

U.S. SMALL BUSINESS ADMINISTRATION

Business Case for a Joint Accounting and Administrative Management System

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Executive Summary

In the face of fewer resources and ever-increasing expectations of improved performance from Congress and the public, the Small Business Administration (SBA) is committed to reinventing and modernizing the way it conducts business. Specifically, SBA envisions transitioning from its role of administrator to a role of consultancy—advocating, facilitating, and monitoring activities that benefit small businesses. Because SBA’s organization, technology, and processes are predicated on a traditional administrative role, effecting change will not be easy.

To begin to meet its objective of becoming a leading-edge 21st century institution, SBA began in October 1999 to explore alternatives to its existing legacy systems. The SBA initially set out to answer two questions:

1. Should the SBA pursue an enterprise resource planning (ERP) to support administrative and accounting requirements?
2. If SBA does choose an ERP, how should the solution be implemented?

Before selecting a business solution, SBA conducted an extensive analysis of the leading ERP suites. The first step toward the goal of a Joint Accounting and Administrative Management System (JA²MS) was a six-month effort to determine the best technological approach the SBA can take to integrate its business units. To this end, SBA divided the project into three logical parts: definition and analysis of SBA requirements, evaluation of integrated administrative and accounting Commercial-off-the-shelf/Enterprise Resource Planning (COTS/ERP) products, and development of a final business case. The evaluation team, consisted of a contractor, SRA International, and members of the SBA’s human resources, financial, and procurement departments. This team compared solutions from the leading ERP vendors certified as meeting Joint Financial Management Improvement Program (JFMIP) requirements for the core financials functional area and the JFMIP guidelines for the Human Resources (HR) functional area. Four vendors were selected for further evaluation: AMS, Oracle, SAP, and PeopleSoft.

The effort necessitated that the SRA Team work closely with SBA staff as an integrated product team (IPT) to identify, validate, and prioritize the SBA functional requirements. This task was accomplished through two workshops as well as weekly one-on-one interviews with managers and staff from SBA headquarters and field offices. As a baseline, the IPT used the following criteria:

- The Joint Financial Management Improvement Program (JFMIP) requirements for the core financial and travel functional area;
- The JFMIP guidelines for the HR functional area;
- Human Resources Technology Council (HRTC) guidelines;
- Federal Acquisition Requirements (FAR); and
- SBA Information Technology Architecture.

The IPT modified the criteria by adding SBA-unique requirements for doing business today as well as requirements necessary to meet the SBA's vision of the future. The SRA Team further enhanced the list by applying its knowledge of integrated COTS and ERP systems gained through the implementation experience of other government agencies. The resulting list of requirements was used as input into preparation of product evaluation scenarios. Evaluation of vendors and their products included the creation of sample test scenarios, demonstrations, site visits, and customer surveys.

All four potential vendors participated in the demonstration and evaluation phase, demonstrating their products' compliance to SBA requirements as well as functionality and ease of use. The IPT witnessed each vendor demonstration and scored the products on these three criteria. The SRA Team then evaluated both the information collected during the vendor demonstrations and other information gathered throughout the study period, comparing the results of their analysis with the SBA requirements and preferences to develop this business case.

Business Case Findings

In pursuit of gathering additional input data for the business case, SBA and SRA formed a vendor evaluation team of over twenty-five members representing both management and staff personnel. This team spent four weeks viewing demonstrations and talking with vendor representatives, evaluating them on how well they met the previously determined SBA requirements. Of the four possible COTS/ERP packages, Oracle was evaluated as offering the most integrated system. The evaluation at this point was made purely on technical and functional capabilities and cost was not considered. All applications run on Oracle technology, including the travel and contracts modules, although companies other than Oracle provide them. This feature enables information from tables in various modules to be shared across the system, providing faster report generation, more extensive and sophisticated compilation and analysis of data, and more accurate information. Another benefit of this configuration is that it will entail simpler implementation than a system with numerous stovepipes and interfaces.

The Oracle ERP package is a Web-enabled, browser-based system, which would greatly enrich the SBA's remote-access capabilities. This feature would provide all SBA staff, including those at SBA field offices, with real-time access to SBA forms and databases. It would also equip the SBA with the mechanism to participate in e-commerce and to provide electronic interactive opportunities to its customers.

Although the Oracle ERP package offers many positive features, a few negatives do exist. First, because the SBA has stated a desire to remain with the National Finance Center (NFC) for its payroll function, an interface between Oracle and the (NFC) system will need to be developed. Second, the integration of third party travel and contract management applications dictates the need for interfaces will need to be developed between Oracle and these third-party packages. Third, because the most recent release of Oracle lacks total federalization, the SBA staff will need to coordinate with the implementation staff relating to differences in terminology with the Federal government and specifically with the SBA processes.

The business case analyzed the baseline (current scenario) and the following three alternatives:

- Alternative I, in which SBA moves to a new cross-server, with the addition of Procurement Desktop, but makes minimal other changes to system functionality;
- Alternative II, in which SBA implements the Oracle ERP package and hosts and maintains the system in-house; or
- Alternative III, in which SBA implements the Oracle ERP, but outsources application hosting and maintenance.

Alternative I dictates that SBA continue business as usual—paper-intensive processes, duplicative efforts, errors in data entry and computations, delayed responses, minimal risk management and internal controls, and the inability to satisfy numerous regulatory authorities. Through extensive benchmarking analysis, the SRA Team revealed that SBA productivity was hampered by inefficient manual processes and redundant tasks. The time dedicated to operational and administrative support is at the expense of higher-level management functions such as decision support, investment, and risk management. Alternative I is a low-risk, low-improvement approach that will not address SBA’s core problems and inefficiencies.

If SBA decides to host and maintain the ERP system in-house, it will be accepting the responsibility for the upkeep of the hardware and software, including: troubleshooting problems, developing interfaces with internal and external systems, upgrading the software, performing backups of data, and training the IT staff and end users. The skills required to operate an Oracle ERP include expertise in Oracle database administration, applications development, system administration, help desk processes, and programming.

