OFFICE OF
INSPECTOR
GENERAL
UNITED STATES POSTAL SERVICE

Intelligent Mail Barcode Development and Use of Data

Audit Report

September 6, 2013

Report Number DP-AR-13-010

OFFICE OF INSPECTOR GENERAL
UNITED STATES POSTAL SERVICE

HIGHLIGHTS

September 6, 2013

Intelligent Mail Barcode Development and Use of Data

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BACKGROUND:

The U.S. Postal Service began developing the Intelligent Mail Program in 2003. The key aspect of the program is the Intelligent Mail® barcode (IMb) which the Postal Service began using in September 2006. Customers print IMbs on mailpieces before they enter a Postal Service facility and, in return, receive automation discounts. The Postal Service can also print IMbs on mailpieces during processing.

The IMb can include information such as the delivery address, mailer information, and a unique identifier for each mailpiece. Automated sorting machinery reads the IMb using optical scanning and collects data. The Postal Service and its customers use IMb data to streamline operations, improve efficiency and service performance, or enhance customer marketing.

The Postal Service continues to identify and find value from IMb data. It currently has five projects related to IMb totaling $314.4 million. The Postal Service also plans to increase current data storage and processing capabilities by five times to meet the January 2014 requirement that full service IMb must be used to receive automation discounts.

Our objective was to determine whether the Postal Service has a comprehensive plan to develop and use IMb data.

WHAT THE OIG FOUND:

The Postal Service does not have a comprehensive plan for the continued development and use of IMb data. Specifically, it developed the IMb database structure and made decisions regarding storage capacity, processing speed, and availability of data without considering the needs of all IMb data users. Current plans for use of IMb data have grown beyond the original vision, therefore, data storage capabilities and system upgrades were needed to support stakeholders requirements identified after initial development.

Further, the Postal Service envisions developing an information technology infrastructure to scan and track individual mailpieces as they travel through its processing network. However, without a comprehensive plan, the program applications in development may have limited functionality and may not meet all users' needs, such as real-time mail tracking.

WHAT THE OIG RECOMMENDED:

We recommended management develop a comprehensive IMb data plan utilizing data governance principles for the collection, storage, and use of IMb data. The plan should include input from all business users, an assessment of all costs, and milestones for the life of the IMb program.

Link to review the entire report

September 6, 2013

MEMORANDUM FOR: ELLIS A. BURGOYNE
CHIEF INFORMATION OFFICER AND EXECUTIVE VICE PRESIDENT

E-Signed by Inspector General
VERIFY authenticity with eSign Desktop

FROM: Darrell E. Benjamin, Jr.
Deputy Assistant Inspector General
for Revenue and Performance

SUBJECT: Audit Report – Intelligent Mail Barcode Development and Use of Data (Report Number DP-AR-13-010)

This report presents the results of our audit of Intelligent Mail® Barcode Development and Use of Data (Project Number 12BG034FF000).

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Kevin H. Ellenberger, director, Data Analysis and Performance, or me at 703-248-2100.

Attachment

cc: Corporate Audit and Response Management

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Introduction

This report presents the results of our audit of Intelligent Mail barcode (IMb) Development and Use of Data (Project Number 12BG034FF000). Our objective was to determine whether the U.S. Postal Service has a comprehensive plan for the development and use of IMb data. This audit was self-initiated. See Appendix A for additional information about this audit.

The Postal Service began developing the Intelligent Mail Program in 2003. At that time the program was assigned to the senior vice president (VP), Intelligent Mail and Address Quality (IMAQ), who was responsible for the strategic vision and direction of the program. The key aspect of the program is the IMb, which the Postal Service began using in September 2006. The Postal Service developed the Seamless Acceptance and Service Performance (SASP)[1] system database as the main repository for IMb data. Following March 2011 organizational changes, SASP development was divided between two organizations, one headed by the Mail Entry and Payment Technology VP and one headed by the Product Information VP. See Appendix B for significant dates in the development of the Intelligent Mail Program.

The Postal Service continues to develop uses for IMb and currently has five inter-related IMb projects with a total planned investment of $314.4 million. See Appendix E for a summary of the five projects. Customers print IMbs on mailpieces before mail is entered into a Postal Service facility, or the Postal Service prints IMbs on mail during one of the mail sorting processes. IMbs are read and data is collected multiple times as mail passes through optical scanning on various mail processing automated sorting equipment.

The IMb contains fields for information such as the delivery address, mailer ID, and a unique identifier for each mailpiece in 31 digits of information in 65 vertical bars. The IMb is similar to barcodes on merchandise at retail stores in that the barcode is scanned and data is recorded. Until January 2014, customers can use either the Full-Service or Basic IMb on the mail. Mailers must use Full-Service IMb effective January 2014 to receive automation discounts.[2] Full-Service requires mailers to apply them with a number sequence that remains unique for at least 45 days and submit electronic mailing documentation. Because of these requirements, full-service mailpieces are individually identifiable and can be tracked by Postal Service scanners. Basic IMb users are exempt from the requirements that make each piece unique. Basic IMb use is intended to facilitate a transition to Full-Service IMb. The Postal Service and its customers can use

[1] An application that associates mailer manifest data (for example, electronic documentation) with operational data (for example, scheduled appointments and barcode scans) and reference data (for example, Customer Registration Identification (ID), Mailer ID, facility, delivery points) to support two key business functions: Full-Service Intelligent Mail and service performance measurement.

[2] The Postal Service has mandated that mailers use Full-Service IMb by January 2014 to receive automation discounts which will result in a significant increase in the use of IMb and the amount of data the Postal Service will be required to capture and retain.

IMb data to improve processing, delivery, and customer impact when combined with marketing techniques, such as telemarketing follow-up.

The Postal Service performed 218.7 billion scans on an estimated 99.4 billion pieces of IMb mail in fiscal year (FY) 2012. To accommodate an anticipated increase in the number of mailpieces with IMb and a related increase in the amount of data collected, when the full-service IMb requirement begins in January 2014, the Postal Service plans to increase data storage and processing capability by five times the current capacity. See Appendix C for a list of equipment and applications that capture IMb data and see Appendix D for a list of applications that use IMb data.

Data governance practices are important for successful implementation of the Intelligent Mail program. A key aspect of a strong data governance program is a comprehensive plan that outlines a clear delineation of roles and responsibilities of corporate stakeholders and a visible and active leadership structure.

