

February 22, 2002

THOMAS G. DAY
VICE PRESIDENT, ENGINEERING

SUBJECT: Audit Report - Performance of Automated Flat
Sorting Machine 100
(Report Number DA-AR-02-001)

This report presents the results of our self-initiated audit of the Automated Flat Sorting Machine 100 (Project Number 01BA010DA000). The objectives of our audit were to assess the reasonableness of deployment strategy, implementation, financial benefits, and integration.

Results in Brief

We determined that key deployment activities for the flat sorting machines were reasonable. The Postal Service used a standard economic model and deployment schedule to support its deployment strategy, implementation, and financial aspects of its program. In addition, it considered the impact on other Postal Service initiatives such as the Information Platform.

However, we are concerned that flat sorting machines will be underutilized at the end of the second phase of deployment due to changes in initial assumptions. We recommended management recalculate the projected return on investment. We also recommended that the underutilization issue be addressed before going forward with additional purchases.

Management provided an acceptable alternative action in lieu of our first recommendation and agreed with the second recommendation. We find management's actions responsive on both accounts since it directly addressed our findings. Management's comments, in their entirety, are included in the appendix of this report.

Background

In June 1998 and April 2000 the Board of Governors approved the purchase of 175 and 362¹ new flat sorting machines with a capital and expense funding of approximately \$446 million and \$579 million respectively. These machines will replace the aging 881 flat sorting machines.

These new flat sorting machines are equipped with an automatic feeder that increases input speed and throughput, and an on-site video coding system that allows real-time processing of nonreadable mailpieces. As a result, the new flat sorting machines will reduce labor hours associated with flat mail processing and improve overall productivity.

Objectives, Scope, and Methodology

The objectives of our audit were to assess the reasonableness of the flat sorting machine deployment strategy, implementation schedule, potential financial benefits, and integration with other Postal Service initiatives.

In reviewing the purchase decisions for flat sorting machines, we assessed the reasonableness of assumptions the Postal Service made in its Corporate Flats Strategy and Decision Analysis Report related to flat volumes, machine capacity (throughput), maintenance hours, and processing days. To assess potential deployment alternatives, we conducted interviews with the responsible contracting officer. We did not test the validity of data used in our analysis.

This audit was conducted from August 2001 through February 2002, in accordance with generally accepted government auditing standards and included such tests of internal controls, as were considered necessary under the circumstances. We discussed our conclusions and observations with appropriate management officials and included their comments, where appropriate.

Prior Audit Coverage

We did not identify any prior audits or reviews related to the objectives of this audit.

¹ Three machines are to be used for training.

**Flat Sorting Machines
are Underutilized**

We concluded that the flat sorting machines may be underutilized because:

- Mail volumes are lower than anticipated.
- The machines can operate at higher capacities.
- Available machine processing days can be increased.

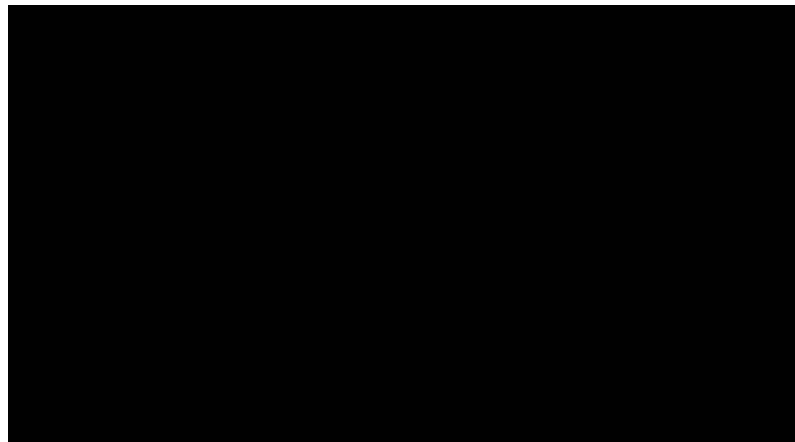
The total mail and flat sorting machine volumes are lower than anticipated. While the flat sorting machine Decision Analysis Report forecasts zero flat volume growth, the Postal Service Five-Year Strategic Plan projects overall volumes were to decline by 2 percent. In determining flat sorting machine volumes for the Decision Analysis Report, estimates were obtained from associate offices for the incoming secondary mail currently sorted at plants and associate offices. Because associate office flat volumes were not previously captured via machine counts, the processing and distribution centers relied on good faith estimates to justify their machine orders. These estimates may have been misstated. Moreover, the Breakthrough Productivity Initiative recorded volumes for fiscal years (FY) 2001 and 2000 show total flat volumes at 7 to 10 percent below "Corporate Strategy" expectations.

