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SBA LOAN MONITORING SYSTEM

Substantial Progress Yet Key Risks and Challenges Remain

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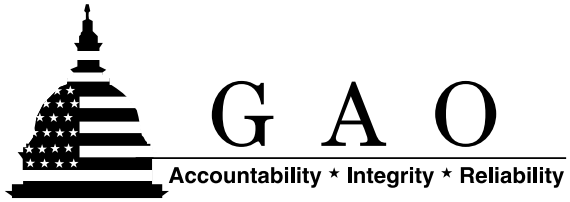

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Mr. Chairman and Members of the Subcommittee:

Thank you for inviting us to discuss the progress of the Small Business Administration (SBA) in performing the planning actions for its loan monitoring system, as mandated by the Small Business Reauthorization Act of 1997. After providing brief background information, my testimony today will discuss SBA's progress in completing the mandated actions, our evaluation of SBA's products completed thus far, the processes used to develop these products and manage key activities, and actions the agency needs to take to manage risks.

SBA has made substantial progress in completing the eight mandated planning actions, but must still complete work for some actions and implement key functions to effectively manage the development of the loan monitoring system. SBA has benchmarked its business processes against those of leading organizations and has conducted a reengineering study to identify and select new processes to improve its operations. Using the results of these efforts, SBA has also started identifying the data needed for the proposed loan monitoring system, defining data quality standards, developing the information architecture, determining an acquisition strategy, defining systems requirements, and estimating the costs to complete the project. SBA has reported that all of the eight mandated planning actions are complete, except for two concerning the information architecture and systems requirements.

Our analyses of SBA products for the planning actions have shown that the agency has made substantial progress. At the same time, some of the products lack one or more important elements, and there are critical steps that SBA has not performed. Several key functions—such as configuration management, quality assurance, and system security—need to be established and implemented to effectively manage the project.

Before beginning systems design and development, SBA will need to complete key planning actions—such as performing benefit and cost analyses of business process and system alternatives—for the mandated planning actions. It should also implement critical project management controls—such as those needed to ensure that system design addresses the security challenge posed by Internet-based access. Actions will be needed in such areas as these if SBA is to effectively manage the risks it will encounter in the systems development process.

In commenting on a draft of this testimony, the deputy administrator and other SBA officials told us that they recognize the benefit of the actions we suggest to improve project management. However, they said, the risks

from not fully completing such actions before system development should be weighed against the risks and opportunity costs associated with delaying the implementation of a system that would help oversee SBA's guaranteed loan portfolio. They added that the first system increment they plan to develop will assist them in further defining the requirements for the entire system, and therefore they need to proceed with it expeditiously.

Background

SBA's need to monitor the activities of lenders who help deliver its programs has increased significantly in recent years. Annual loan approvals for the 7(a) General Business Loan Guarantee Program and the section 504 Certified Development Company Debenture Program have almost doubled since 1992, and the loan portfolio for all its programs now exceeds $40 billion. During that same time, SBA has decreased its staff by 20 percent and shifted to lenders the responsibility for key loan origination, servicing, and liquidation functions. Lenders now originate about 75 percent of new loans with little or no involvement by SBA in the eligibility and credit approval processes.

To enhance its capabilities for loan and lender monitoring, SBA has proposed improvements to its automated systems, lender oversight, and risk management infrastructure. The purpose of SBA's proposed loan monitoring system is to use technology and new processes to manage its loan portfolios, identify and effectively mitigate risks incurred through loans guaranteed by SBA, implement oversight of internal and external operations, and calculate subsidy rates.

After reviewing SBA's basis for this request, we reported in June 1997 that the agency had not undertaken the essential planning needed to develop the proposed loan monitoring system.[1] The Congress subsequently enacted provisions in the Small Business Reauthorization Act of 1997 that required the SBA Administrator to perform and complete eight planning actions to serve as the basis for funding the development and implementation of the computerized loan monitoring system. The act also required SBA to report by June 2, 1998, on its progress in completing the planning actions.

[1] *Small Business Administration: Better Planning and Controls Needed For Information Systems* (GAO/AIMD-97-94, June 27, 1997).

As required by the act, in June 1998 we commented on SBA's report.[2] We reported that while SBA had formed a team for the loan monitoring system in December 1997, it had not yet completed any of the eight mandated actions. SBA's report included a project plan, laying out its approach for addressing these actions. Work on the first of the required planning actions was begun in May 1998 and, according to the project plan, SBA was to complete work on the last of the eight mandated actions in August 1999.