Conclusion

The Postal Service successfully implemented and began using IMbs in September 2006. However, it does not have a comprehensive plan for the continued development and use of IMb data. Specifically, the Postal Service developed the IMb database structure and made decisions regarding storage capacity, processing speed, and timely availability of data without considering the needs of all IMb data users. Current plans for use of the IMb data have grown beyond the original vision. Therefore, data storage capabilities and system upgrades were needed to support stakeholders requirements identified after initial development. Further, the Postal Service envisions developing an information technology infrastructure to scan and track individual mailpieces in real time as they travel through its processing system. However, without a comprehensive plan utilizing data governance principles, the program applications in development may have limited functionality and may not meet all users' needs, such as real-time mail tracking.

Intelligent Mail Barcode Database Development

The Postal Service initially developed the IMb database structure as a sampling-based system to meet the service performance measurement (SPM) requirements of the 2006 Postal Accountability and Enhancement Act (PAEA).[3] Additional capabilities were added as the Postal Service identified additional value and related application requirements. Development of SASP, the main repository for IMb data, is divided between the Mail Entry and Payment Technology group and the Product Information group, since the 2011 reorganization. Each group reports to separate VPs and is making development decisions that management asserts are cross-functionally vetted to determine their impact. However, these change requests can affect the type and amount of data storage and the timeliness of the data available to their separate user

[3] Public Law 109-435, December 20, 2006.

bases. Database storage issues resulting from the lack of a comprehensive plan for IMb development and use are discussed below.

Additionally, without a comprehensive plan, the Postal Service does not have a clear direction for making database investments and no reliable estimate of total program costs. The Postal Service planned to fund IMb and related application development for $314.4 million, thus far, and program development continues without a defined strategic plan employing principals of data governance components.[4] As a result, program applications in development may have limited functionality and may not meet all users' needs such as real-time mail tracking.

Intelligent Mail Barcode Database Storage

When the Postal Service initially implemented Full-Service IMb in 2009, management determined they needed to retain IMb data for 45 days. However, between March and July 2010, IMb data retention requirements expanded from 45 to 120 days and resulted in SASP data storage requirements increasing from about 8-10 Terabytes (TBs)[5] to about 40-45 TBs. Now management estimates the SASP database needs to grow to about 100 TBs by January 2014 when Full-Service IMb is required for automation discounts.

The Mail Entry and Payment Technology group submitted a [redacted] Commercial Mail Acceptance Transformation (CMAT)[6] funding request in June 2012 and an additional funding of [redacted] for SASP in March 2013. These two funding requests [redacted] should satisfy the 100 TB SASP storage requirement.

Although the proposed solution to upgrade current SASP data storage requirements will address the immediate capacity concerns, the upgrades do not address Product Visibility[7] requirements. Instead of considering alternative data storage solutions and addressing the needs of Product Visibility, they devised a plan to add storage space to the current data storage configuration in time to meet the currently defined business requirements and volumes.

Product Visibility requires real-time data for full functionality. However, due to the design of SASP, users cannot retrieve real-time data. The further data is from real time, the less valuable data is to decision making. The Postal Service acknowledged as far back

[4] Data governance programs require clear delineation of roles and responsibilities of corporate stakeholders, a visible and active leadership structure, and a defined strategic plan. These and four other components defined in our *U.S. Postal Service Data Governance* report (Report Number DP-AR-13-004(R), dated April 23, 2013).
[5] A measure of computer storage capacity — one TB is equal to 1,000 gigabytes.
[6] CMAT Delivering Results, Innovation, Value, and Efficiency (DRIVE) Description: Empower customers by providing convenient solutions to enable preparation simplicity, payment flexibility, and ease of entry; leverage electronic documentation and Intelligent Mail to automate acceptance and verification to promote efficiencies, convenience, federal compliance and revenue assurance; provide near real-time electronic feedback to drive improved mail quality.
[7] Product Visibility requirements relate to the business changes contained in DRIVE Initiative Number 20. This initiative will drive business change by exploiting technology to create better business processes, reduce operating costs and enable technology-centric products and services. This includes having real-time delivery updates, 100 percent visibility for all mail, and enhanced analytics capabilities.

as the 2003 *Intelligent Mail Corporate Plan* that historical data provided little benefit to customers with a need to know the status of their mail, or to managers making real-time decisions about meeting service standards and reducing processing costs. Further, the document stated Postal Service was operating at a disadvantage, because competitors had access to real-time data. The 2003 vision document pledged to provide near real-time information in a context that imparts immediate and actionable knowledge to employees for mail movement, logistics, and staffing. In presentations to internal and external customers, management continues to state that real-time data is the future of IMb.

Because implementation of the CMAT and Product Visibility initiatives continues without an overarching plan, the Postal Service does not know the cost of providing real-time data to users, or whether recent investments in SASP will continue to benefit the IMb Program.

Intelligent Mail Barcode Database Costs

The Postal Service has not determined the total cost of an IMb data storage and processing infrastructure. To date, the Postal Service has planned to fund $314.4 million for IMb infrastructure and related application requirements. It is difficult for the Postal Service to consider future data storage needs when the program requirements are not fully defined in a comprehensive plan. As a result, the Postal Service has adjusted its initial investment in the current data storage structure by funding:

- IMb-related projects for [redacted] in 2009, which included a data storage system to meet the demands of the Commercial Mail Acceptance project.

- Mail Entry and Payment Technology new program costs of [redacted] as outlined in the June 2012 CMAT funding request that included hardware for additional storage.

- An additional [redacted] requested in March 2013 to upgrade the SASP storage and processing capability to meet new program requirements and the projected January 2014 full-service mandate demands.

Planned upgrades will not accommodate future applications because SASP does not support real-time access to data and there is no comprehensive plan outlining future requirements. Because there is no plan, the life cycle cost estimate that program officials prepared as part of funding requests, did not capture all the costs associated with the acquisition and implementation of the program. Additionally, program officials did not have an accurate total cost estimate when the program was initially approved. See Appendix E for a list of approved Decision Analysis Reports (DARs) related to the Intelligent Mail Program.

Recommendation

We recommend the chief information officer and executive vice president:

1. Develop a comprehensive Intelligent Mail barcode (IMb) data plan utilizing data governance principles for the collection, storage, and use of IMb data. The plan should include input from all business users, an assessment of all costs, and milestones for the life of the IMb program.

Management's Comments

Management agreed that a comprehensive IMb management plan is needed, but disagrees that the Postal Service has not had, and does not have, a comprehensive IMb plan. Management stated the plan and vision for IMb reside with the chief information officer (CIO) and identified project investments as evidence of a plan. See Appendix F 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 unresponsive to the recommendation. Management asserts that there is a comprehensive plan outlining future requirements, and stated the comprehensive plan and vision resides with the CIO. However, the VPs and managers we met with during the audit stated they were unaware of a documented plan and a plan was not provided per our requests during the audit.