Outsourcing all or some of the support work involved with an ERP system is an option. In this scenario, SBA can contract with one or more application service providers (ASPs) to host the hardware and applications. These third-party providers can host and manage the applications from their facilities or from co-location centers, and coordinate the ongoing support, maintenance and application upgrades.

ERP Benefits

The implementation of an ERP would make SBA compliant with JFMIP requirements and give the organization a modern back-office infrastructure. This infrastructure is important to the SBA, as it provides the foundation for other systems modernization initiatives such as the Loan Monitoring System and Disaster Credit Management Modernization. Additionally, an ERP infrastructure will allow SBA to fully participate in e-commerce and customer relationship management (CRM) activities—requirements for the SBA to realize its vision of becoming a leading-edge 21st century institution. The table below summarizes ERP features and benefits. It should be noted that while an ERP is integrated, no ERP solution offered 100% integration. Oracle will still need to integrate travel and contracts management. But this amount of integration is a significant improvement over the current baseline system.

ERP Feature	Benefit	Performance Impact		
		Cost	Speed	Quality
Integrated ERP	Elimination of multiple systems	✓	✓	✓
Single point of data entry	Elimination of duplicate data entry and error reduction	✓	✓	✓
Improved Data Warehouse capability	Easy access to reliable data & reports	✓	✓	✓
Single IT & functional architecture	Standardization of processes		✓	✓
Workflow (best practices)	Reengineered processes	✓	✓	✓
Financial management system	Funds control	✓	✓	✓
Self-service	Employee access to info/transactions	✓	✓	✓
Activity accounting & OLAP	Performance measurement	✓		✓

Parallel to the COTS/ERP evaluation, SRA tasked Hackett Benchmarking|solutionssm with performing a benchmark comparing SBA with over 1400 commercial and government agencies. Using the data from the Hackett benchmark, below are listed some specific areas where SBA will have the opportunity to realize savings (efficiencies) by implementing an ERP solution and changing inefficient processes as a result of the ERP implementation.

Functional Area	Process	Opportunity For Savings
Finance	Reduce interest payments	SBA pays \$80-\$90k in interest penalties each year due to poor document management and tracking.
	Efficiencies in transaction processing	According to Hackett, the benchmarking consultant, SBA spends \$2.2M annually on accounts payable and travel and expense processing.
	Budgeting	SBA spends \$1.7M on budgeting.
	General Ledger (GL) maintenance	SBA spends \$272k annually on general accounting, 35 percent (\$95k) of which is for GL maintenance.
	Other financial processes	SBA spends \$550k annually on external reporting, strategic planning support, and finance function management.
Human Resources	Administration and Risk Management	SBA spends about \$1.7M annually in this area, which is \$330k more than first quartile companies.
	Employee staffing and selection	SBA spends \$760k more than first quartile companies in this area.

Functional Area	Process	Opportunity For Savings
Procurement	Requisition & PO Processing	SBA spends at least \$150k more than first quartile companies in this area.
	Problem Resolution	SBA spends at least \$90k more than first quartile companies in this area

Risks

ERP implementation is time-consuming, expensive, and often fails to meet expectations. In most cases, implementing an ERP requires changing business processes somewhat to suit the solution. The new business processes may be better, but change is seldom easy. Some associated risks include:

RISK	RELATED ISSUES
Insufficient commitment of resources, including time and training.	<ul style="list-style-type: none"> - Costs are typically underestimated due to difficulty in adapting to new ERP or converting data. - Experienced, high-quality SBA functional representatives need to support implementation full-time.
Software integration of cross-servicing and third party products.	<ul style="list-style-type: none"> - Integration of third-party software packages for travel and contracting could require greater commitment of resources than initially planned. - Integration of NFC payroll services is very complicated.
Loss of sustained top-level involvement and support.	<ul style="list-style-type: none"> - Extended implementation commitment—(and sacrifice)—must survive leadership turnover. - Delays or cost over-runs may reduce top-level confidence and support. - Disruption of operations due to conversion (negative impact on productivity). - Stakeholders may question need for ERP solution, which is hard to support using strict return on investment measures.
Employees resist the change and conformity imposed by ERP.	<ul style="list-style-type: none"> - Resistance causes delays — a responsive issue resolution process is essential. - Pressure increases to customize the ERP to make it a better fit. - Employees question “why are we letting a system dictate how we do our jobs?”

RISK	RELATED ISSUES
Benefits are sub-optimized by implementing quickly without accompanying process changes (or without employees fully accepting the process changes).	<ul style="list-style-type: none"> - Pressure to implement quickly and successfully often overtakes preparation up-front of people and processes. - Taking the path of least resistance will sub-optimize benefits.
Commitment to a single vendor has advantages and drawbacks.	<ul style="list-style-type: none"> - Over the long term, the SBA will have little influence over the direction of the software and new features. - Upgrades will occur at once across the entire organization, which could be traumatic and may add marginal value to the SBA. - Upgrades may require infrastructure enhancements.

Economic Analysis

Over a 6-year horizon, Alternative I, cross-servicing to a new provider with minimal changes to system functionality, has the lowest net costs due to a relatively low investment. If the analysis were extended to a 9-year horizon, however, outsourcing an ERP would have lowest net costs, due to greater cost savings in the out-years. Outsourcing an ERP has lower total net costs than an in-house ERP, primarily due to lower recurring costs for operations and maintenance. The following table illustrates the investment costs, the recurring costs, and the potential cost savings that an ERP solution offers to the SBA.