In July 1998 we testified that SBA's project plan delineated the project's goals and objectives, resource requirements, quality standards and control systems, assumptions, methodologies, work breakdown structure with timetable for completion of tasks, and estimated costs.[3] The plan estimated that a staff of 18 would be needed for the first phase of the project, which was to address the eight mandated planning actions, and scheduled completion of the mandated actions by the end of August 1999.

While development of the project plan was a good start, we also testified that SBA faced formidable technical and management challenges and risks in executing the plan, including

- establishing software project management capability while undertaking its largest information technology project ever;
- using methodologies and practices for the first time while conducting a large, complex project; and
- implementing the loan monitoring system without having an information technology architecture in place.

SBA acknowledged these challenges and committed to providing the loan monitoring system project with the necessary management support.

To perform the planning for the loan monitoring system and conduct related modernization activities, SBA was appropriated $8 million annually for fiscal years 1998, 1999, and 2000. According to loan monitoring system project data, SBA used about $1 million in fiscal year 1998 and $0.7 million in fiscal year 1999. For fiscal year 2000, SBA plans to use about $2 million

[2]The act required us to evaluate and report on SBA's compliance within 28 days of receipt of SBA's report. Accordingly, we issued *Small Business Administration: Mandated Planning for Loan Monitoring System Is Not Complete* (GAO/AIMD-98-214R, June 30, 1998).

[3]*Small Business Administration: Planning for Loan Monitoring System Has Many Positive Features But Still Carries Implementation Challenges* (GAO/T-AIMD-98-233, July 16, 1998).

for contractor project support, SBA staff, and travel costs; and about $8.5 million for infrastructure acquisition and system development activities.

Objective, Scope, and Methodology

As you requested, our overall objective was to evaluate SBA's efforts to complete actions required by the Small Business Reauthorization Act of 1997 in accordance with required and generally accepted systems development practices.

We conducted our work at SBA's headquarters in Washington, D.C., from August 1999 through February 2000, in accordance with generally accepted government auditing standards. In our analyses of SBA's products for the mandated actions, we used the methodologies and criteria that SBA officials said they used in performing their work and preparing the products, as well as guidance issued by the Office of Management and Budget, the General Services Administration, the Institute of Electrical and Electronics Engineers, Inc. (IEEE), and our office that are applicable to the mandated planning actions. Our analyses of the products were performed to assess the structure, general content, and processes used in the planning actions. Detailed analyses could not be performed on all SBA products because many were only recently provided to us and time constraints precluded an opportunity to discuss these products and the processes used to produce them with cognizant SBA officials. We provided a copy of our draft testimony to SBA officials; we received comments from them, and made changes as appropriate.

SBA Has Made Substantial Progress in Completing Mandated Actions

SBA has completed 17 products for the eight mandated actions and has prepared 3 additional draft products. Table 1 summarizes the status of SBA's products for the eight mandated actions.

Table 1: Status of Products for Mandated Actions as Reported by SBA, as of February 23, 2000

Mandated Action	SBA Product	Status of Product
Benchmark loan monitoring business processes and systems against comparable industry processes and, if appropriate, simplify or redefine work processes based on these benchmarks	Benchmark study	Final
	Business process reengineering study	Final
	Feasibility analysis of recommendations	Final
	Analysis of "as is" baseline cost and time	Final
	Concept of operations	Final
	Implementation strategy	Final
Analyze the benefits and costs of alternatives and use them to demonstrate the advantages of final project	Business case for reengineering	Final
Ensure that proposed information system is consistent with agency's information architecture	"As is" information technology architecture	Final
	Technology policy statement	Final
	Enterprise information technology architecture report	Draft
	Gap analysis, migration strategy, and transition plan	Draft
	Plan to synchronize loan monitoring system with information technology architecture	Final
Identify all data inputs and outputs necessary for timely report generation	Needs statement (logical data model)	Final
Determine data quality standards and control systems for ensuring information accuracy	Data quality guidance	Final
	Data quality issues	Final
	Data quality management plan	Final
Fully define the requirements for the system that uses on-line, automated capabilities to the extent feasible	Statement of need for the loan monitoring system	Final
	Systems requirements	Draft
Identify acquisition strategy and work increments to completion	Acquisition strategy	Final
Estimate cost to system completion, identifying essential cost elements	Needs statement (total cost to completion)	Final

SBA officials advised us on February 23 that they expected to complete the remaining actions by March 2000 and then proceed to design and develop the first increment of the proposed system.