The Postal Service began developing the Intelligent Mail program in 2003 with a senior VP serving as the focal point for vision and direction. The group created the original IMb vision document in 2003 and last updated it in 2009. In March 2011, the Postal Service eliminated the Intelligent Mail senior VP position. Now, two VPs (Product Information and Mail Entry and Payment Technology) make development decisions for IMb-related projects. Each VP has individual requirements and program interests not defined in an overall strategic plan, which is contrary to the requirements of data governance.

Data governance is the process of ensuring that data are managed and fully utilized throughout an organization. Data governance practices require a clear delineation of the roles and responsibilities of corporate stakeholders, a visible and active leadership structure, and a defined strategic plan. The strategic plan should include milestones and metrics to measure success. We agree with management's assertion that uses for IMb data have grown beyond the original vision, but the Postal Service must maintain a comprehensive plan and update it as the program matures.

Management also stated that DARs for funding IMb projects serve as plans to build and expand on the IMb data structure. A DAR is a vehicle used to request funding, not a strategic plan. Handbook F-66, *General Investment Policies and Procedures*, also

explains that all phases of a project requiring implementation over a period of several years must be presented as a unitary plan, not in pieces. The [redacted] funding request in March 2013 for additional data storage and upgrades to SASP not included in the [redacted] requested in June 2012, is evidence of the absence of a comprehensive plan. This is especially true in light of simultaneous work performed to design alternative data storage and develop the Informed Visibility Program.

While management's comments are not responsive to our recommendation, we do not plan to pursue the issue through the formal audit resolution process.

Appendix A: Additional Information

Background

The Postal Service relies on information technology to support its mission of providing prompt, reliable, and efficient mail service. In 2003, the Postal Service established the IMAQ organization to identify requirements and direct efforts to develop the Intelligent Mail Program. Since then, the Postal Service has been developing and expanding the Intelligent Mail Program. See Appendix B for significant dates in this development.

IMb, the main component of the Intelligent Mail Program, uniquely identifies each mailpiece. There are four intelligent barcodes the Postal Service uses to generate data:

- IMb are found mainly on letters and flat-sized mailpieces.
- Intelligent Mail tray barcode.
- Intelligent Mail container barcode to identify pallets and other containers.
- Intelligent Mail package barcode (IMpb).

The initial vision of Intelligent Mail was to provide better information and improve efficiency by using standardized barcodes to continuously track mail as it passes through the Postal Service's mail processing system.

The Postal Service permitted mailers to begin using the IMb in 2006. Prior to that, the Postal Service relied on the Postal Numeric Encoding Technique (POSTNET)[8] barcode for sorting mail. Customers print IMb on mailpieces before entering mail into a Postal Service facility, or the Postal Service prints IMb on mail during one of the sorting processes. The IMb allowed for automated routing of mail and allowed mailers to qualify for automation prices. The Postal Service collects IMb data using optical scanning as the mail moves through the sorting process. Managers and customers can use IMb data to improve processing, delivery, and customer impact.

The Postal Service, beginning in 2009, provided mailers who chose to participate in the Intelligent Mail Program with two options that offer different incentives:

- Basic Service – Requires mailers to apply an IMb and populate the relevant fields, but does not require the unique ID of pieces or electronic mailing documentation. Mailers who implemented Basic Service received a postage discount for using a barcode but not the other benefits associated with full service.

- Full Service - Requires mailers to populate and apply a barcode. Unlike Basic Service, the barcode must contain a sequence of numbers that remains unique for

[8] POSTNET is a Postal Service-developed barcode method to encode ZIP Code information on letter-size and flat-size mail that automated machines can read and use to sort. A POSTNET barcode is based on the combination of tall (full) bars and short (half) bars and can represent routing information up to an 11-digit delivery point code (62 bars).

45 days. Full-Service mailers must also use unique barcodes on tray and container labels and submit electronic mailing documentation. The Postal Service provided additional pricing discounts and other incentives such as free Address Change Service (ACS), fee waivers, and postage credits for mailers implementing full-service. The incentives help offset mailers' investments in time and money. Since mailpieces are unique, Full-Service IMb provides the greatest opportunity for the Postal Service to collect data.

Prior to March 2011, the senior VP, IMAQ, provided the overall coordination, management, direction, and vision of the Intelligent Mail Program. During the Postal Service's 2011 organizational redesign, it eliminated the IMAQ senior VP position. Now, two VPs, Product Information and Mail Entry and Payment Technology, make development decisions for five interrelated projects. Each VP has their individual requirements and program interests.

For the first half of FY 2013, Basic Service and Full-Service IMb mail represented about 33 and 49 percent of total commercial mail volume, respectively. In April 2013, the Postal Service mandated participation in Full-Service IMb by January 2014 for mailers who wish to continue receiving automation discounts. The Postal Service is anticipating savings by using Full-Service IMb for automated verification and acceptance of commercial mail,[9] assessing and improving operations, and SPM. SPM measures the time it takes mail to move from origin to destination compared to the service standard. The Postal Service currently pays contractors to collect data and calculate SPM scores. SPM is also a requirement of the PAEA.

Data Governance

Data governance is the management process that ensures important data assets are formally managed and fully utilized throughout an organization. Data governance programs require a clear delineation of roles and responsibilities of corporate stakeholders, a visible and active leadership structure, and a defined strategic plan. Data governance committees manage access rights and determine data inventory management policies that provide for data accuracy, minimize risk, and maximize storage capacity. Poor data governance can lead to data quality issues and increased costs due to the loss of end-user productivity resulting from poorly organized, low quality, and inaccessible data.

On April 23, 2013, the OIG issued a report after assessing Postal Service data governance.[10] The report found that "the Postal Service could improve management of critical data to assist managers and employees to achieve strategic and operational goals." Further, "the majority of the issues involved unreliable or inaccurate data or were caused by an absence of policies or the Postal Service not enforcing existing policies."

[9] A general term for the mail products used by business mailers requiring advanced preparation such as barcoding and sortation.
[10] *U.S. Postal Service Data Governance* (Report Number DP-AR-13-004(R), dated April 23, 2013).

Gathering and Accessing Intelligent Mail Barcode Data

The Postal Service gathers and stores detailed information on IMb, particularly full-service mailings. Some data is provided by mailers, other data is gathered by manual or passive optical scanning during acceptance, processing, and delivery activities. Mailers using Full-Service IMb must generate and apply the appropriate IMb and provide eDoc prior to mail acceptance through the *PostalOne!*[11] application.

For small mailers, the Postal Service developed the free Intelligent Mail for Small Business Mailers (IMsb)[12] tool to encourage participation in the Intelligent Mail Program. The IMsb tool allows mailers to create unique barcodes on mailpieces and electronic postage statements (Postal Wizard) and submit them electronically for acceptance.