In addition, the flat sorting machines can operate at higher capacities than originally anticipated, and thus, throughput capacity may have been understated when the initial Decision Analysis Report was approved. Based on preproduction test results, the Decision Analysis Report projected throughputs of 13,989 to 14,291 pieces per hour. However, throughput averaged 9,356 pieces per hour during FY 2001. While average throughputs per machine for 150 deployed sites fell below projections, five sites achieved throughputs greater than 18,000 pieces per hour per machine in at least one accounting period.² This indicates the possibility of significantly higher throughputs than was originally forecasted, thereby, potentially reducing the number of machines needed for a mature or declining flats market.

² Mid-Florida (accounting period 13), Orlando (accounting period 13), Sacramento (accounting period 13), Minneapolis (accounting period 6 and 8), and Saint Paul (accounting period 2).

Further, the Postal Service processes mail year-round. However, according to the Decision Analysis Report, the flat sorting machine will only operate 286 days per year for primary operations and 302 days per year for secondary operations. Increasing the number of days that the flat sorting machine operates could raise the machines' overall processing capacity, again potentially reducing the number of machines needed.

Similar to our analysis, the Postal Service Breakthrough Productivity group reported that flat sorting machines were underutilized for FY 2001. Specifically, its performance achievement report indicates the deployed flat sorting machines, among other areas, were underutilized because the Postal Service did not meet any of its machine productivity targets. We believe that additional machines may further challenge the Postal Service to meet its flats machine processing productivity goals, as spreading the fixed mail volume over more machines at a site reduces the machine-specific productivity measure.



We recognize that the Postal Service expects to realize significant savings resulting from the deployment of the flat sorting machines. While this may be true, fully utilizing the machines' potential may further maximize the achievement of expected savings.

Recommendation

Because the Postal Service is near the completion of its second phase of deployment and all machine orders have been made, we are not making any recommendations to terminate the acceptance of remaining machines.

However, we recommend the vice president, Engineering, in coordination with the senior vice president, Operations:

1. Recalculate the impact of lower throughputs on expected return on investment.

**Management's
Comments**

Management disagreed with the recommendation but provided an acceptable alternative action. Management commented that the requirements analysis approach used was sound and that the number of machines purchased is appropriate and justified. The total quantity purchased is based on the cumulative results of detailed requirements models that were completed for each site. Machine requirements were based on existing operating parameters and ensured that service commitments were not compromised.

Additionally, management also commented that the flats volume data used in OIG's analysis are inconsistent with actual flats volume data (which does not show a decline in volume) and the throughput data presented appears to include downtime that is not included in the Decision Analysis Report throughput projections.

Management stated that it is too early in the program to effectively evaluate the Automated Flat Sorting Machine 100 Program since deployment has yet to be completed. Performing the requested analysis would only provide a snapshot and would ignore the performance ultimately expected from this machine. Furthermore, updating only throughput assumptions of over 200 site-specific models while ignoring the other variables that have changed (such as volumes, OCR read rates, etc.) since the original analysis was done may be misleading. As such management believed it would be more useful to perform a utilization analysis after all of the machines have been deployed and have been operational for at least 4 months. Thus, they proposed to provide an AFSM 100 utilization analysis in the first quarter of FY 2003 instead of

recalculating the economic impact of lower throughput values at this time.

Recommendation

We recommend the vice president, Engineering, in coordination with the senior vice president, Operations:

2. Address flat sorting machine underutilization before considering additional machine purchases.

**Management's
Comments**

Management agreed with the recommendation and stated that they would proceed with a future purchase if it is determined that a capacity shortfall exists with current deployed equipment.

**Evaluation of
Management's
Comments**

We find management's proposal and actions responsive to our finding and recommendations 1 and 2. We appreciate management's comments that an extensive and detailed requirements analysis was performed to justify the automated flat sorting machine 100 purchase. We do not take issue with this assertion; though we believe a top down approach could also identify fractional machine over-capacity at each site and opportunities to further consolidate operations perhaps outside the existing operating parameters.

For clarification purposes, our volume analysis was based on Breakthrough Productivity reports that captured volume processed by the automated flat sorting machines during FY 2001. Based on lower machine throughput for FY 2001, increased hours to prepare flats for processing, and down time admittedly excluded, we believe that the Decision Analysis Report stated return on investment may not be fully realized within the stated time frame. However, we applaud the Postal Service for taking measures to mitigate these concerns by:

- Testing flat mailpiece design characteristics to better optimize throughput.
- Working with the mailers to prepare flat mail in an alternative method to reduce preparation hours and increase productivity.

