



March 31, 2009

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SUBJECT: Audit Report – Intelligent Mail Barcode Project Planning and Application Development Life Cycle (Report Number IS-AR-09-006)

This report presents the results of our audit of Intelligent Mail® Barcode (IMB) Project Planning and Application Development Life Cycle (Project Number 08RG029IS000). The report is the result of a self-initiated audit, which addresses operational risk. See [Appendix A](#) for additional information about this audit.

Conclusion

The U.S. Postal Service was not aware of the significant complexities and extensive requirements needed for the IMB Full Service-Seamless Acceptance Service Performance (SASP) Release 1 application when funding was obtained for development and when project milestones were established. As a result, delays occurred in the design and build, and test schedules have been compressed. A more incremental approach to managing such a complex project could help ensure clearer expectations for the project and a better estimate of required resources and project milestones. Additionally, better business requirements management could enhance mailer community acceptance of the IMB Full Service-SASP application and maintain customer faith in the Postal Service brand. We will report the non-monetary impact (preserving the integrity of the Postal Service brand) in our *Semiannual Report to Congress*.

Because data that is sensitive to key Postal Service customers will be processed through this application, it is critical to ensure that security is thoroughly addressed. Management needs to ensure the Information Systems Security Representative (ISSR) is engaged in the application development life cycle and the Certification and Accreditation (C&A) process is completed and all residual risks identified before deploying the IMB Full Service-SASP Release 1 application. Resolving

these issues could provide assurance that all risks and mitigation alternatives have been thoroughly considered, formally documented, and diligently pursued.

Delays in Finalizing Application Requirements

Extensive business requirements were needed to develop the IMB Full Service-SASP application; however, management did not anticipate the amount of time needed to develop and integrate these requirements with the IMB Full Service-SASP Release 1 application. For example:

- The initial business requirements (dated August 16, 2007) consisted of approximately 200 pages, but grew to 5,000 pages as management made significant changes in scope and revised and added requirements for the 59 systems that interface with the IMB application.
- The design and build phases were scheduled to start on August 11 and October 1, 2008, respectively; however, delays in finalizing requirements resulted in these phases not starting until October 1 and November 17, 2008. The Executive Sponsor did not finalize and approve the requirements until February 23, 2009.

The Postal Service did not recognize the scope and complexity of developing an information resource of this magnitude. The original Decision Analysis Report (DAR), dated October 15, 2007, went through six revisions before the Board of Governors approved it in July 2008. Although the scope of the project was established in this DAR, development of the detailed requirements was not started until after the DAR was approved and funded. Critical complexities were identified during this detailed requirements development effort. In addition, the Postal Service maintained separate business and Information Technology (IT) project plans until December 8, 2008 — 5 months prior to the scheduled application deployment — when a unified project management plan was established.

As a result, the Sales and Marketing Business Systems Portfolio is working under a compressed time schedule (24 hours a day, 7 days a week) to meet the existing project milestones. For example, management indicated that System Integration Tests (SIT)¹ commenced the week of March 2, 2009, and will finish in 4 weeks as opposed to the 6 weeks originally planned. Additionally, some key features planned for the first release of the project have been deferred to future releases. By implementing effective business requirements management, the Postal Service could help ensure mailer community acceptance of the IMB Full Service-SASP application and maintain customer faith in the Postal Service brand. See [Appendix B](#) for our detailed analysis of this topic.

¹ SIT validate that the technology solution and its features conform to requirements and design specifications. Customer Acceptance Tests (CAT) ensure the technology solution satisfies the documented requirements and the customer approves it. According to management, CAT is scheduled to begin in early April 2009.

We recommend the Senior Vice President, Intelligent Mail and Address Quality, direct the Vice President, Business Mail Entry and Payment Technologies, to:

1. Establish an incremental approach for approval and funding for future project releases to ensure adequate time is allotted in the project milestones for the design, build, and test phases.

Information Security in the Application Development Process

The Executive Sponsor did not formally appoint an ISSR for the IMB Full Service-SASP application because he was not aware of the policy requirement.² One of the responsibilities of the ISSR is to notify the Executive Sponsor, Portfolio Manager, and Information System Security Officer (ISSO) of any additional security risks or concerns that emerge during development or acquisition of the information resource. The ISSR's involvement during the application development life cycle process could decrease the risk of security threats and vulnerabilities to confidential and proprietary data.