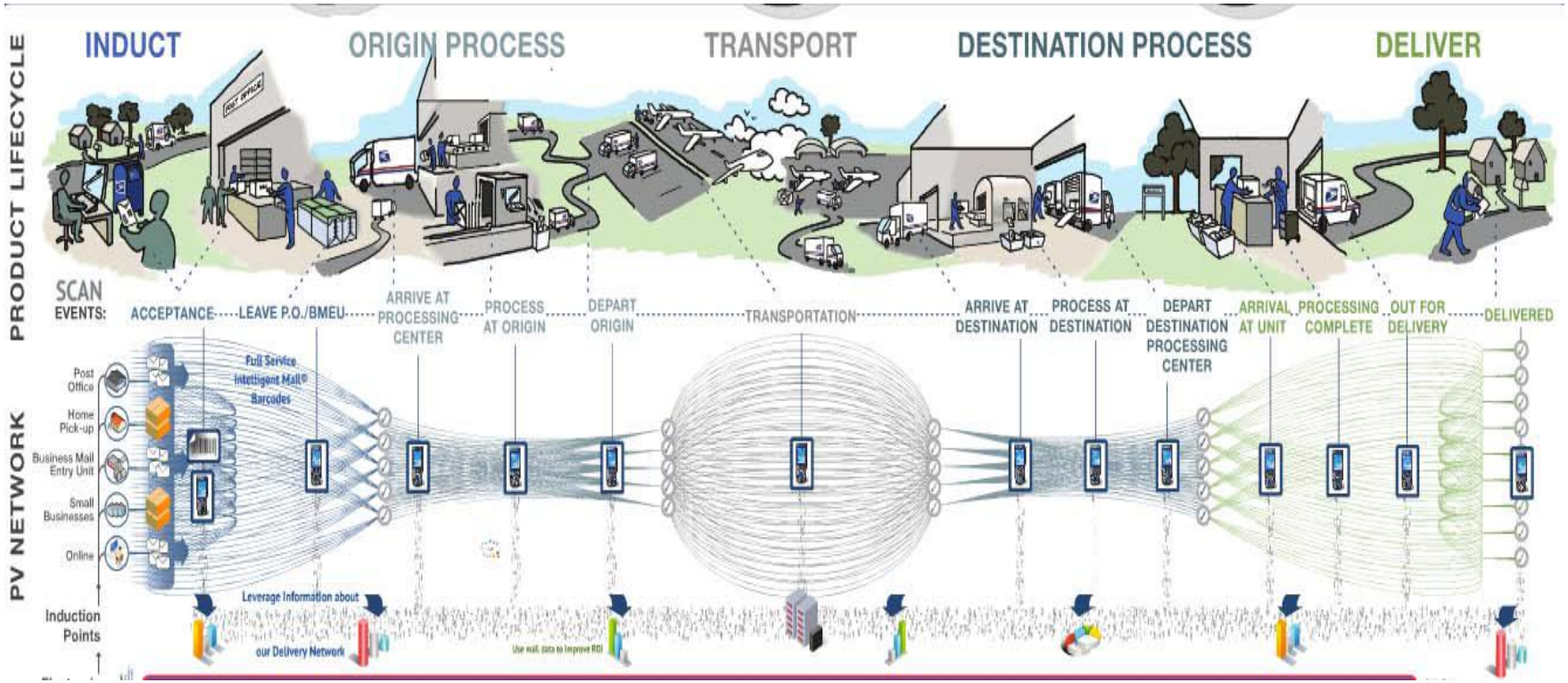
The Postal Service also gathers IMb data by scanning unique IMb and associating mail with the time and place of the scanning event. Scanning events occur passively or manually. Passive scanning occurs as automated mail sorters and other mail processing equipment (MPE) read the IMb and use embedded routing information to sort pieces to a destination. The computer controlling MPE collects and sends some data to a local server at the end of a sort program run, but other data may be fed to the server in real time.

Figure 1 shows each function in the life cycle of a mail product where data from scanning could potentially be collected. Not all mail follows the process shown in the figure from beginning to end. The potential number of scans depends on the amount of work sharing performed by the customer before entry and where the mail is entered into the system.

[11] An integrated electronic system that records mailing transactions, receives payments, and simplifies record keeping and the retrieval of commercial mailing data.

[12] Announced in the *Federal Register* on April 20, 2012, this online tool lets small business users upload and validate their address list and print the addresses along with the unique IMbs for their mailpieces. This tool is designed specifically for small-volume mailers and simplifies the process of creating mailings with IMbs. The IMsb tool is available for First-Class and Standard cards, letters or flat mailings consisting of 5,000 or fewer pieces, with an annual maximum of 125,000 pieces. Pieces qualify for the Mixed Automated Area Distribution Center or Mixed Area Distribution Center prices.

Figure 1. End-to-End Scanning Diagram



Source: Postal Service: Getting the Most Out of Full-Service IMb, July 24, 2012.

See Appendix C for a list of equipment and applications that provide IMb data to servers and Appendix D for a list of applications drawing on IMb data.

Implementation of Intelligent Mail

Preparing for and implementing Intelligent Mail and associated applications involves considerable changes for both mailers and the Postal Service, including significant changes to information systems and software used by both parties.

Mailers participating in the Full-Service IMb program must modify their information systems in order to generate and submit complex mailing documentation electronically to the Postal Service. As part of the ongoing process to increase mailer participation, the Postal Service offered financial incentives, beyond typical work sharing or automation discounts, to mailers who chose to adopt the program. Specifically, the Postal Service offered:

- A discount, in addition to automation prices, of $.003 (First-Class) or $.001 (Standard & Periodicals) for each mailpiece using Full-Service IMb.
- Free ACS and start-the-clock data to Full-Service mailers and reduced price ACS for Basic Service customers.
- Free IMb Tracing™ subscriptions.[13]
- Waiver of annual permit mailing fees if 90 percent of each mailing is full service.

Besides the IMb placed on letter and flat mail by commercial mailers, the Postal Service generates and prints IMb on collection mail (generally sent by individuals rather than a business) and non-automation commercial mail during mail processing operations. Recently upgraded software and printers on MPE enable the application of IMb as mail is sorted.

The Postal Service envisions developing an end-to-end information technology infrastructure to scan and track individual mailpieces in real time as they travel through its processing system. As Intelligent Mail capabilities increase, the Postal Service expects to collect data from millions of mailpieces with IMb on a daily basis, which will require the Postal Service to expand and improve its information technology collection and provisioning systems. To date, the Postal Service plans to spend approximately $314.4 million for IMb and related applications.

See Appendix E for a list of approved DARs related to the Intelligent Mail Program.