Actions Still Needed for Key Items

Our analyses of SBA products for the planning actions reveal that the agency has made substantial progress. At the same time, SBA had not completed some critical steps in preparing the products, and key products did not contain one or more important elements. For many of these missing or incomplete items, SBA plans to contract for their completion.

Benchmarking and Business Process Reengineering Are Complete Except for Costs and Performance Measurement Data, Analysis of Alternatives, and Implementation Plans

SBA conducted a benchmark study and reported its results in December 1998. Benchmarking is the comparison of core process performance with other components of the agency or organization (internal benchmarking) and/or with leading agencies or organizations (external benchmarking). Best practices include the processes, practices, and systems that perform exceptionally well in specific areas of public and private organizations. Benchmarking provides a means of establishing a compelling business case for change. It should identify more efficient and effective processes for achieving intended results, and suggest goals for program output, product and service quality, and process improvement.

SBA's contractor used a seven-step benchmarking process to evaluate SBA business gaps with similar organizations for five loan management functions. The functions benchmarked were risk management, lender oversight, guaranty procedures, subsidy rate calculation, and asset sales. These functions were benchmarked against the practices of 11 federal and private-sector organizations.

The benchmark report identified standard industry or "good" practices and showed a significant gap between SBA and benchmark partners' practices for each of the management functions. The report also contained suggestions that senior management needed to "buy in" to the reengineering process, communications plans needed to be developed, systems requirements needed to be preliminarily defined, and training plans needed to be examined.

In evaluating SBA's benchmark effort, in May 1999[4] we reported that it was an important first step in SBA's actions to develop a loan monitoring system. In general, the benchmarking methods used were consistent with accepted practices and the benchmarking methodology was followed at a high level. However, the study had a number of weaknesses, the most significant being that it did not produce cost and performance measurement data for SBA and the benchmark partners' processes. SBA agreed with our analysis and stated that it planned to collect additional

[4] *Small Business Administration: Enhancements Needed for Loan Monitoring System Benchmark Study* (GAO/AIMD-99-165, May 14, 1999).

benchmarking information during its business process reengineering activities.

Because the benchmark study identified wide gaps between SBA's business processes and the best practices of the benchmark partners' practices for each of the management functions, SBA decided to pursue business process reengineering for each of the five SBA areas that were included in the study. Business process reengineering is an approach for redesigning the way work is done to better support the organization's mission and reduce costs. Reengineering identifies, analyzes, and redesigns an organization's core business processes with the aim of achieving dramatic improvement in critical performance measures such as cost, quality, service, and speed.

The purpose of SBA's business process reengineering (BPR) study was to analyze the current business practices within five functional areas of the organization, and develop new, more effective processes, supported by modernized, state of the art, information technology systems.

The five functional areas addressed in the study were the following:

Guaranty Procedures encompass the full life cycle of a loan, from application through payment in full or liquidation, with three major subprocesses:

- Processing: encompasses application, approval, and closing
- Servicing: includes all loan actions handled through payment in full
- Liquidation: includes the process of recovering value from defaulted loans

Lender Oversight is composed of three main functions: (1) communicating to lenders about policies, procedures, and standards of performance; (2) monitoring of lender performance; and (3) taking enforcement action when lender behavior and/or performance deviate from accepted standards.

Risk Management is the process by which SBA monitors its loan portfolio, tracks lenders and borrows and oversees the management of the portfolio to keep losses to an acceptable level.

Subsidy Rate is an estimate of the subsidy cost of SBA's guaranteed and direct loan programs as a percentage of the total level of commitment.

Asset Sales is composed of the processes used to sell SBA loan assets, including direct loans and repurchased guaranteed loans, to private investors.

The SBA BPR team, with facilitation support from contractor staff, analyzed the best practices of the industry and made recommendations for SBA's systems modernization primarily from the standpoint of maximizing efficiency with the highest degree of automation. As a result of this analysis, the BPR report contained 38 recommendations for new elements or characteristics for SBA's business processes. A few of the more significant recommendations were that SBA's new business processes include

- one set of core data elements for all loan programs, and one standard electronic channel for submitting all applications;
- centralized processing of all guaranty applications;
- lenders' ability to directly access the SBA system to submit a servicing action request or report a unilateral action;
- lenders, direct borrowers, and designated SBA personnel being able to view the real-time status of all loans;
- liquidations being centralized in the servicing centers to achieve economies of scale in labor and technology;
- continuous capturing of lender performance information and electronic analysis for early warning of potential changes in lender performance; and
- performance information collected through the new lender monitoring system and lender reviews providing the necessary base of information to facilitate informed decisionmaking.