Corporate Information Security finalized and approved the Business Impact Assessment (BIA) on January 30, 2009; however, as of March 9, 2009, other key Technology Solution Life Cycle (TSLC)³ documentation, such as the Security Plan, Risk Assessment, Security Test and Evaluation Plan, and SIT and CAT plans, had not been developed and finalized for the IMB Full Service-SASP Release 1 application as required by policy⁴ and the C&A process. Management had not finalized these documents because delays occurred with finalizing the business requirements and, as a result, the ISSO was reassigned to other projects between July and October 2008. According to management, they plan to complete all TSLC documentation prior to the May 11, 2009, deployment of the application.

Policy⁵ requires management to conduct the C&A process concurrently with the development of new applications. Without a completed C&A, management has no assurance that all risks and mitigation alternatives have been thoroughly considered, formally documented, and diligently pursued. Security for this application is critical to maintain mailer confidence in the Postal Service's protection of the business sensitive data that will reside in this system. See [Appendix B](#) for our detailed analysis of this topic.

² Handbook AS-805, *Information Security – Draft* (dated January 5, 2008), Chapter 2, Security Roles and Responsibilities, Section 2-2.10, Executive Sponsors.

³ Handbook AS-805, Chapter 8, Development and Operations Security, Section 8-1, Policy.

⁴ Handbook AS-805, Chapter 8, Development and Operations Security, Section 8.5, Information Resource C&A, Exhibit 8.5.

⁵ Handbook AS-805, Chapter 8, Development and Operations Security, Section 8-4.1, What the C&A Process Covers.

We recommend the Senior Vice President, Intelligent Mail and Address Quality, and Executive Vice President, Chief Information Officer, direct the Vice President, Business Mail Entry and Payment Technologies, the Manager, Corporate Information Technology Portfolios, and the Manager, Corporate Information Security, to:

2. Formally appoint an Information Systems Security Representative, in writing, and ensure they are fully engaged in the business requirements throughout the life cycle of the Intelligent Mail Barcode Full Service-Seamless Acceptance Service Performance application, and document their participation and concurrence on security matters.
3. Ensure the Certification and Accreditation process is completed and all residual risks are identified and mitigated before deploying the Intelligent Mail Barcode Full Service-Seamless Acceptance Service Performance Release 1 application.

Management's Comments

Management generally agreed with the findings, but did not comment on the non-monetary impact. They also agreed with recommendations 1 and 2, and partially agreed with recommendation 3. They recognize the desirable aspects of establishing an incremental approach for approval and funding to ensure adequate time is allotted in the project milestones for the design, build, and test phases for future releases. According to management, they have implemented this approach to ensure a less compressed schedule for the implementation of Release 2, and to the extent there will be a Release 3. Further, management has assigned an ISSR to this program and will ensure the appointment is documented in writing, and their participation and concurrence reflected, as required, in the official TSLC and C&A process documents by May 11, 2009. Finally, they will ensure the C&A process is completed and all residual risks identified.

See

[Appendix C](#) for management's comments in their entirety.

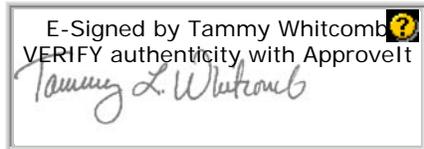
Evaluation of Management's Comments

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.

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. We will report the non-monetary impact

(preserving the integrity of the Postal Service brand) in our *Semiannual Report to Congress*.

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Frances E. Cain, Director, Information Systems, or me at (703) 248-2100.



Tammy L. Whitcomb
Deputy Assistant Inspector General
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Attachments

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APPENDIX A: ADDITIONAL INFORMATION

BACKGROUND

The Senior Vice President, Intelligent Mail and Address Quality, is the executive sponsor for the IMB project. Intelligent Mail is a comprehensive term that describes the integration of electronic mailing documentation – intelligent barcodes on all mail and containers – and scans to track mail at all points in the delivery process. With Intelligent Mail, the Postal Service plans to transform the value of mail by helping customers manage business processes, track cash flows, and build and maintain customer relationships. According to the Postal Service, Intelligent Mail will allow customers to track mail as it moves through the mail stream. Data concerning mail movement will be available through every point in the delivery process. For example, mailers and the Postal Service will know when advertising pieces are delivered, when customer remittances are mailed, and when problems such as inaccurate addressing or unreadable barcodes need correction.