Objective, Scope, and Methodology

Our objective was to determine whether the Postal Service has a comprehensive plan for developing and using IMb data. To accomplish our objective, we:

[13] IMb Tracing receives piece-level handling events (scans) for letters and flats that have an IMb and are linked to a tracing service subscription. These piece-level handling events are made available to the external customer as data file extracts.

- Reviewed existing *Federal Register* articles related to the Postal Service's IMb Program.
- Reviewed roadmaps and DARs related to the IMb Program.
- Interviewed Postal Service management and users to determine whether:
    - The Postal Service has a vision and strategy for implementing the IMb Program.
    - The Postal Service has identified all requirements and costs associated with developing the IMb Program beyond the current implementation.
    - The IMb Program development agenda considers the plans and needs of all internal stakeholders, including: business mail entry and payment technology, operations, and SPM.
    - The IMb Program development agenda considers the expectations of external stakeholders.
- Interviewed mailers and representatives of mailing organization about their concerns regarding the IMb Program.

We conducted this performance audit from September 2012 through September 2013 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. We discussed our observations and conclusions with management on July 24, 2013, and included their comments where appropriate.

Prior Audit Coverage

Report Title	Report Number	Final Report Date	Monetary Impact (in millions)
U. S. Postal Service Data Governance	DP-AR-13-004(R)	4/23/2013	None
Report Results: Although the Postal Service defined a structure for a data governance program in 2003, full roles and responsibilities were not uniformly adopted across the enterprise. Also, limitations in the Postal Service's data governance program placed the Postal Service at risk to potential vulnerabilities that could affect data quality, availability, and integrity and result in inefficient operations, disruptions of service, and fraud. The OIG recommended implementing a formal, enterprise-wide data governance program. Management concurred with our finding and recommendation.			
Evaluation of the External First-Class Measurement System	FF-AR-12-006	9/18/2012	$4.1
Report Results: The current contract relies on costly manual reporting and recording of test pieces. When negotiating the last External First-Class (EXFC) contract, management intended to transition from the current, manual process to an automated process. However, the Postal Service has not yet developed a plan to automate this process. The OIG recommended using EXFC only to meet statutory requirements, developing a comprehensive plan to replace the current EXFC activities with an automated solution and developing controls to eliminate unauthorized special treatment of test pieces. Management disagreed with the finding related to EXFC reporting requirements and cost-reduction alternatives, but provided an alternative action that could reduce the sample size. Further, management agreed with the finding related to EXFC vulnerabilities but neither agreed nor disagreed with the associated recommendation. Finally, management agreed with the finding related to EXFC planning and technological alternatives and the associated recommendation.			

Report Title	Report Number	Final Report Date	Monetary Impact (in millions)
Commercial Mail Entry and Acceptance Initiatives	EN-AR-12-004	9/14/2012	None
Report Results: The Postal Service developed and revised its proposal for transforming commercial mail acceptance several times throughout this fiscal year. In addition, *PostalOne!,* the Postal Service's primary system for recording commercial mail transactions and managing customer accounts, has experienced multiple operational and availability issues. The mailing industry also has concerns about the availability of *PostalOne!* and other issues related to commercial mail initiatives. We recommended management closely monitor the financial and operational risks related to proposed commercial mail entry and acceptance initiatives and address availability issues related to *PostalOne!*. Further, we recommended identifying additional incentives to increase mailer participation in the Full-Service IMb program and develop a plan to address concerns mailers have with commercial mail transformation initiative requirements. Lastly, we recommended developing a process that will allow Full-Service IMb mailers the opportunity to challenge postage adjustments made to streamlined mailings. Management concurred with our findings and recommendations.			
Strategic Approaches to Revenue Protection	MS-AR-11-007	9/30/2011	None
Report Results: Preparation for fully automating the business mail entry process will depend on broadened collaboration with processing officials and adoption of full-service IMb on mailpieces and containers. Basic IMb and non-automated mail will continue to require costly manual revenue protection procedures until additional automated technologies are developed. We recommended management work with a broadened group of internal and external stakeholders to prepare for streamlining the entry of business mail, accelerate the timeline for streamlined acceptance and verification, and seek to leverage technology to provide revenue protection for Basic Service Intelligent Mail and non-automated volumes. Management agreed with our recommendation overall and provided planned actions and a planned completion date.			

Report Title	Report Number	Final Report Date	Monetary Impact (in millions)
Service Performance Measurement Data – Commercial Mail	CRR-AR-11-003	9/6/2011	$19.2
Report Results: The process used to obtain service performance scores for commercial mail is not effective. The Postal Service has experienced significant data quantity, accuracy, and reliability issues resulting in about 88 percent of Full-Service IMb mail being excluded from SPM. We recommended the Postal Service establish milestones for implementing recovery of discounts provided to mailers when Full-Service mailings do not meet the specific requirements for discounts received. Management agreed with our findings and recommendation.			
Intelligent Mail: Realizing Revenue Assurance Benefits	DA-AR-11-010	8/30/2011	None
Report Results: The Postal Service postponed implementing an automated revenue assurance for the intelligent mail program to focus on implementing other aspects of the program. Our analysis of Full-Service IMb scan rates indicates that some mailings that met business mail acceptance requirements exhibited low scan rates when processed on MPE. We recommended the Postal Service 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. Management partially agreed with the recommendations and planned to complete a proof-of-concept by January 2013.			
Effects of Compliance Rules on Mailers	MS-AR-11-006	8/24/2011	None
Report Results: The Postal Service has not always fully considered how changes to mail compliance rules impact mailers. Management concurred with the findings and recommendations and stated that, where practicable, it will include mailers costs in its cost-benefit analysis of new initiatives. We recommended the Postal Service consider mailing industry costs as part of cost-benefit analyses and further involve stakeholder groups in formal dialogue during the strategic planning phase of new initiatives and enhance transparency and accountability by documenting Postal Service collaborative efforts. In addition, we recommended it train and monitor acceptance employees on changes to program requirements and related compliance rules. Management agreed with our findings and recommendations.			