Alternative	COSTS (\$000s)				
	FY00	FY01	FY02	FY03-05 (annual)	Total
Baseline	906	906	906	906	5,436
INVESTMENT COSTS (IC)					
Cross Servicing	724	1,816	-	-	2,540
ERP In-house	1,852	4,568	450	-	6,870
ERP Outsourced	1,436	3,560	450	-	5,446
RECURRING COSTS (RC)					
Cross Servicing	-	232	993	993	4,204
ERP In-house	-	-	2,007	2,007	8,028
ERP Outsourced	-	317	1,586	1,586	6,661
COST SAVINGS (CS)					
Cross Servicing	-	-	944	981	3,887
ERP In-house	-	-	1,517	2,127	7,898
ERP Outsourced	-	-	1,517	2,127	7,898
NET COSTS (Baseline + IC + RC - CS)					
Cross Servicing	1,630	2,954	955	918	8,293
ERP In-house	2,758	5,474	1,846	786	12,436
ERP Outsourced	2,342	4,783	1,425	365	9,645

None of the alternatives realize a positive rate of return, which is typical of many infrastructure projects. Also, while cost savings in personnel are real, they will not be realized because they will be used in the redirection of staff responsibilities. This will allow the SBA to utilize their staff in a decision support role rather than performing clerical functions. Implementing an ERP is much more than installing a new computer system. It is a commitment by SBA to build a modern infrastructure and to fundamentally change the way it does business.

Recommendation

The business case initially set out to answer two questions:

1. Should SBA pursue an ERP to support administrative requirements?
2. If SBA does choose an ERP, how should the solution be implemented?

The answer to the first question is yes – the SBA should pursue an ERP. Implementing a JFMIP compliant ERP will meet and satisfy the federally mandated uniform set of requirements. In addition, it will enhance the SBA's overall effort to clean-up and standardize administrative processes and to build the infrastructure to conduct business like a modern day financial institution. It will enable the SBA to provide a higher level of customer satisfaction due to higher employee productivity. All personnel cost savings can be used in redirecting the labor force where their expertise can be used in decision support rather than performing clerical activities. This type of change is inevitable within the next decade. Whether or not it adopts ERP, SBA must transition to a new finance system (or host) in the next couple of years. SBA should seize this opportunity to move financial operations to a modern infrastructure.

The answer to the second question is more straightforward. SBA should not attempt to build and manage an organic infrastructure to host and maintain an ERP solution. This is clearly outside of SBA's core competency and there is a rapidly developing market of outsourcing alternatives for this type of support. Even at a higher cost, which is unlikely, outsourcing application hosting is a far more appealing option for SBA.

This recommendation to proceed with an outsourced ERP is predicated on the assumption that the SBA will have active senior management support and involvement in all phases of the implementation. This is critical to the success of the ERP implementation. Implementing an ERP will require the sacrifice of near-term objectives for long-term gain. Such an endeavor is not possible without meaningful commitment and support at all levels.

1. Introduction

These are challenging times for the Small Business Administration (SBA). In the face of fewer resources and ever-increasing expectations of improved performance from Congress and the public, SBA is committed to reinventing and modernizing the way it conducts business. Specifically, SBA's vision is to transition from its role as an administrator to the role as a consultancy, advocating, facilitating, and monitoring activities that benefit small businesses. Because SBA's organization, technology, and processes are all predicated on its traditional administrative role, breaking free of it will not be easy. In addition to dedication and hard work, it will require the ability to see beyond what is, envision what can be, and the ability not only to accept change, but to embrace it.

For the 47 years of SBA's existence, most of its business has evolved around providing and guaranteeing loans. SBA has qualified individuals and businesses for SBA loans, assessed the risk of business failure, and matched individuals and businesses with other lenders. With a portfolio of loans and loan guarantees worth more than \$45 billion, SBA is the nation's largest single financial backer of small businesses. However, as the Federal Government transfers more and more responsibility to the private sector, SBA will be expected to assume new responsibilities. SBA has already begun to meet that challenge. It is aggressively reaching out to new markets, increasing assistance to minorities, women, veterans, persons with disabilities, and small firms in low- and moderate-income urban and rural areas. It is using the latest technology to train and educate entrepreneurs in all aspects of business management and to promote small business products and services to potential buyers and users. SBA's target areas are customer service, information technology, staffing requirements and responsibilities, and risk management. By improving its performance in these functions, SBA aims to emerge as a world-leader in the 21st century.

One step in this endeavor is SBA's Systems Modernization Initiative (SMI). SMI is a three-part enterprise-wide project to upgrade and modernize all information systems to improve service to the public and accountability to Congress. One part of the SMI is the development and implementation of a loan monitoring system (LMS). Another part is the requirements definition and analysis, evaluation of alternatives, selection, and implementation of a Joint Accounting and Administrative Management System (JA²MS). The part will be to resolve all issues remaining that are not covered by LMS and JA²MS. The two systems will be coordinated and interfaced to fully support enterprise management processes.

SBA will accomplish the JA²MS project in two phases. Phase I was undertaken to determine the ability of integrated COTS software and ERP solutions to satisfy the SBA's business needs in the areas of finance/accounting (including travel), human resources, procurement (including grants management), and information technology; and to select a specific product. SBA will develop and implement the system in Phase II.