To decide which of the recommendations would be adopted in whole or in part, SBA formed a team that analyzed the risks and barriers associated with their implementation. Based on this analysis, the SBA Administrator fully adopted 30 of the 38 recommendations and adopted the remaining eight with modifications. For example, the recommendation to centralize the processing of all applications was modified to centralize the processing for programs that represent about 75 percent of all guaranteed loans.

SBA's contractor followed a methodology that conforms with generally accepted practices. However, as acknowledged in the report, key cost and

performance measurement data—needed to compare and analyze proposed processes against current—were not collected during the BPR study. According to generally accepted practices, a performance-based and risk-adjusted benefit and cost analysis of alternatives being considered for each business process is needed to support the final selection of processes to implement.[5] Accordingly, the BPR report recommended that SBA perform an activity-based cost analysis to provide critical data in evaluating current practices. SBA officials subsequently told us that they would produce a business case that would support their selection of new business processes. SBA did prepare this business case but it did not include benefit and cost analyses of alternatives being considered for each business process. Without analyzing benefits and costs, SBA increases the risk that the most effective and efficient business processes will not be selected.

SBA also has not yet developed an implementation plan for the new business processes as required by generally accepted BPR practices. It developed an overall strategy for implementing the new business processes, but did not develop a detailed plan that lays out the critical elements and milestones for implementing them. SBA should consider formulating such a plan before it starts developing the first segment of the new system to ensure that the development and implementation of supporting information systems will be synchronized with the implementation of new business processes.

Loan Monitoring System Is Intended to Provide Electronic Data Collection and Ready Access to a Comprehensive Data Repository

Based on the results of its BPR study, SBA has developed a general description of the new loan monitoring system. The system is to be used by program managers and staff in headquarters, loan processing and service centers, field offices, financial operations, lenders, and external service providers under contract to perform specific portfolio support tasks. The system is expected to be "on-line to all users around the clock." Internally, SBA staff are to have all necessary data available through a loan system that provides access to records from anywhere in the agency, while externally the system is expected to allow lenders to view their own portfolios.

SBA plans to have the loan monitoring system include a "virtual private network" using high-speed communications based on the Internet and dial-up access for smaller lenders, a security system that requires prior identification and approval of users, and high-level encryption of all messages. Because the Internet is a public network, SBA states that it will

[5]The generally accepted BPR practices cited here are taken from our *Business Process Reengineering Assessment Guide* (GAO/AIMD-10.1.15, April 1997).

require authentication of lenders and SBA staff as they try to initiate access to the system.

In addition to the network, the system is expected to integrate a secure Web site and a technologically advanced system of data, applications, and processes. Requests for loan guarantees are to be submitted electronically, either through a formatted file transfer or on-line entry into the system. The loan monitoring system is also expected to have a comprehensive central data repository to support early warning systems, exception reporting, management reporting, decision support, ad hoc reporting, operational reporting, and financial management reconciliation. The central data repository is also considered to be the key to providing early warning systems for lender oversight and risk management functions.

SBA has decided to design and develop the loan monitoring system in increments. According to the agency, the first increment will include the establishment of a standard set of data elements for loan guarantee applications and the electronic processing of applications for part of its loan guarantee programs. However, SBA has not yet provided us with key documents related to this, such as a description of the system design, documentation on the make or buy decision, proposed acceptance criteria for contract deliverables, and project plans.

Benefit-Cost Analyses Have Not Yet Been Performed

A benefit-cost analysis is a generally accepted method for comparison of alternative means of meeting a specific objective. In its simplest form, benefit-cost analyses should identify alternatives, determine the benefits and costs of each alternative, and recommend the most cost-effective alternative.