The Postal Service currently has a DAR, which includes \$63.9 million in capital funding, to create an infrastructure that will facilitate the 2009 IMB deployment, support the Service Performance Measurement requirements of the 2006 Postal Accountability and Enhancement Act, and automate several business mail verification activities.⁶ The Postal Service is currently working to deploy the Full Service-SASP Release 1 application by an established deadline of May 11, 2009. The Sales and Marketing Business Systems Portfolio has developed a project plan that includes project tasks for completing items under the DAR. In addition, the deadline is tied to the May 2009 rate increase and has been communicated to the mailer community.

C&A is a formal review process that ensures adequate security is incorporated during each phase of the project life cycle. The C&A process is required for each information resource – application or infrastructure component – and consists of seven interrelated phases that are conducted concurrently with the development and deployment of new information resources. The objectives of the C&A are to assess threats, define security requirements and controls, test security solutions, and evaluate the security controls and processes chosen to protect the information resource.

Information security must be an integral part of the system development life cycle whether development is done in house, acquired, or outsourced. All development, acquisition, or integration projects for information resources must follow the TSLC process or other approved systems development life cycle methodology. The TSLC phases will have corresponding security activities that must be performed to maintain a secure environment and comply with Postal Service policies and legal requirements. The table below shows the TSLC phases and a brief description of each.

⁶ The Postal Service recently announced this DAR is being revised to cover only hardware and software for releases 1 and 2 of Full Service-SASP. Any future releases for additional functionality would be covered under a new DAR.

Table 1: TSLC Phases

TSLC Phases	Description
Initiate and Plan	Defines the high-level business needs and high-level project plan.
Requirements	Identifies and documents business requirements needed to develop the technology solution.
Analysis and Design	Creates the technology design (application, security, etc.) for developing the technology solution.
Build	Includes the development of the technology components specified in the design document.
SIT	Validate the technology solution and its features conform to the requirements and design.
CAT	Ensure the technology solution satisfies the customer's documented requirements.
Release Management	Ensures that pre-implementation tasks are defined, IT change management is followed correctly, and post-implementation steps are executed.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to determine if management is administering the IMB IT project planning and application development life cycle in an effective and efficient manner.⁷ To accomplish our objective, we reviewed IMB documentation, policies and procedures, and interviewed key officials representing Business Mail Entry and Payment Technologies, Corporate IT Portfolios, and Corporate Information Security. We also reviewed the Sales and Marketing Business System Portfolio's application development life cycle process used for deploying the application and examined other materials deemed necessary to accomplish our objective. The Full Service-SASP Release 1 application documentation we reviewed included project management plans, business requirements, project change control procedures, and security requirements. Finally, we reviewed the TSLC process to determine if key C&A documentation was developed and finalized for Release 1 of the Full Service-SASP application.

We conducted this performance audit from September 2008 through March 2009 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 objective. We assessed the reliability of computer-generated data supporting the auditing findings and concluded the data was sufficiently reliable to meet our audit objective. We discussed our observations and

⁷ Concurrent with this project, a separate OIG project, *Intelligent Mail/Seamless Acceptance Project Management* (Report Number MS-AR-09-006, dated March 31, 2009) was being conducted to focus on the project management of the overall Full Service-SASP project.

conclusions with management officials on March 9, 2009, and included their comments where appropriate.

PRIOR AUDIT COVERAGE

Report Title	Report Number	Final Report Date	Monetary Impact	Report Results
<i>Intelligent Mail Data Acquisition System</i>	DA-AR-06-001	December 22, 2005	None	The Postal Service's initial requirement for Intelligent Mail Device units was reasonable and a competitive vendor solution and shared order strategy allowed for cost-effective unit prices and discounts. However, the OIG expressed concern with possible higher maintenance costs if deployment was delayed further.
<i>Status of Intelligent Mail Enabling Infrastructure</i>	DA-AR-08-005-R	May 28, 2008	None	The Postal Service has successfully upgraded key mail processing equipment and 300 Postal Service facilities with additional network capacity. However, clarification of requirements was needed to ensure material handling systems fully support future Intelligent Mail programs.

APPENDIX B: DETAILED ANALYSIS

Delays in Finalizing Application Requirements

The Postal Service began developing IMB requirements on August 16, 2007, with a conceptual document totaling approximately 200 pages. Although the initial DAR was developed October 15, 2007, this document went through six revisions before the Board of Governors approved it in July 2008. The conceptual scope of the project was established in this DAR; however, development of the detailed requirements was not started until after the DAR was approved and funded.