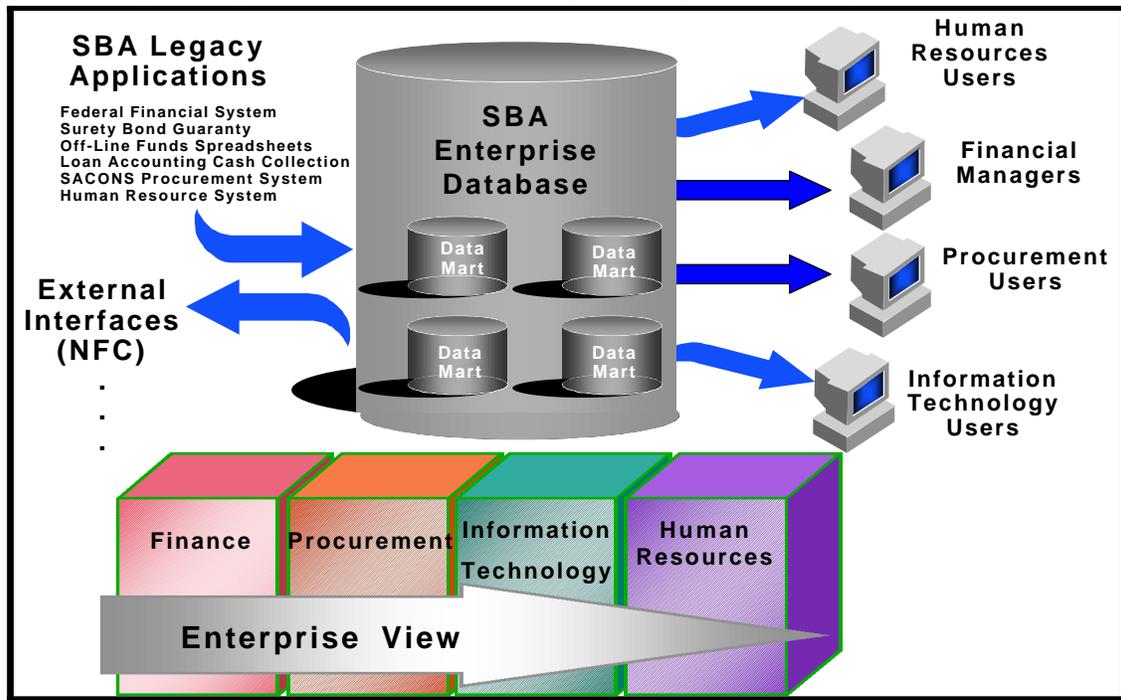


FIGURE 1-1. The JA²MS project Enterprise View

The goal will be to integrate as much of the legacy stovepipe systems into a single integrated Enterprise system as possible with existing commercial products.

1.1 Purpose

SBA must change. Its organizational, technological, and administrative systems have not kept pace with the demands of an ever-increasing workload. This deficiency will only be accentuated as the private sector and rest of the public sector continue to take advantage of emerging technologies and products. By embarking on the JA²MS project, SBA takes that crucial first step toward establishing the infrastructure it needs to further pursue its strategic goals and objectives, and ultimately achieve its vision of the future. The purpose of this report, the *Business Case for a Joint Accounting Management and Administrative System*, is to document the Phase I of the JA²MS project.

1.2 Approach

Phase I of the JA²MS project was a six-month effort to determine the best functional and

technological for SBA to integrate its business units. To this end, the SRA Team worked closely with SBA staff as an integrated product team (IPT) to analyze the agency’s needs, define its technical and functional requirements, and evaluate integrated commercial off-the-shelf enterprise resource planning (COTS/ERP) products.

The SRA Team conducted interviews, small-group meetings, and workshops with managers and staff from SBA headquarters and field offices, read numerous SBA documents, and gathered information from the SBA Web site to gain a full understanding of how SBA works and what are its priorities. The SRA Team also performed an extensive analysis of the integrated COTS/ERP market offerings and identified four vendors — Oracle, AMS, PeopleSoft, and SAP — that offer an integrated package that

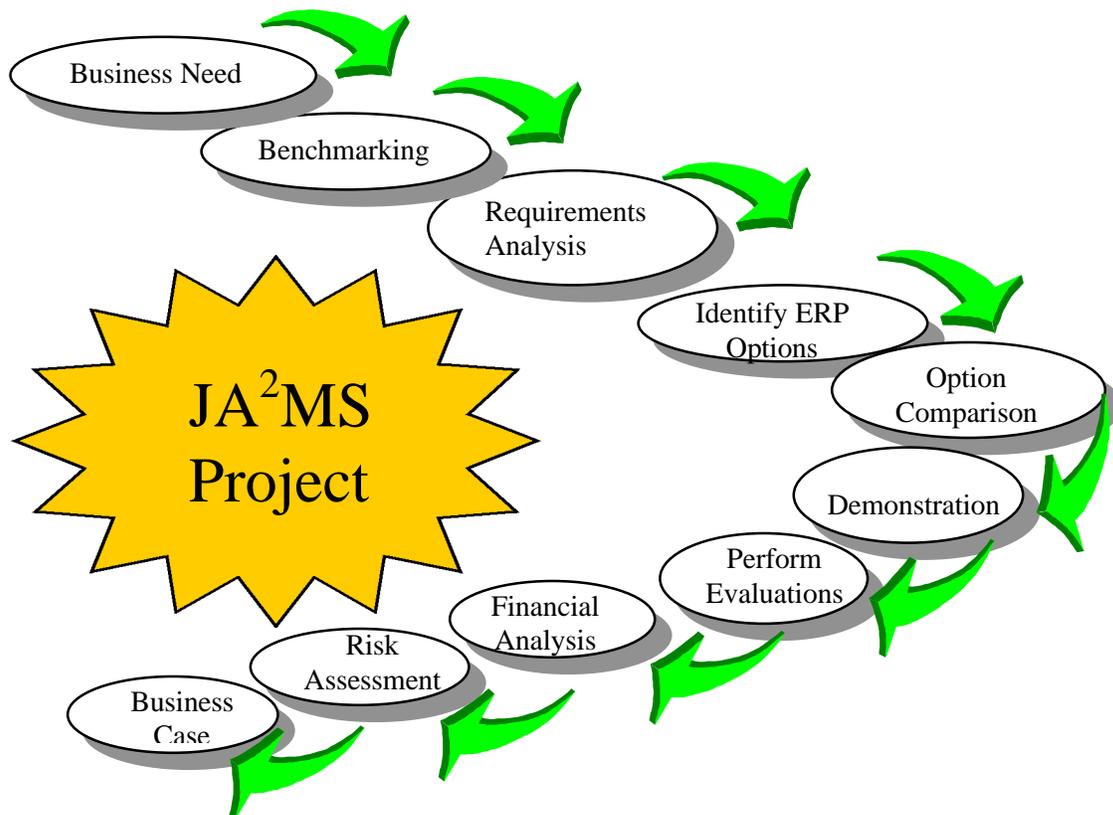


FIGURE 1-2. THE SRA EVALUATION METHODOLOGY

met the JFMIP requirements, FAR, and HRTC guidelines that govern the SBA’s decision. All four vendors participated in the demonstration and evaluation phase as designed by the SRA Team. They were asked to demonstrate their products’ compliance to the SBA requirements as well as their functionality and ease of use. The IPT witnessed each vendor demonstration and scored the products on these three criteria. (See Section 4 for details on the methodology used for the product evaluation.)