SBA's business case analysis[6] describes the current system, discusses proposed system changes, identifies alternatives for the proposed loan monitoring system, and presents a benefit-cost analysis showing that the benefits associated with the new loan monitoring system are greater that the increases in costs for investment, maintenance, ongoing operations, and related items. SBA estimated that the new system would produce, by the end of fiscal year 2006, cumulative cash savings of $147 million. In its analysis, SBA considered—but dismissed—alternatives such as the privatization and outsourcing of loan monitoring functions to the private sector, noting that "SBA already has accomplished most of what can be done in terms of privatization."

[6] *The Business Case for the Reengineered Loan Monitoring System*, LMS.V1.1.006, February 2000.

SBA considered five system alternatives. It concluded that two of the alternatives—continued use of the current system and making improvements to the current system—were not viable because the current system is completely outmoded in both functionality and technical design. SBA noted that the remaining three alternatives—using standard commercial-off-the-shelf (COTS) software, standard COTS software with custom-made software, and custom-made software alone—will be analyzed at a later point.

Before beginning system design, SBA should perform benefit-cost analyses of all identified alternatives, determine the benefits and costs of each alternative, evaluate alternatives by comparing their benefits and costs, and select the best alternative for implementation. This will increase the probability that SBA will obtain a system that meets its needs at the lowest cost.

SBA's Information Architecture Is Incomplete

An information technology architecture is a blueprint—consisting of logical and technical components—to guide and constrain the development and evolution of a collection of related systems. At the logical level, the architecture provides a high-level description of an organization's mission, the business functions being performed and the relationships among the functions, the information needed to perform the functions, and the flow of information among functions. At the technical level, the architecture provides the rules and standards needed to ensure that the interrelated systems are built to be interoperable and maintainable. These include specifications of critical aspects of component systems' hardware, software, communication, data, security, and performance characteristics.

SBA has analyzed and documented[7] its existing architecture, defined the future—or target—architecture,[8] and analyzed the gaps between the two. The gap analysis[9] forms the basis for development of a migration strategy to move from the current systems to the new system. However, SBA has not fully documented the current systems in the existing architecture, and has not completed its target information technology architecture.

[7] *SBA Existing Information Technology Review, Capability, and Cost Analysis*, Version 1.3, November 9, 1998.

[8] *SBA Information Technology Architecture* (draft), Final Version 1.0, October 1999.

[9] *SBA Target ITA Gap Analysis Assessment and Action/Migration Plan* (undated draft).

To deal with the incomplete architecture, SBA has developed an approach[10] to maintaining consistency between the SBA information technology architecture and proposed loan monitoring system. This approach—which requires that the system under construction be mapped to the partially defined target architecture—increases the risk that the loan monitoring system would not be seamlessly integrated with the SBA target architecture. To address this increased risk, before beginning system design SBA should consider developing and including the rules and standards needed to ensure that the interrelated systems are built to be interoperable and maintainable in its information technology architecture. These include specifications of critical aspects of component systems' hardware, software, communication, data, security, and performance characteristics.

Data Inputs and Outputs Are Necessary for Timely Report Generation

Requirements definition begins with high-level requirements and ends with detailed requirements prior to system design. High-level requirements for reports need to be consistent, and validated to a level of detail sufficient for defining acceptance criteria. System outputs, which consist of reports and files to satisfy the organization's information needs, must be precisely defined prior to design. The inputs needed to produce these specific files, and reports are then defined in detail.

SBA identified a sample of current reports, including reports now being produced by local systems and several reports being produced by the mainframe system, but has not identified high-level requirements for all internal reports. Before initiating system design for each increment, SBA should consider identifying the high-level requirements for all internal reports. In addition, it should define detailed input and output data elements necessary for the timely generation of reports.

Data Quality Standards Still Need Schedule, Resource Allocation, and Business Process Measures

Plans for improving data quality should include the definition of data quality standards, the development of quality measures, and the assessment impact of inaccurate data on business units. The plan for improving data quality should also have a schedule of activities and resources that are identified and allocated.

SBA developed a data quality plan and a conceptual data model that includes data quality information. The data quality plan is a strategy paper and, as such, provides a framework for pursuing data quality goals and

[10] *SBA Plan to Reconcile On-going Loan Monitoring* System *Development with In-process Information Technology Architecture Development*, September 1999.

contains guidelines for developing and maintaining data quality. For example, it discusses data migration actions to cleanse data in current systems. However, it does not identify the business priorities with respect to near-term and long-term requirements for data quality improvement, or provide a schedule of planned actions to improve data quality.