Critical complexities were identified during this detailed requirements development process. For example, the Postal Service determined the IMB project would impact 59 different systems. Due to the scope and complexity of the project, requirements increased by 40 percent, and 70 percent of the original specifications required updates. This resulted in the expansion of functionalities and increased requirements documentation to about 5,000 pages.

Also, the original DAR was intended to cover four IMB releases; however, the Postal Service recently announced they will revise the original DAR to cover only hardware and software required for Releases 1 and 2. Any future releases with additional functionality would be covered by a new DAR.

According to the July 14, 2008, Full Service Management Review Meeting document, the application design and build phases were scheduled to start on August 11 and October 1, 2008, respectively. However, the actual start for these phases did not occur until October 1 and November 17, 2008, due to delays in approving the DAR and the requirements. Additionally, the July 14, 2008, document indicated the requirements were to be completed by August 8, 2008. However, the Executive Sponsor did not finalize and approve the requirements until February 23, 2009.

Finally, the Sales and Marketing Business Systems Portfolio is working under a much shorter time schedule to meet the existing milestones due to the delay in finalizing the requirements. SIT and CAT schedules were initially compressed from 6 weeks to 5 weeks, and significant overlap now exists between the two test phases. While some overlap is manageable, SIT testing should be substantially completed before CAT commences. Additionally, testing and addressing test results for such a complex application involving 59 systems in a 5-week period will likely be extremely challenging. During our exit conference, management indicated that SIT and CAT have been further compressed to 4 weeks each.

Information Security in the Application Development Process

Information Security

The Executive Sponsor did not formally appoint an ISSR for the IMB Full Service-SASP application because he was not aware of the policy requirement.

ISSR

The ISSRs are appointed, in writing, by the executive sponsor or the portfolio manager and are members of the information resource development or integration teams. The ISSR responsibilities include:⁸

- Promoting information security awareness on the project team.
- Ensuring that security controls and processes are implemented.
- Notifying the Executive Sponsor, Portfolio Manager, and ISSO of any additional security risks or concerns that emerge during development or acquisition of the information resource.
- Developing or reviewing security-related documents required by the C&A process as assigned by the Executive Sponsor.

A contract employee was assigned as the ISSR for the IMB Full Service-SASP application as noted on the draft BIA; however, the employee was not aware of these duties and responsibilities and was, in fact, incorrectly listed as the ISSR. Rather, management advised us that the Manager, Sales and Marketing Business Systems Portfolio, would be performing the ISSR duties and responsibilities.

ISSO

The ISSO duties include escalating security concerns and forwarding C&A evaluation reports and supporting documentation to the certifier for review. Also, the ISSO may recommend additional security requirements during the BIA process to better protect the information resource against threats and vulnerabilities. The ISSO responsibilities include:⁹

- Ensuring that a BIA is completed for each information resource.
- Ensuring the responsible project manager records the sensitivity and criticality designations in the [REDACTED].
- Advising and consulting with executive sponsors and portfolio managers during the BIA process so they know the background for (1) baseline security requirements that apply to all information resources and (2) the security

⁸ Handbook AS-805, Chapter 2, Security Roles and Responsibilities, Section 2-2.28, ISSRs.

⁹ Handbook AS-805, Chapter 2, Security Roles and Responsibilities, Section 2-2.29, Information Systems Security Officers.

requirements necessary to protect an information resource based on the resource's sensitivity and criticality designation.

The former ISSO had minimal involvement during requirements development for the IMB Full Service-SASP application. In July 2008, the former ISSO was reassigned to other Sales and Marketing Business Systems Portfolio projects while management was waiting for the Board of Governors to approve the DAR. A new ISSO was not appointed for the Full Service-SASP until October 2008.

The Certification and Accreditation Process

Although management finalized and approved the BIA on January 30, 2009, other key TSLC documentation, such as the Security Plan, Risk Assessment, Security Test and Evaluation Plan, and SIT and CAT plans, has not been developed and finalized for the IMB Full Service-SASP Release 1 application as required by policy and the C&A process. All final TSLC documentation for information resources must be uploaded to the TSLC Artifacts Library on the Postal Service's website. However, we confirmed that these items had not been posted on the TSLC website as required, and in fact, we noted that the TSLC Artifacts Library for IMB Full Service-SASP was just created very recently – on December 3, 2008. We could not even obtain these documents directly from program officials.