Report Title	Report Number	Final Report Date	Monetary Impact (in millions)
Full-Service Intelligent Mail Program Customer Satisfaction	DA-MA-11-001	11/23/2010	None
Report Results: Surveys of Full-Service IMb participants disclosed mixed results for program usefulness. The primary reasons mail owners did not participate in the Full-Service IMb Program were high start-up costs and limited program benefits. Mail service providers expressed concerns with assistance at the business mail entry units and the *PostalOne!* Help Desk. We recommended the Postal Service re-emphasize Full Service Intelligent Mail Program benefits to business mailers and to consider offering program incentives to business mailers to offset program start-up costs. 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.			
Intelligent Mail Benefits May Not Be Achieved if Key Risks Are Not Addressed	GAO-09-599	5/6/2009	None
Report Results: The Government Accountability Office (GAO) recommended the Postal Service (1) develop a comprehensive Intelligent Mail strategy, (2) develop attributable cost and savings information, and (3) develop a plan that addresses how the Postal Service will mitigate risks, including the implications of the impact of lower-than-anticipated customer adoption of Intelligent Mail. The Postal Service agreed to recommendations 1 and 3 and has begun implementing them, but stated that it already has cost and savings information			

Appendix B: Significant Dates in Development of the Intelligent Mail Program

Date	Event
January 2003	Established IMAQ to identify and shepherd efforts to develop the Intelligent Mail Program.
May 2003	The Intelligent Mail Working Group published the *Intelligent Mail Corporate Plan*. The initial vision was to "place an information-rich code on all mail, aggregates of mail, and business forms, enabling end-to-end visibility into the mailstream."
September 2006	Permitted mailers to begin using the IMb in place of the POSTNET barcode for letters.
December 2006	PAEA signed into law, requiring the Postal Service to report on its service performance. SPM measures the time it takes for mail to move from origin to destination compared to the service standard.
January 2007	Announced that the Intelligent Mail Program would be fully operational for all commercial mailers by 2009.
May 2007	Expanded use of the IMb by allowing mailers to use it on automation-rate flat-size mailpieces.
July 2007	Published new specifications for the IMb.
January 2008	Published an advanced notice in the *Federal Register* of proposed rulemaking to require IMb use by mailers who get automation prices, starting January 2009.
April 2008	Published a proposed rule in the *Federal Register* to revise standards and specify that mailers would be eligible to use Intelligent Mail and receive incentives for using full service starting May 2009.
July 2008	The Board of Governors approved funding to create an infrastructure that will facilitate Intelligent Mail implementation.
August 2008	Published final rule in the *Federal Register* announcing that it will allow POSTNET barcodes until May 2011 and start offering Intelligent Mail Basic Service and Full Service in May 2009.
February 2009	Gave notice of Intelligent Mail discounts on February 10, 2009, in its notice of market-dominant price adjustments posted on the Postal Regulatory Commission's website. The effective date for the discounts was May 2009.

Date	Event
May 2009	▪ Enabled full-service allowing customers to begin applying for certification. ▪ Planned to internally implement the first phase of Intelligent Mail and expected to have the systems in place to provide full-service functions, including ACS and eDoc.
November 2009	Phased-in price incentives and other functions in November 2009 and required mailers to use the new barcode by May 2011 to qualify for lower postage rates.
March – July 2010	Enabled SPM, which expanded data retention requirements from 45 to 120 days.
November 2010	Issued *Intelligent Mail Vision* and amended the vision statement to say "Enhance the value of mail by using information and insight from the mail to deliver increased customer value and drive operational efficiency." The document reported progress made toward accomplishing the original three strategies and identified four new strategies for moving forward. This high-level document did not contain a roadmap to completion of the program, provide goals or a system to measure completion of phases over the life of the program, or address expected total costs.
January 2011	Cancelled the May 2011 mandate for mailers to use the IMb or lose the automation-based postage discount; due to negative feedback and the need to make adjustments, the deadline for implementation of IMb was pushed back.
March 2011	As part of the organizational redesign, eliminated the position of senior VP, IMAQ.
January 2012	▪ Enhanced Mail Visibility to mailers adopting Full Service by making tray and container scan data available. ▪ The IMpb is required for PC postage customers. ▪ Discounted CONFIRM[14] service and replaced it with free IMb Tracing, providing piece-level scan data for Basic and Full-Service IMb mailings.
March 2012	Proposed the rule to include the basis for discontinuing use of POSTNET barcodes and allowing only IMb for automation price eligibility by January 2013.
October 2012	Published a proposed rule in the *Federal Register* requiring Full Service to qualify for automation prices as of January 2014.

[14] CONFIRM service used PLANET barcodes in conjunction with POSTNET barcodes to create unique mailpieces. CONFIRM provides scan data for mailer to use for tracking and estimating delivery of both outbound mail and incoming hard-copy reply mail.

November 2012	Announced an extension to January 28, 2013, of the deadline for using IMpb. The previous deadline was January 7, 2013.
January 2013	▪ Sunset the use of POSTNET and Postal Alpha Numeric Encoding Technique (PLANET)[15] barcodes. ▪ Discontinued CONFIRM when the last subscription expired. ▪ Began upgrading MPE hardware and software to enable application of IMb on letters and flat mail by MPE during the mail processing operation.
April 2013	▪ In a *Federal Register* article, the Postal Service mandated Full Service to qualify for automation prices as of January 2014.

Sources: GAO Audit Report *Federal Register Notices, U.S. Postal Service, and MyPrint Resource.com* (Report Number GAO 09-599), May 6, 2009.

[15] A height-modulated two-state barcode used with the POSTNET barcode to uniquely identify mailpieces.

Appendix C: Systems Generating Intelligent Mail Barcode Data

System Name	VP Organization
Flats ID Code Sort Systems	**Engineering Systems**
Description: A system upgrade to the Automated Flats Sorting Machine 100 that provides the capability to tag flat-size mail with an ID at each in-feed station. This functionality reduces the keying requirement on secondary handling of flats while identifying and tracking each tagged piece.	
ID Code Sort	**Engineering Systems**
Description: A database server that is part of the ID Code Sorting system and uses ID tag information to sort letter mail with unreadable or insufficient POSTNET barcodes (mailpieces with recognized barcodes need no further definition). ID tag information enhances sort performance for letters with unreadable or insufficient barcodes and keeps them in the automated mailstream.	
Integrated Data System (IDS)	**Engineering Systems**
Description: The central source for the collection and distribution of mail processing and mailpiece data from all automated MPE and material handling systems at mail processing facilities. IDS processes the mailpiece barcode data used to identify and track mailpieces within the mail processing environment.	
Intelligent Mail Device (IMD)	**Mail Entry and Payment Technology**
Description: A hand-held scanner that reads and collects barcode data from products such as Express Mail and Delivery Confirmation services. The IMD also supports operational programs like Surface Visibility and the Electronic Verification System (eVS) and is a key tool for delivery and vehicle management.	
Intelligent Mail Internal Mailing (IMIM)	**Product Information**
Description: A web application tool that makes it easier and more convenient for Postal Service employees to create and use IMbs on small mailings and individual pieces.	
Intelligent Mail for Small Business Mailers (IMsb)	**Mail Entry and Payment Technology**
Description: This online tool lets small business users upload and validate their address list, and print the addresses along with the unique IMb for their mailpieces. The IMsb tool also allows the mailers to create electronic postage statements (Postal Wizard) and submit them electronically to the acceptance unit. This tool is designed specifically for small-volume mailers and simplifies the process of creating Full-Service IMb mailings for First-Class and Standard Mail. There are maximums of 5,000 pieces per mailing, and 125,000 pieces per permit, per year.	