Before beginning design, SBA should consider completing the definition of specific data quality standards, developing a schedule of planned actions to improve data quality in the current systems, and implementing data quality measures for the new loan monitoring system.

Some System Requirements Are Yet to Be Defined

In general, industry and federal practices for systems requirements include system life expectancy; functions and capabilities of the system; business, organizational, and user requirements; computer resource requirements; design constraints; security requirements; operations and maintenance requirements; human-factors engineering requirements; and compliance standards and procedures. The systems requirements should be documented and specify the methods used to ensure that each requirement has been met. It is essential for a requirement to have characteristics that can be verified and assessed throughout the system development life cycle. Methods of verification include inspection, testing, demonstration, and analysis. All practices involving the creation, changing, or verification of requirements must maintain requirements traceability.[11]

SBA has drafted a systems requirements document that defines requirements for each function in the loan monitoring system, cross-references data bases to loan monitoring system business processes, identifies some of the reports by user and purpose, and includes sections required by the SBA methodology. However, some areas of systems requirements are not complete. For example, the systems requirements document does not specify capacity and performance requirements. Accordingly, before proceeding with system development, SBA should define its system capacity and performance requirements.

Acquisition Strategy Awaits Final Selection of Implementation Alternative

An acquisition strategy allocates risk between the government and contractor, effectively uses competition, ties contract payments to accomplishments, and takes maximum advantage of commercial technology. SBA's acquisition strategy explains the approach for developing the loan monitoring system, identifies project increments, and

[11]A requirement is traceable if its origin is clear and if it facilitates the referencing of each requirement in future development.

establishes a risk management approach. In line with the model just described, it allocates risk between the government and the contractor, uses competition, ties contract payments to accomplishments, and takes maximum advantage of commercial technology.

In addition, SBA has taken action to mitigate acquisition risk, by selecting an incremental approach to systems development. Under this approach, cost and schedule risks will be managed by revisiting cost, schedule, and project objectives after the first increment. For each business function, SBA has identified whether automated solutions are available from vendors or government sources, whether business functions can be outsourced, and whether business functions can be developed as customized applications. However, in documenting this information, SBA does not identify sources for each approach, nor does it explain why it believes that 40 percent of the functions must be custom-developed and therefore cannot be outsourced or purchased. Because the risk and cost generally increase as the proportion of customized components increases, it is important that SBA have a sound, justified basis explaining its rationale for this.

Cost to Completion Substantially Set

SBA has substantially complied with this requirement. In documenting its compliance with the requirement to estimate the cost to completion, SBA provided us with its cost-to-completion document. The cost estimate was derived from its business case analysis.

Table 2: Loan Monitoring System Estimated Cost to Completion ($000)

Cost Element	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	Total
Project startup	$ 375		$ 300			$ 675
Initiate project	150	$650	1,160	$ 950	$ 600	3,510
Definition	325	50	150			525
System design	150		350			500
Build system:						
Data scrub, Integrator, IV&V			1,150	1,200	650	3,000
Iteration 1			843			843
Iteration 2			2,468	800	250	3,518
Iteration 3			93	675		768
Iteration 4			928	1,930	200	3,058
Iteration 5			218	970		1,188
Iteration 6			898	1,530	700	3,128
Data migration			950	1,150	200	2,300
Infrastructure			950	1,900	1,100	3,950
Evaluate			84	120	120	324
Operate			50	150	200	400
Total cost to completion	$1,000	$700	$10,592	$11,375	$4,020	$27,687

Source*: The SBA Loan Monitoring System Estimated Cost to Completion,* Project Plan (Attachment) LMS.V1.0.004, February 14, 2000.

The total $27.7 million estimate includes about $4 million for infrastructure, $9.3 million for software, $8.8 million for services, $2.5 million for support, $3 million for internal labor, and $0.3 million for other costs.[12] SBA has awarded a contract to refine the cost-to-completion estimate, including costs of work increments.

SBA should continue to refine its cost-to-completion estimate following the completion of the benefit-cost analysis of alternatives and the selection of the best alternative for implementation. In addition, once SBA determines the life expectancy of the loan monitoring system, it also should develop and maintain a lifecycle cost estimate for the system and its components.

[12]Numbers do not add due to rounding.