[REDACTED]

[REDACTED] Postal Service policy¹⁰ states that if the level of residual risk is not acceptable, management should implement further safeguards and security controls to reduce exposure to acceptable levels. The Vice President of the functional business area and the Vice President, Information Technology Operations, are jointly responsible for acknowledging and accepting, in writing, the residual risks inherent with using that information resource or initiating steps to further mitigate the residual risk. [REDACTED]

[REDACTED]

¹⁰ Handbook AS-805, Chapter 4, Security Risk Management, Section 4-3, Information Resource Risk Management.

APPENDIX C: MANAGEMENT'S COMMENTS

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March 30, 2009

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Director, Audit Operations
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SUBJECT: Draft Audit Report -- Intelligent Mail Barcode
Project Planning and Application Development Life Cycle
(Report Number IS-AR-09-DRAFT)

Thank you for the opportunity to review and comment on the subject draft audit report.

Management recognizes the lessons learned from the implementation of Release 1 of the IMb Full Service-Seamless Acceptance Service Performance application. The delays in design and build were the result of a conscious decision by the Executive Sponsors to ensure the application met the basic functional needs of both the Postal Service and its customers.

The combination of both internal and external requests for additional functional requirements threatened to overwhelm the capability to design, build and implement within the timeframe established. When comparing the choice between a more complex release at a later date and a basic functional release at an earlier date, the latter was the clear winner. The Executive Sponsors made the key decision to restrict the scope of Release 1.

The extended time required to complete design and build did result in a more compressed schedule at the back-end of implementation. The risks associated with this decision were both recognized and mitigated.

In retrospect this project might have been divided into two distinct parts; the first being an extended process to define scope and requirements. At the completion of this effort a separate DAR would have been created to fund the design, build, testing and implementation. While there are certainly desirable aspects to this approach, it likely would have shifted implementation into the 2010 – 2011 timeframe.

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- 2 -

The audit notes the importance of mailer community acceptance of the IMb Full Service-SASP application. The Executive Sponsors completely agree with this point. Mailer Acceptance has been and remains a top priority. To a large extent the early frustration in the mailer community was the result of the extended time required to complete the requirements for Release 1; this frustration is well understood. Since requirements were finalized and an effective communications plan was implemented, the acceptance in the mailer community has improved significantly.

Finally, the audit raises concern about Information Security in the Application Development Process. While Management concurs with the importance of Information Security, it does not agree that the Executive Sponsor was not aware of the policy requirement. The ISSR resource was involved in the process at all appropriate stages and in compliance with the policy requirement. The C&A will be completed before this application is implemented. This is and has always been the plan for this project.

Recommendation [1]:

Establish an incremental approach for approval and funding of future project releases to ensure adequate time is allotted in the project milestones for the design, build and test phases.

Response

As previously indicated, management recognizes the desirable aspects of this approach for future releases. In fact, we have already implemented this approach to ensure a less compressed schedule for the implementation of Release 2. To the extent there will be a Release 3 (date/time/scope yet to be determined), we concur that this is the appropriate methodology.

Recommendation [2]:

Formally appoint an Information Systems Security Representative, in writing, and ensure they are fully engaged in the business requirements throughout the life cycle of the Intelligent Mail Barcode Full Service-Seamless Acceptance Service Performance application, and document their participation and concurrence on security matters.

Response

Management agrees. There has been an ISSR assigned to this program; the current ISSR is [REDACTED]. We will ensure that his appointment is documented in writing and included within the TSLC artifacts library. His participation and concurrence will be reflected as required in the official TSLC and C&A process documents. Target completion date is to be done prior to implementation now scheduled for May 11, 2009.

- 3 -

Recommendation [3]:

Ensure the Certification and Accreditation process is completed and all residual risks are identified and mitigated before deploying the IMb Full Service-Seamless Acceptance Service Performance Release 1 application.

Response

Management partially agrees. We will ensure that the C&A process is completed and all residual risks identified.



We do not believe that this report contains any proprietary or business information and may be disclosed pursuant to the Freedom of Information Act.

A handwritten signature in cursive script, appearing to read "Thomas G. Day".

for Thomas G. Day
Senior Vice President
Intelligent Mail and Address Quality

cc: Ross Philo
Tammy Whitcomb
George Wright
Pritha Mehra
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