System Name	VP Organization
Intelligent Mail Visibility Service (IM-VIS)	**Product Information**
Description: An infrastructure project that replaced 80 district servers distributed in the field. IM-VIS pulls mailpiece information from 297 IDS servers located in the plants. Each IDS receives data from 100 to 300 pieces of MPE. IM-VIS provides mailpiece information to the information based indicia, Confirm, and Product Tracking System (PTS) database servers. IM-VIS receives the standardized data in .xml format from the IDS in near real time. IM-VIS utilizes the interoperability standard data stream from the MPE to the IDS, thus enabling consuming applications to receive near real-time information as mailpieces are scanned by sortation equipment.	
Local Intelligent Mail	**Engineering Systems**
Description: A workstation used to transmit Delivery Confirmation data from the IMD to PTS (via the National Intelligent Mail server) that provides scan reports at large offices.	
Mail.dat	**Not Applicable (N/A)**
Description: A data formatting standard administered by the International Digital Enterprise Alliance that is used by mailers to send and receive information about mailings. It is one of the electronic methods for a mailer to submit mailing documentation through the PostalOne! system for acceptance and postage payment.	
Mail Processing Equipment (MPE)	**N/A**
Description: Machinery and related apparatus used to perform mail distribution and other functions. IMb data is sent from the machines to systems that support tracking programs.	
National Intelligent Mail	**Engineering Systems**
Description: A server that receives all scan data from IMDs and makes it available to backend systems.	
***PostalOne*!**	**Mail Entry and Payment Technology**
Description: An integrated electronic system that records mailing transactions, receives payments, and simplifies record keeping and the retrieval of mailing data. It is the foundation of seamless acceptance and the submission of eDoc for Intelligent Mail.	

Source: List provided by Postal Service Mailing Information Systems.

Appendix D: Systems Utilizing Intelligent Mail Barcode Data

System Name	VP Organization
Application System Reporting (ASR)/MicroStrategy	**Information Technology**
Description: MicroStrategy services provide core support for the MicroStrategy reporting and analysis tools used by Postal Service personnel and external customers to access the Electronic Data Warehouse (EDW) and other data sources. The MicroStrategy Service supports the EDW Service by providing the primary user interface for EDW reporting/analysis. This same user interface infrastructure is used to support reporting/analysis to several non-EDW sources – ASR projects.	
Address Change Service (ACS)	**Address Management**
Description: An automated address correction process that provides to participating mailers a data file containing change-of-address and undeliverable-as-addressed information.	
Business Intelligence Data Store (BIDS)	**Mail Entry and Payment Technology**
Description: An oracle database used to support Micro Strategy ASR reporting for the Full-Service eDoc reporting, PostalOne! Business Mail Acceptance reporting and SASP SPM Reporting projects.	
IMb Tracing	**Mail Entry and Payment Technology**
Description: IMb Tracing is a service that provides real-time tracking information for automation-compatible letters and flats, giving advance notice for both incoming and outgoing mail. The system receives piece-level handling events for letters and flats that have an IMb with a tracing service. These piece-level handling events are made available to the external customer as data file extracts. The retention time of this information is only 7 days. The system is not designed for internal visibility of letters and flats because IMb Tracing does not utilize a central repository and only receives handling events for mailpieces where the customer has requested the IMb Tracing service.	
Intelligent Mail Accuracy and Performance System (iMAPS)	**Product Information**
Description: iMAPS is a hybrid SPM system that combines data. Specifically, it uses the commercial mail “start-the-clock to the final processing time” along with externally collected data on the delivery date to compute end-to-end service scores. It provides metrics to the PRC detailing the efficiency of mail delivery throughout the country	
Intelligent Mail Data Acquisition System (IMDAS)	**Engineering Systems**
Description: A system that supports standardized hardware and a software platform for mobile data collection and data transfer through scanning technology for postal products and services including Intelligent Mail.	

System Name	VP Organization
Intelligent Mail Enterprise (IME)	**Product Information**
Description: This system is comprised of multiple reports that provide users the ability to review delivery performance metrics, report delivery performance problems, and enhance delivery performance.	
Mail Evaluation Readability Lookup INstrument (MERLIN)	**Mail Entry & Payment Technology**
Description: An automated system used in business mail entry units to evaluate letter-size and flat-size mailings submitted by mailers for acceptance. The software that runs the machine validates postage eligibility by checking the randomly selected mail samples as they are processed on the machine. MERLIN checks presort levels and piece counts, address accuracy, barcode readability and accuracy, tray label accuracy, and other requirements and generates diagnostic reports.	
Mail History Tracking System (MHTS)	**Network Operations**
Description: Provides a comprehensive service history of uniquely identifiable mailpieces. Through the analysis of summarized historical data, the MHTS supports the detection of service issues and their potential causes. In addition, the MHTS facilitates the extrapolation, modeling, and validation of the national network of Postal Service mail flows. Finally, MHTS provides in-plant support, operations and maintenance personnel with tools to validate machine and operator performance and mail flows.	
PostalOne!	**Mail Entry & Payment Technology**
Description: An integrated electronic system that records mailing transactions, receives payments, and simplifies record keeping and the retrieval of mailing data. It is the foundation of seamless acceptance and the submission of eDoc for Intelligent Mail.	
Seamless Acceptance & Service Performance (SASP)	**Mail Entry and Payment Technology**
Description: An application that associates mailer manifest data (e.g., eDoc) with operational data (for example, scheduled appointments and barcode scans) and reference data (for example, Customer Registration ID, Mailer ID, facility, delivery points) to support two key business functions: (a) Full-Service Intelligent Mail and (b) SPM. The system infrastructure includes hardware and software that can capture and store large volumes of mailing data and automate business mail acceptance activities as part of its integration with PostalOne! It determines start-the-clock, service standards, stop-the-clock, and service variance, and it provides performance data for internal operations and for external PRC reporting.	
Transactional Records Processing (TRP)	**Product Information**
Description: A High Performance/Supercomputing solution which will serve as a next generation revenue protection system. TRP will provide key cross payment (Permit, Business Reply, and so forth) control for ID and reporting on highly probable revenue loss schemes, actual losses, short payment, IBI duplication, unregistered permits, and inactive permit accounts. TRP incorporates a web service that gives the Postal Inspection Service the ability to review the Revenue Deficiency reports.	

System Name	VP Organization
Web End-of-Run (WebEOR)	**Network Operations**
Description: A software application that allows end users to retrieve, view, and store various EOR statistics from automated MPE, on a user-defined time interval from an on-site server, and then imports it into an Oracle database. WebEOR generates a set of standard reports with essential data for operating decisions. It is used primarily in mail processing facilities.	