Key Management Controls and Processes Need to Be Implemented

As stated earlier, we testified in July 1998 that SBA faced formidable technical and management challenges and risks in executing the plan, including establishing software project management capability, using methodologies and practices, and implementing the loan monitoring system project without having an information technology architecture in place. In following up on SBA's actions to deal with these challenges, we found that the agency is just beginning to adopt and implement basic policies, processes, and tools needed to control and manage a major system development and acquisition project. These include project tracking and oversight, configuration management, quality assurance, and security requirements.

Project Tracking and Oversight Is Planned

Project tracking and oversight involves tracking and reviewing project accomplishments and results against documented estimates, schedules, and performance plans. A documented plan for the project is used as the basis for tracking systems development activities. Actual results and performance are tracked against the project schedule, and the project follows organizational policy for managing systems development.

SBA has adopted an agencywide systems development methodology that suggests that projects should use this type of project tracking and review. According to SBA officials, they intend to use this for the loan monitoring system.

Configuration Management Plans, Policies, and Procedures Need to be Finalized

Configuration management plans, policies, and procedures are a set of management controls over the composition of and changes to computer and network systems components and documentation, including software code documentation and project planning documents. Configuration management is essential to successfully managing complex information systems and ensuring their integrity throughout their life cycles.

SBA has started to formulate and implement configuration management plans, policies, and processes for the loan monitoring system project. Finalizing these will provide SBA with further assurance of the success of the project.

Quality Assurance Activities Are Planned

Quality assurance involves reviewing and auditing systems development activities to verify that they comply with applicable procedures and standards. A software quality assurance group reviews project activities and audits software work products throughout the life cycle, and provides management with visibility as to whether the software project is adhering to its established plans, standards, and procedures. Compliance issues are

first addressed and resolved on the project level. For issues not resolvable within the project, the quality assurance group elevates the issue to an appropriate level of management for resolution.

SBA has not yet established a quality assurance process to ensure that the loan monitoring system project and its activities comply with SBA policies, procedures, and systems development methodologies. However, it is planning to establish a technical review group whose purpose will be to review loan monitoring system project adherence to SBA standards outlined in the SBA systems development methodology. In addition, SBA is planning to contract for independent verification and validation to provide oversight of its systems development efforts.

Loan Monitoring System Security and Privacy Requirements Are Not Fully Defined

Security focuses on the ability to ensure the confidentiality, integrity, and availability of stored and processed data. Unsecured or poorly secured systems are highly vulnerable to external and internal attacks and unauthorized use. Security planning includes the identification of high-level security requirements, including mission, management, and technical security requirements; functional security requirements that cover users' security and privacy needs; data-sensitivity analysis to identify data requiring special protection; and a security architecture that describes the security controls and relationships among the various system components.

While SBA's proposed Internet-based virtual private network may reduce telecommunications costs and provide easy nationwide access to loan monitoring system, the reliance on the Internet as a key component of the system's architecture brings unique security challenges that must be addressed early in the project's life. However, SBA has not yet developed a security architecture for its target environment, updated its security operating procedures, or defined security and privacy requirements for the loan monitoring system.[13] Because security is a critical feature for the loan monitoring system, SBA should complete its security architecture and update its security operating procedures before it begins the design and development phase of the loan monitoring system.

Summary of Actions Needed

SBA has made substantial progress in planning for the loan monitoring system; however, the agency needs to take additional actions to manage the project's risks. The issues I have outlined today pose considerable challenge, both in the area of timely completion of key planning activities and in the strengthening of project management processes and controls.

[13] *Automated Information Security Program* (undated), SOP 90-47.

In the area of planning actions, SBA should consider taking the following actions: completing the analyses of benefits and costs for alternative business processes identified through SBA's business reengineering effort; performing benefit-cost analyses for systems alternatives; completing the part of its information architecture that specifies the rules and standards for interoperability and maintainability of interrelated systems; identifying requirements and data elements for reports; completing the definition of specific data quality standards; ensuring that systems requirements document include capacity and performance requirements; ensuring that sound justification exists for pursuing custom-developed functions; and estimating the cost to completion that are based on an analysis of the benefits and costs of system alternatives.

In the project management area, SBA should strengthen its project management process and controls. These include putting in place project tracking and oversight capabilities; implementing configuration management processes; acquiring independent verification and validation for the loan monitoring system project and establishing an internal quality assurance function; and addressing the security challenge posed by Internet-based access to loan monitoring system functions and data. These processes and capabilities are essential to a major systems development and acquisition.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions that you or other members of the Subcommittee may have at this time.

Contact and Acknowledgments

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