After collecting the data, the SRA Team used its ERP evaluation methodology to analyze the information collected during the vendor demonstrations as well as the information gathered throughout the study period. The SRA Team then compared the results of the evaluation with the SBA requirements and preferences and developed the business case presented in this report.

1.3 Organization of This Document

Section 2 presents an overview of the SBA strategic plan and describes its current and future environments. Section 3 summarizes the requirements the JA²MS must meet to comply with various regulatory authorities as well as SBA's internal demands. Section 4 describes each of the integrated COTS/ERP products considered by the SBA, explains the evaluation process, and summarizes of the evaluation results and conclusions. Section 5 specifies the three implementation alternatives, including a narrative description, cost profile, performance profile, and risk profile for each.

2. The SBA Environment

This section presents an overview of the SBA's mission, goals, vision, and organization to provide a context for the comparison that follows of the current and future environment. The section highlights the way SBA conducts business today, offering examples of the multiple systems and redundant processes and a discussion of their impact on customer service, efficiency, and organizational ability to operate in an increasingly e-business environment. The section concludes with a discussion of SBA's intent to transform into an enterprise of integrated financial and administrative functions and the benefits this change will impart on the agency.

2.1 The SBA Strategic Overview

2.1.1 Mission and Goals

The SBA's mission is to maintain and strengthen the nation's economy by aiding, counseling, assisting, and protecting the interests of small businesses and by helping businesses and families recover from disasters. More specifically, the SBA mission is to

- provide financial, investment and procurement programs, as well as counseling, training and technical assistance services to new and existing businesses across the nation;
- ensure that small companies have access to credit and receive a fair portion of government purchases, contracts, and subcontracts;
- provide assistance to offset the economic effect to businesses and homeowners that are disaster victims;
- assist women, the handicapped, veterans, and the socially and economically disadvantaged by developing, implementing, and evaluating activities that generate equal access opportunities;
- promote the position of small business to Congress, to other Federal, state and local government agencies, and to trade and professional associations;
- serve as an advocate and "watchdog" for small business;
- examine the roles and contributions of small business in the nation's economy, and advance programs and policy recommendations that create a healthier environment for small business; and
- monitor the performance of Federal agencies under the Regulatory Flexibility Act (RFA), a procedural statute that requires agencies to reduce the regulatory burden on small businesses whenever possible.

To accomplish its mission, the SBA adopted the following strategic goals to guide its management and program decisions during FY1998 through FY2002:

- Increase opportunities for small business success.
- Transform the SBA into a 21st century leading-edge government agency.

- Help businesses and families recover from disasters.
- Lead small business participation in welfare-to-work.
- Serve as the voice for America’s small businesses.

The transformation goal is the one most directly related to the JA²MS project. To achieve that goal, SBA established five objectives: strong internal controls; risk identification and management; effective oversight; information quality; and customer service. The SBA also identified performance measures for each of these objectives, shown in Table 2-1.

TABLE 2-1. OBJECTIVES AND PERFORMANCE MEASURES FOR SBA STRATEGIC GOAL #2

SBA Goal #2: Transform SBA into a 21st century leading-edge government agency.	
<i>Performance Objective A</i>	
By the year 2000, SBA will expand the Chief Financial Officer (CFO) annual financial audit to include a separate opinion on whether SBA’s internal control structure meets the Committee of Sponsoring Organizations (COSO) of the Treadway Commission standards for financial reporting. By the year 2002, SBA will receive an unqualified opinion on its internal control structure for financial reporting.	
<i>Outputs</i>	<i>Outcomes</i>
<ul style="list-style-type: none"> • A COSO-based audit of SBA financial reporting. • Activities will be regularly and systematically reviewed. • Deficiencies will be corrected with a systematic follow-up. 	<ul style="list-style-type: none"> • SBA will have an effective internal control system, which is audited under the annual CFO Financial Statement by the year 2000. • SBA will continually reduce deficiencies found during audits.

SBA Goal #2: Transform SBA into a 21st century leading-edge government agency.	
<i>Performance Objective B</i>	
By the year 2002, SBA will have established an integrated risk management system that accurately identifies and measures risk and that allocates agency resources to manage those risks appropriately as verified by an independent outside entity.	
<i>Outputs</i>	<i>Outcomes</i>
<ul style="list-style-type: none"> • Management information systems will serve to evaluate and manage appropriate levels of risk. • Losses will be avoided where possible and predictable where unavoidable. • Credit program subsidy rates will reflect statistically sound analysis and include a mix of historical data and future program expectations to reflect program costs to the taxpayer. 	<ul style="list-style-type: none"> • Credit subsidy rates will accurately reflect the risks and costs of SBA's credit programs. • Private lenders will expand their unsubsidized small business lending because of improved understanding and management of the actual risks.
<i>Performance Objective C</i>	
By the year 2000, SBA will establish, publish, and implement a protocol and a timetable for regular oversight of its activities and those of its lenders and other resource partners.	
<i>Outputs</i>	<i>Outcomes</i>
<ul style="list-style-type: none"> • A system will be in place for lender, resource partner, and headquarters and field office oversight that includes performance standards and better management reporting. 	<ul style="list-style-type: none"> • Productivity and program outcome will be improved by disseminating best practices, rewarding good performers, and disciplining poor performers. • Overall portfolio performance will improve through improved liquidation, financial management, and utilization of the financial intermediaries' expertise. • Increased private sector lending to underserved small businesses without reliance on SBA guarantee authority.