Source: List provided by Postal Service Mailing Information Systems.

Appendix E: Intelligent Mail Program and Associated Applications

Table 1. Project Monetary Investment Details (in millions)

DAR	Total Capital Cost[16]	Total Deployment/ Implementation Expense	Total Operating Variance Cost[17]	Total Investment
Infrastructure to Support Intelligent Mail Services (Modification to original DAR Titled: Intelligent Mail Barcodes, Service Performance & Seamless Acceptance)	[redacted]	[redacted]	[redacted]	[redacted]
Intelligent Mail Barcode Printing Upgrade	[redacted]	[redacted]	[redacted]	[redacted]
Mail Entry & Payment Technology: Commercial Mail Acceptance Transformation	[redacted]	[redacted]	[redacted]	[redacted]
Continuous Improvements to Service Performance Measurement	[redacted]	[redacted]	[redacted]	[redacted]
SASP Infrastructure Upgrade	[redacted]	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]	**$314.4**

[16] The investment of funds for assets that have an expected service life of more than 1 year, and which cost more than a specified amount.
[17] Any change from the baseline level in benefits or costs for expenses such as rent, utilities, labor, training, transportation, and maintenance.
[18] The DAR recommended [redacted] in deployment/implementation expenses.

Table 2. IMb Project Summary

DAR	Date	Summary
Infrastructure to Support Intelligent Mail Services (Modification to original DAR Titled: Intelligent Mail Barcodes, Service Performance & Seamless Acceptance)	6/5/2009	To purchase necessary hardware and software and to develop and implement the infrastructure to support the IMb initiative. The solution proposed in the DAR consisted of computer server systems, data storage, hand-held barcode scanners, barcode evaluation scanners, and web-based software capabilities designed to facilitate the IMb implementation.
Intelligent Mail Barcode (IMb) Printing Upgrade	3/22/2012	To purchase and deploy software, firmware, and hardware upgrades to letter automation equipment that support POSTNET barcode retirement and full-service IMb automation requirements. Installations are not scheduled for completion until January 2013. This infrastructure support program is not expected to produce an economic return, but will enable the Postal Service to meet the requirements of the proposed rule for discontinuing the use of POSTNET barcodes and allowing only IMb for automation price eligibility purposes.
Mail Entry & Payment Technology: Commercial Mail Acceptance Transformation	6/4/2012	The DAR details the innovative and transformative initiatives by the Mail Entry and Payment Technology department through DRIVE Initiative Number 17, CMAT. The goal is to leverage the use of IMb and Full-Service to transform Commercial Mail Entry functions by streamlining and automating mail preparation, verification and entry, and payment and account management. Specifically, the programs that are direct dependencies and/or interdependencies on the DAR include: Business Mail Entry Unit Channel; FAST; eVS; *PostalOne!*; SASP; and Postage Meter Administration and Control.

DAR	Date	Summary
Continuous Improvements to Service Performance Measurement	8/22/2012	This DAR addresses SPM related to internal Postal Service systems and utilizes data available from IMb for customer service and operational improvements. These enhancements are designed to: 1) position the Postal Service to in-source the service performance function; 2) improve service performance visibility and measurement; 3) improve operational efficiency and on time performance; and increase the number of mailpieces in measurement. Specifically, the programs that are direct dependencies and/or interdependencies on the DAR include: FAST; *PostalOne!;* SASP; Surface Visibility; IM-VIS; IMDAS; WebEOR; iMAPS; and BIDS.
SASP Infrastructure Upgrade	3/15/2013	This DAR is for the infrastructure upgrade of the SASP system required to meet the current Postal Service needs. The DAR supports data volume increases from the national roll-out of the CMAT DRIVE Initiative Number 17, and the Full-Service Intelligent Mail mandate effective January 2014.

Appendix F: Management's Comments

ELLIS A. BURGOYNE
CHIEF INFORMATION OFFICER
EXECUTIVE VICE PRESIDENT

UNITED STATES POSTAL SERVICE

JUDITH LEONHARDT
DIRECTOR, AUDIT OPERATIONS

SUBJECT: Response to Draft Audit Report – Intelligent Mail Barcode Development and Use of Data (Report Number DP-AR-13-DRAFT)

Management agrees that a comprehensive Intelligent Mail barcode (IMb) plan is required but disagrees that the United States Postal Service has not had and does not have a comprehensive IMb plan.

Recommendation 1:
Develop a comprehensive Intelligent Mail barcode (IMb) data plan utilizing data governance principles for the collection, storage, and use of IMb data. The plan should include input from all business users, an assessment of all costs, and milestones for the life of the IMb program.

Management Response/Action Plan:
Management agrees that a comprehensive Intelligent Mail barcode (IMb) data plan is required. However, management disagrees with the assertions that "there is no comprehensive plan outlining future requirements" and "the Postal Service developed the IMb database structure and made decisions regarding storage capacity, processing speed, and timely availability of data without considering the needs of all IMb data users."

Additionally the "development of SASP, the main repository for IMb data, is divided between the Mail Entry and Payment Technology group and the Product Information group, since the 2011 reorganization. Each group reports to separate VPs." Both of the Vice Presidents of the organizations report to the Chief Information Officer. The comprehensive plan and vision continues to reside at the senior Executive level.

475 L'ENFANT PLAZA SW
WASHINGTON, DC 20260-1500
202-268-6900
FAX: 202-268-4492
ELLIS.A.BURGOYNE@USPS.GOV
WWW.USPS.COM

The Postal Service built the initial IMb applications and database structure based on the original business plan and requirements at the time of development, recognizing that there would be future identification of business uses that were not known at that time. Since the development of the IMb application, the use of IMb data by the organization has grown beyond the original vision, but that use has brought demonstrable value to USPS business units and customers.

In response to the growing need of the IMb data, organizations have developed new plans each with justifiable Return on Investment (ROI)s to expand and build on the original data structure. The Decision Analysis Reports (DAR) outlined in Appendix E show that the Postal Service is moving forward and building on the original vision and plan of the IMb based upon what can provide anROI.

This report and management's response contain information which management believes contains proprietary or other business information that if released, could cause substantial harm to the U.S. Postal Service and should be exempt from disclosure under the Freedom of Information Act (FOIA). The Chief Information Officer (CIO) requests that the sections entitled *"Intelligent Mail Barcode Database Costs" and "Appendix E: Intelligent Mail Program and Associated Applications"* be considered as classified, restricted, and exempt from disclosure under the FOIA".

Ellis A. Burgoyne
Chief Information Officer and Executive Vice President

cc: James P. Cochrane
John T. Edgar
Pritha N. Mehra
Corporate Audit and Response Management