In principle, initial Decision Analysis Reports are estimates that may be adjusted as conditions change. Any periodic

analysis performed prior to full deployment may provide valuable information to readjust deployment strategies and financial returns within stated timeframes. Because the Postal Service is nearing the end of deployment, a post-utilization analysis would also have value in identifying opportunities to increase machine productivity.

We appreciate the cooperation and courtesies provided by your staff during the audit. If you have any questions, please contact Tracy LaPoint, director, Developmental, at (703) 248-2100 or me at (703) 248-2300.

Donna L. Edsall
Acting Assistant Inspector General
for eBusiness

cc: Patrick R. Donahoe
John A. Rapp
John R. Gunnels

APPENDIX. MANAGEMENT'S COMMENTS

THOMAS G. DAY
VICE PRESIDENT
ENGINEERING



February 8, 2002

ROBERT EMMONS
ASSISTANT INSPECTOR GENERAL FOR EBUSINESS

SUBJECT: Response to OIG Report on the Automated Flat Sorting Machine 100

The following is Engineering's response to the OIG's Audit Report on the Performance of Automated Flat Sorting Machines 100 (Report number DA-AR-02-DRAFT) provided on January 4, 2002.

We offer the following comments to the items listed in the report:

Recommendation Comments:

We believe the requirements analysis approach was sound and that the number of AFSM 100s we are purchasing is appropriate and justified. Therefore, terminating the acceptance of the remaining AFSM 100s would be inappropriate for any reason. The total quantity of AFSM 100s being purchased is based on the cumulative results of detailed requirements models that were completed for each site. This required extensive work with the individual sites to complete their respective models, ensuring that all model variables reflected site-specific characteristics including volume arrival profiles and operating windows. Machine requirements were based on existing operating parameters and ensured that service commitments were not compromised.

Many critical requirements considerations appear to have been overlooked in this report including each site's mail arrival profile and available operating windows for the different mail types handled by this machine. Additionally, the flats volume data used in this analysis is inconsistent with actual flats volume data (which does not show a decline in volume) and the throughput data presented appears to include downtime which is not included in the DAR throughput projections.

Recommendation One: Recalculate the impact of lower throughputs on expected return on investment.

Response: Experience has shown that the average throughput of the AFSM 100 will improve over time and it is too early in the program to effectively evaluate the AFSM 100 program. Deployment is scheduled to be completed in April 2002 and sites continue to ramp-up operations by bringing additional volume onto their machines. This requested analysis would only provide a snapshot of where we stand today prior to completion of AFSM deployment; it would ignore the performance ultimately expected from this machine. Furthermore, updating only throughput assumptions of over 200 site-specific models while ignoring the other variables that have changed (i.e., volumes, OCR read rates, etc.) since the original analysis was done may be misleading.

We believe it would be more useful to perform a utilization analysis after all of the machines have been deployed and have been operational for at least 4 months. Thus, we are proposing to provide an AFSM 100 utilization analysis in the first quarter of FY2003 instead of recalculating the economic impact of lower throughput values at this time.

8403 LEE HIGHWAY
MERRIFIELD VA 22092-8101
703-280-7001

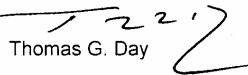
Recommendation Two: Address flat sorting machine underutilization before considering additional machine purchases.

Response: We agree with this recommendation. The U.S. Postal Service always considers equipment utilization in the development of business cases for new postal equipment purchases. Thus, we would only proceed with a future purchase of AFSM 100s if we determined there was an existing or projected capacity shortfall with the existing equipment.

General Comments:

Under the Background section (page 1), the last sentence states that "These machines will replace the aging 881 flat sorting machines." However, the initial purchase of 175 AFSM 100s was predominantly for meeting flat sorting capacity shortfalls that existed at the time. It is the 2nd purchase of 362 AFSM 100s that are primarily being used to replace our older 881 flat sorting machines. Thus, the 537 AFSM 100s we have purchased are being used to replace the aging 881 flat sorting machines and to provide additional flat sorting capacity for flats being manually processed in delivery units.

Unless our alternative proposal to recommendation one needs to be discussed, at this time we do not think a meeting is necessary. If you would like any further information, please contact John Keegan at 703-280-7230 or Tom Foti at 703-280-7848.


Thomas G. Day

cc: Joyce Hanson
Pat Donahoe
John Rapp
John R. Gunnels