SBA Goal #2: Transform SBA into a 21st century leading-edge government agency.	
<i>Performance Objective D</i>	
By the year 2002, SBA will help its resource partners reduce by 25 percent the paper transactions currently performed, operate an enterprise-wide management information system for decision-making, and improve the quality of its information as reflected in a standardized and consistent source for program statistics.	
<i>Outputs</i>	<i>Outcomes</i>
<ul style="list-style-type: none"> • SBA will achieve productivity in the delivery services through the use of technology. • SBA will decreased paper transactions and reduced time required to process requests for agency services. • SBA will rely more broadly on relational databases which ensure correlation and consistency between various databases and reports. • SBA will increased quality with information. • SBA will implement mission-driven, quality, and consistent information technology projects. 	<ul style="list-style-type: none"> • Improved performance management will result from access to more timely, accurate, and consistent information for program decision-making.
<i>Performance Objective E</i>	
SBA will establish a baseline of customer satisfaction and achieve material increases in its customer satisfaction approval rate.	
<p>SBA will establish:</p> <ul style="list-style-type: none"> • Training classes • Benchmark studies • Improved Answer Desk operations • Surveys, focus-group sessions. 	<ul style="list-style-type: none"> • Customer satisfaction will increased.

2.1.2 Vision Statement

SBA’s vision for its future is “to increase economic opportunities for all Americans, and to do this as a premier Federal agency recognized for its innovation and technology leadership.”

This vision statement reflects SBAs commitment to provide cross-functional products and delivery systems;

- customer-oriented programs and resource partners;
- an agency without barriers (i.e., products that are accessible to customers 24 hours 7 days a week from various sources); and

- a highly trained and motivated staff.

The various SBA functional and program offices have developed or are in the process of developing vision statements that are consistent with the pursuit of the enterprise-wide mission, goals, and vision.

2.1.3 SBA Programmatic and Geographic Organization

SBA provides financial, technical, and management assistance to help Americans start, run, and grow their own businesses. Approximately 60% to 70% of SBA's business involves providing and guaranteeing loans. SBA qualifies individuals and businesses for SBA loans, assesses the risk of business failure, and matches individuals and businesses with other lenders. With a portfolio of business loans, loan guarantees, and disaster loans worth more than \$45 billion, SBA is the nation's largest single financial backer of small businesses. The remainder of SBA's business entails advocating the development and growth of small businesses, training and educating entrepreneurs in all aspects of business management, promoting small business products and services to potential buyers and users, and counseling disaster victims.

In FY 1999, SBA offered management and technical assistance to more than one million small business owners through such programs as its Small Business Development Centers (SBDCs), Service Corps of Retired Executives (SCORE), and Women's Business Centers. It also assists small businesses by providing Federal contracting opportunities through programs such as its HUBZone Empowerment Contracting Program, 8(a) Program, and PRO-Net. SBA has established programs and initiatives to address the specialized needs of small businesses owned by veterans, women, and ethnic and racial minorities as well as those involved in high-technology research and development. SBA also plays a major role in the government's disaster relief efforts by making low-interest recovery loans to homeowners, renters, and businesses. With such a large array of programs, SBA impacts virtually every aspect of American business.

Currently, SBA employs a staff of approximately 3,000 people who work in each of the 50 states, the District of Columbia, and U.S. territories around the world. In addition to the staff employed at headquarters in Washington, DC, SBA has employees at more than 100 regional, district, and local SBA offices, Business Information Centers, Tribal Business Information Centers, One Stop Capital Shops, and U.S. Export Assistance Centers. The number of employees can increase dramatically during periods of disaster relief, to as many as 5,000 or more, dispersed to temporary work sites.

2.2 Current Environment

2.2.1 Current Systems

Among SBA's current automated systems are the Federal Financial System (FFS), which is accessed through a cross-servicing agreement with the Department of the Treasury; the Surety Bond Guaranty System; the Loan Accounting System; and the SACONS Procurement System. These existing systems have served SBA well through the years,

but because technological advances have hastened the pace of today's business world, they are now out of date and fail to fill the need for a single source of integrated information. The result is inefficient operations, sluggish service, and noncompliance with numerous regulatory authorities.

Of the financial management and related functions that are automated, the major computer systems on which they run were developed during the 1966–1980 time frame. Currently, SBA has agreements to cross-service applications at two other agencies, they use local-area networks (LANs), and have personal computers on all desktops (excluding disaster assistance personnel). A wide-area network (WAN) links more than 100 field offices to the system. The current systems consist of multiple software packages poorly fitted together by complex interfaces.

SBA still performs many of its administrative functions manually or with the help of some basic automation, such as Microsoft Word and Excel as well as electronic mail. These functions include travel and human resources (HR) functions excepting for payroll and benefits administration.¹ The SBA also tracks the Pollution Control Fund and the GSA Building Fund with Microsoft Excel spreadsheets.

2.2.2 Current Processes

Because of the lack of modernized technology, the financial, travel, HR, procurement, and grants management processes have remained inefficient at SBA. Below are some representative examples of core problems that SBA needs to overcome before it can attain the status of being a 21st century leader. The issues are categorized under the broad titles of multiple systems; inefficient, manual processes; lack of funds control; non-standard business processes; and lack of systematic collection of management information. For each category, examples are included of processes performed by SBA staff in the course of every day business. Some overlap exists among the examples.

With SBA's business growing rapidly and the business world evolving into a more technologically oriented and competitive place, these processes will only become more cumbersome and more costly to perform. They already impact the quality and timeliness of SBA's customer service. Ultimately, they threaten the continued viability of SBA and its ability to participate in many e-commerce activities, which will be essential in the future.

¹ SBA payroll and benefits administration functions are performed by the National Finance Center (NFC) under a cross-servicing agreement with USDA.

