,904 over the next 2 years regardless of who is responsible for the low scan rates. See Appendix B for our calculation of other impacts.

We concluded that IM scans are useful for detecting mailings with low scan rates. Not only do they provide the Postal Service with an opportunity to trend and identify

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[5] Public Cost and Revenue Analysis, fiscal year (FY) 2010.
[6] Assumes 36 percent mail volume for full-service IM.
[7] Tolerance levels calculated as follows: full-service IM participation volume x manual mail processing rate of $100.05/1,000 pieces of mail x percentage.

business mailers with low scan rates, they can also be the basis for exception reporting, customer follow-up, and settlement actions.

Recommendations

We recommend the vice president, Mail Entry and Payment Technologies:

1. Establish timeframes for implementing the enhanced/expanded automated verifications as described in the original Intelligent Mail infrastructure Decision Analysis Report.

2. Develop a tolerance level for low scan rates to use for exception reporting.

3. Develop a process for identifying the cause(s) of low scan rates for customer follow-up as warranted.

Management's Comments

Management partially agreed with the three recommendations and stated the report did not provide enough information to comment on the presented other impact as there are many contributing factors to low scan rates. In reference to recommendation 1, the Postal Service is working with the mailing industry to develop an approach on the future state of automated verifications as part of the Streamlined Acceptance program currently underway. The Postal Service will value stream map the current verifications processes at selected detached mail units and business mail entry units from October 2011 to February 2012. The results of the value stream mapping will identify opportunities to automate verifications and streamline the verification and acceptance process. The Postal Service plans to complete a proof-of-concept and the results will inform the timeline for requirements, system development, and deployment of automated verifications.

In reference to recommendations 2 and 3, as part of the proof of concept, the Postal Service will evaluate the extent to which active and passive scans can be used to measure mail preparation quality. Analyzing this data will be the basis for establishing thresholds, as appropriate, and providing near real-time automated feedback to customers on mail preparation metrics. The timeline for completing management actions in response to the three recommendations is January 2013. See Appendix C for management's comments in their entirety.

Evaluation of Management's Comments

The U.S. Postal Service Office of Inspector General (OIG) considers management's comments responsive to the recommendations and corrective actions should resolve the issues identified in the report. While the OIG appreciates management's commitment to automating business mailer revenue verifications, the timeline for completing the proof-of-concept in January 2013 places implementation of the developed solution and mailer migration several years away.

Regardless of the cause for low scan rates, there is an increased cost of manually processing mail. The sooner the Postal Service identifies the causes of low scan rates the sooner the added cost for manually handling discounted business mail will be reduced. While it was outside the scope of the audit to identify the numerous potential causes of low scan rates, we look forward to sharing our methodology used to arrive at the $331 million of other impact and we may be conducting further work to identify the causes of low scan rates.

The OIG considers all the recommendations significant and, therefore, requires OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. These recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

Appendix A: Additional Information

Background

The IM program is intended to provide end-to-end visibility of the mail where mailers' pallets will be scanned at acceptance and induction points. The system is expected to provide mailing data to generate reports on internal service performance and detailed mail profiles on where mail was dropped and processed and the volume of that mail. The end results expected are better visibility into the mailstream for both the Postal Service and its customers, as well as assurance that revenue received and postage paid are accurate.

As depicted in Illustration 1, the IMb is a 65-bar Postal Service barcode used to sort and track letters and flats. Unlike the POSTNET barcode that only contains the delivery point ZIP Code, the new IMb contains additional fields such as the Service Type Indicator, Mailer Identification(ID), and Serial Number. These fields expand the ability to track individual pieces and provide greater visibility into the mailstream. With this IMb, a mailer can request services such as tracking and address correction all in one barcode. The IMb allows the mailer to number mail so that each mailpiece can be uniquely identified. It contains a Mailer ID field that allows the mailer to obtain data about mailings.

Illustration 1. IM Barcode Format

Objective, Scope, and Methodology

Our objective was to assess IM program ability to achieve revenue assurance benefits. To accomplish our objective, we obtained and reviewed full-service business standard and First-Class letter postage statements and scan data from *PostalOne!* and Seamless Acceptance Service Performance systems, respectively. We also compared mailpiece counts per postage to MPE automation scans to verify counts and rates paid. Specifically, we reviewed 64 randomly selected postage statements for IM First-Class and 211 standard postage statements. Because at the time of our review scan data was

maintained for no more than 45 days, we judgmentally reviewed statements from four separate weeks in FY 2011. Further, we reviewed scan data to determine whether standard and First-Class Mail® was being processed on MPE equipment or sorted manually. There were 10,680,846 scans associated with the First-Class mailing in our judgmental sample and 41,002,248 with standard mailings. Additionally, we analyzed documentation and interviewed IM, operation and engineering management to discuss our scan data results.

We conducted this performance audit from November 2010 through August 2011 in accordance with generally accepted government auditing standards and included such tests of internal controls, as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. We discussed our observations and conclusions with management officials on July 13 and 27, 2011, and included their comments where appropriate.

We assessed the reliability of data by comparing summary statistics provided by management to detail scan data and tracing data to postage statements. We determined that the data were sufficiently reliable for the purposes of this report.