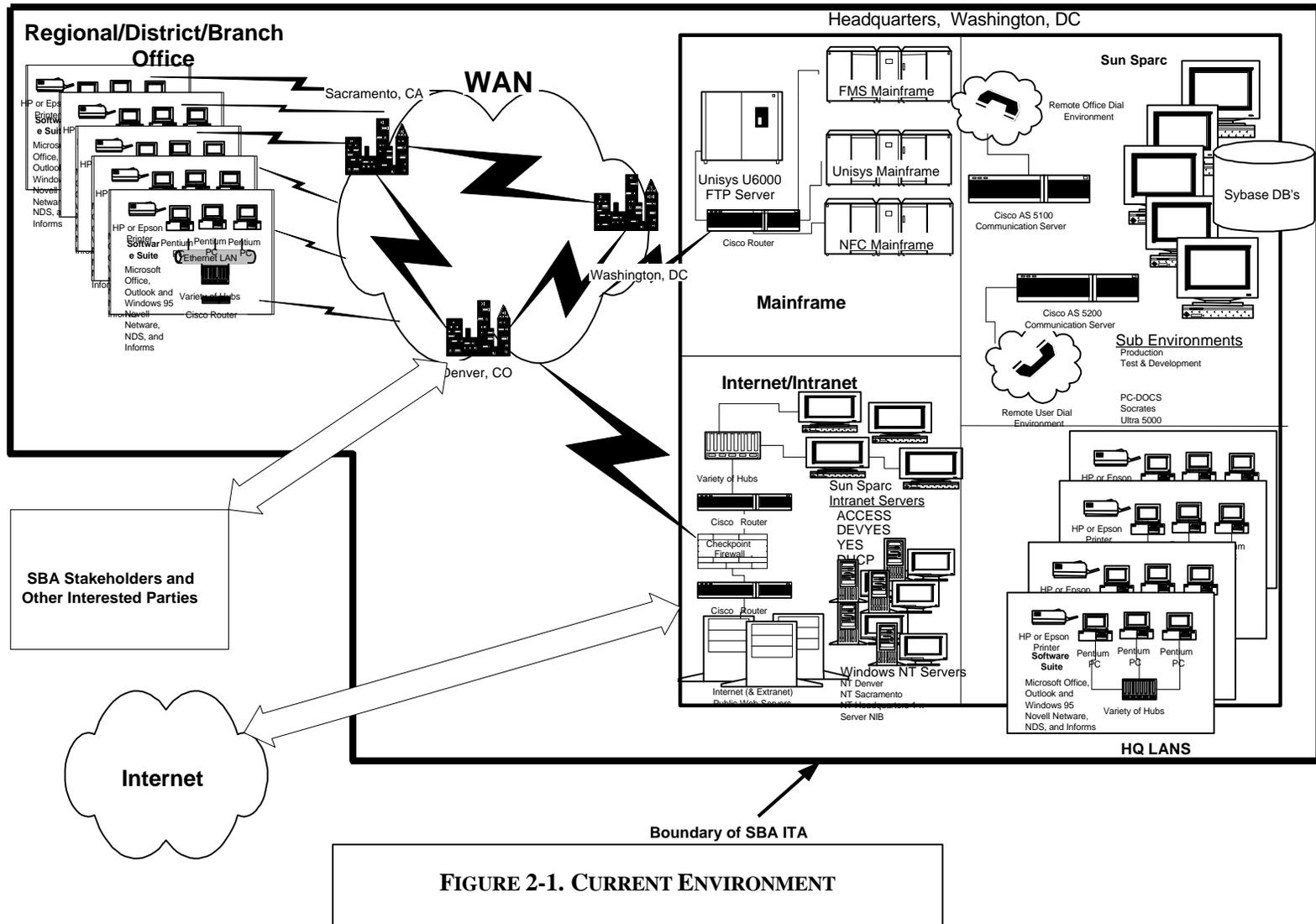


FIGURE 2-1. CURRENT ENVIRONMENT

2.2.3 Benchmarking Study Results of Current Processes

As part of the SRA Team, Hackett Benchmarkingsolutionssm conducted a benchmarking study to evaluate the effectiveness of SBA's processes in relation to organizations that perform similar functions. Hackett representatives surveyed SBA staff to establish the baseline profile of the agency's financial, travel, procurement, HR, and IT functions. They then compared the statistics of SBA to the statistics of more than 1,400 commercial and governmental organizations of various sizes and geographic distributions for which Hackett retains similar information in its database. For purposes of standardizing the measurements of the various SBA processes, Hackett compared SBA against the first quartile (specifically, the organization that ranked the lowest of the best 25 percent of the entire group of organizations included in the benchmarking database). In some cases, it also compared SBA against the average of all organizations or, when appropriate, a subset of government agencies in its database. The information in the study represents FY99 data, which was collected from 22 SBA locations and annualized. The SBA total costs used in this study include \$628,866 incurred by Office of Personnel Management (OPM) to support employees at SBA. (For more complete details of the benchmarking study, refer to Hackett's report, *U.S. Small Business Administration Benchmark Results Presentation* in appendix F.

Figure 2-2 below shows one of the most significant findings of the benchmarking study was that SBA spent approximately 2½ times as much on its IT function (\$41.8M) as it spent on finance, HR (including disaster HR), and procurement combined (\$7.7M, \$8.3M, and \$1.0M, respectively). These SBA costs are significantly higher for each functional area than those for the first quartile companies. The numbers in the column labeled "At 1st Quartile" represent the difference between SBA's costs and those of the first quartile company, indicating a total potential savings of \$17M for finance, IT, procurement, and HR (including disaster HR) functions.

The SBA has opportunities to reduce cost among the different functions

Potential opportunities (\$ millions)	At 1st Quartile	Total Cost (\$millions)
		<u>SBA</u>
Finance	\$ 2.2	\$ 7.7
Information Technology	12.1	41.8
Procurement	0.4	1.0
HR - OHR	1.8	6.7
HR - ODP	0.5	1.6
Total	\$ 17.0	\$ 58.8

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Overall Benchmark Final Results I

FIGURE 2-2. OPPORTUNITIES FOR IT COST SAVINGS

Following are the statistical breakdowns and comparisons for each functional area.