Prior Audit Coverage

Report Title	Report Number	Final Report Date	Report Results
Intelligent Mail Barcode Project Planning and Application Development Life Cycle	IS-AR-09-006	3/31/2009	The Postal Service was not aware of the significant complexities and extensive requirements needed for Full-Service Seamless Acceptance Service Performance. As a result, delays occurred in the design, build, and test schedules. Management generally agreed with the findings, but did not comment on the nonmonetary impact.
Intelligent Mail/Seamless Acceptance Project Management	MS-AR-09-006	3/31/2009	Overall, controls were not adequate to ensure the Postal Service managed the program effectively. As a result, the Postal Service is at risk of project delays and cost overruns. Management disagreed with the conclusions of the audit; however, they agreed they should improve various aspects of project management.
Management Advisory – Full Service Intelligent Mail Program Customer Satisfaction	DA-MA-11-001(R)	11/23/2010	Surveys of full-service IM participants disclosed mixed results for program usefulness. In addition, non-participants expressed several concerns with the full-service program. The primary reasons mail owners did not participate in the full-service program were high start-up costs and limited program benefits. Management generally agreed with the findings and recommendations and stated that they have effective and ongoing efforts in place to address the issues raised in the report.

Appendix B: Other Impacts

	FY 2010 Volume (Thousands of Pieces)	OIG Scan Rate Below 90% Tolerance	Volume at Risk (Thousands of Pieces)	Attributable Cost
Presort Letters and Cards	46,225,386	4.6%	2,126,368	$212,743,094
Standard Letters	48,301,094	4.6%	2,221,850	222,296,125
High Density and Saturation Letters	5,428,043	4.6%	249,690	24,981,482
Total Business Letter Mail	**99,954,523**	**4.6%**	**4,597,908**	**$460,020,701**
Full-Service IM (Mailpiece Volume Rate 36%)			1,655,247	
Additional Annual Cost to Manually Process Mail ($100.05/1,000 Pieces)				$165,607,452
Assets at Risk[8] (Additional Costs) 2 Years				$331,214,904

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[8] Assets or accountable items (for example, cash, stamps, and money orders) that are at risk of loss because of inadequate internal controls.

Appendix C: Management's Comments

PRITHA MEHRA
VICE PRESIDENT
MAIL ENTRY & PAYMENT TECHNOLOGY

**UNITED STATES
POSTAL SERVICE**

August 22, 2011

Shirian Holland
Acting Director, Audit Operations
1735 North Lynn Street
Arlington, VA 22209-202

SUBJECT: Intelligent Mail: Realizing Revenue Assurance Benefits Report No. DA-AR-11-DRAFT

Thank you for the opportunity to review and comment on the subject draft audit report. We are in partial agreement with recommendation(s) 1, 2 and 3 of the report and attached is our response.

The OIG report does not provide the Postal Service with enough information to comment on the monetary impact. As pointed out in the report, there can be many potential contributing factors resulting in low scan rates. It is not clear the methodology used to collect or analyze this data in order to determine how a low scan rate implies manual processed pieces. In order to make a true assessment, the Postal Service would like an opportunity to review the findings in more detail with information such as the scan data captured from the machines and accuracy related to attributing the scan data collected to the piece in the eDoc etc.

The subject report and this response does not contain any information related to potential security vulnerabilities that, if released, could be exploited and cause substantial harm to the U.S. Postal Service.

We do not believe that this report contains any proprietary or business information prohibiting disclosure pursuant to the Freedom of Information Act.

If you have any questions or comments regarding this response please contact Deborah Cumbo, Mail Entry at (202) 268-6393.

Pritha Mehra

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Intelligent Mail: Realizing Revenue Assurance Benefits
Audit Report No. DA-AR-11-DRAFT
Project Number 11YG004DA000

We recommend the vice president, Mail Entry and Payment Technologies:

1. Establish timeframes for implementing the enhanced/expanded automated verifications as described in the original Intelligent Mail infrastructure Decision Analysis Report.

Management' Response
The USPS is working in coordination with the mailing industry through MTAC 143 to develop an approach on the future state of automated verifications and an implementation timeline. The USPS intends to implement automated verifications as part of the Streamlined Acceptance program currently underway. The USPS will value stream map current verifications processes at selected Detached Mail Units and Business Mail Entry Units from October 2011 to February 2012. The results of the value stream mapping will identify opportunities to automate verifications and streamline the verification and acceptance process. The USPS plans to conduct a proof-of-concept to test capabilities and streamlined processes from January 2012 to January 2013. The results from the proof-of-concept will inform the timeline for requirements development, system development and deployment of automated verifications.

Target Completion date: Timeline of implementation will be established when the proof of concept is complete which is scheduled to run through January 2013.

Responsible Official: Pritha Mehra, VP ME&PT

2. Develop a tolerance level for low scan rates to use for exception reporting.

Management' Response
As part of the proof of concept the USPS will evaluate the extent to which active and passive scans can be utilized to measure mail preparation quality. This analyis will take into account variances in the processing enviroment for the different profiles of mail. Upon completion of this analysis threholds will be established as appropriate. Reference above for timeframe.

Target Completion date: Timeline of implementation will be established when the proof of concept is complete which is scheduled to run through January 2013.

Responsible Official: Pritha Mehra VP ME&PT

3. Develop a process for identifying the cause(s) of low scan rates for customer follow-up as warranted.

Management' Response

As part of the proof of concept the USPS will evaluate the extent to which active and passive scans will be utilized to measure mail preparation quality. This analyis will take into account variances in the processing enviroment for the different profiles of mail. Upon completion of this analysis and committment to solutions the goal is to provide near real-time automated feedback to customers on mail preparation metrics gathered from semi-automated and automated verification processes. Reference response to recommendation no. 1 for details of timeframe.

Target Completion date: Timeline of implementation will be established when the proof of concept is complete which is scheduled to run through January 2013.

Responsible Official: Pritha Mehra VP ME&PT

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