IT Benchmark Results

There is little wonder that SBA's IT costs are so excessive. As Figure 2-3 below shows, SBA's IT environment is complex. Two of the largest problems are the number of software applications (271) running at SBA and the number of servers (265) connected to the network.

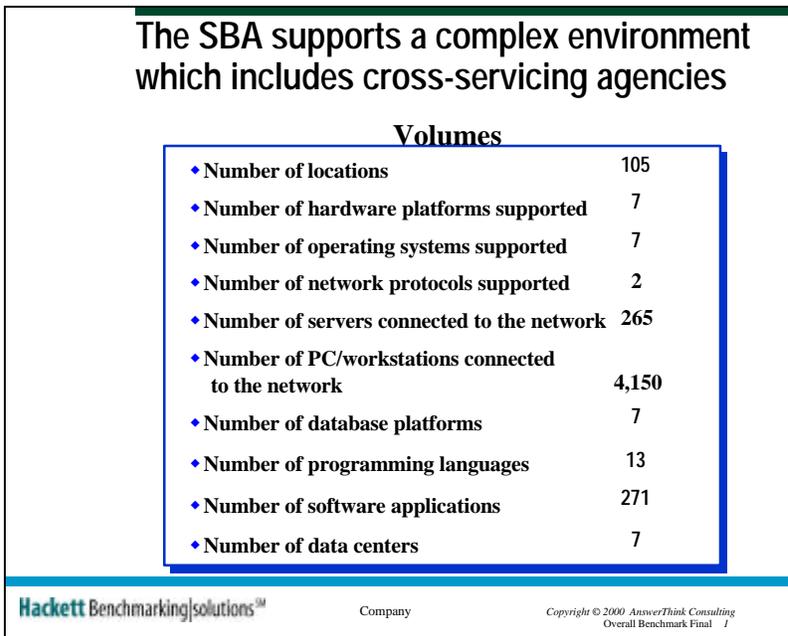


FIGURE 2-3. SBA SUPPORTS A COMPLEX ENVIRONMENT

Although the number of SBA FTEs supporting the IT function per end user is only slightly more than the number for the first quartile FTEs, the proportion of SBA IT staff devoted to operational support far exceeds the number of FTEs devoted to operational support for the first quartile, as shown in Figure 2-4 below.

The study identified five primary drivers of the SBA IT benchmarking results: (1) IT staff spends a majority of its time on daily operational

functions, rather than activities such as decision support and investments;

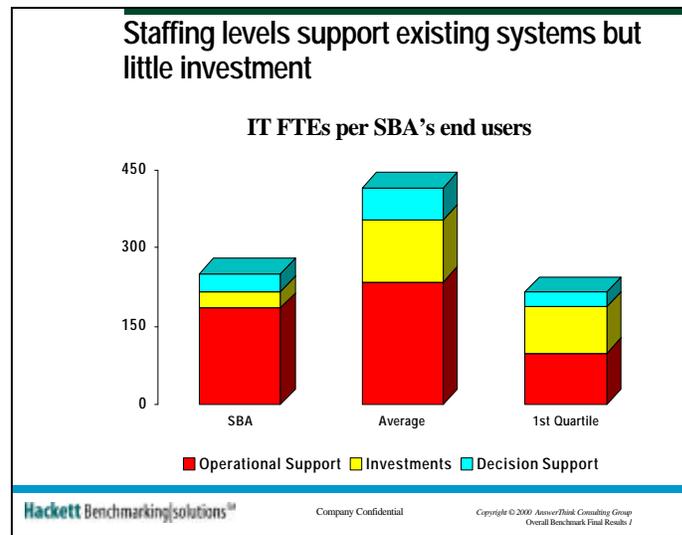
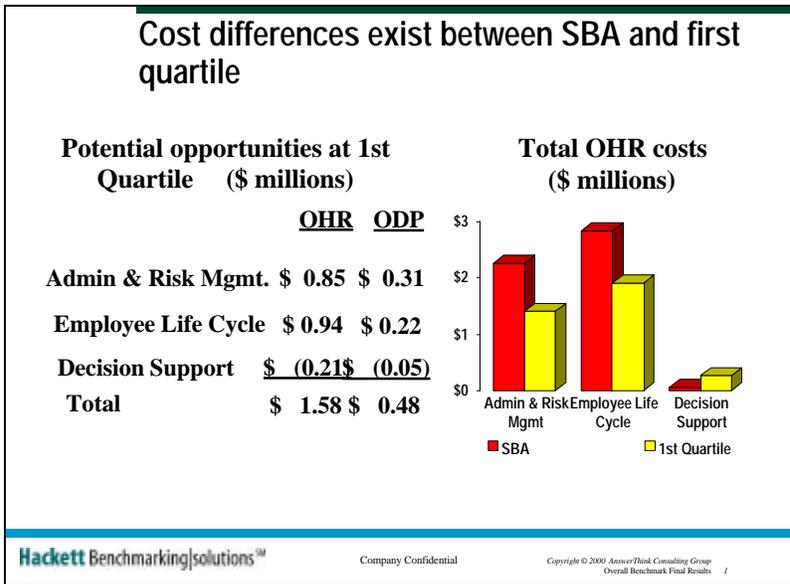


FIGURE 2-4. SBA STAFFING LEVELS

approaching that of first quartile companies, a lack of productive investments could have negative impact; (3) lack of standard enforcement of processes increases operational complexity when supporting cross-servicing agencies and departments; (4) limited system integration reduces the ability to gain information from an enterprise view; and (5) SBA needs to evaluate selective sourcing options to increase service levels and aid in reducing cost.

HR Benchmark Results

For its HR function, SBA spent approximately \$3M associated with employee life-cycle transactions, which is nearly three times the amount the first quartile companies spent.



SBA spent approximately \$2.2M for administrative and risk management, compared with approximately \$1.2M by the first quartile companies. Conversely, SBA spent little on decision support. Figure 2-5 shows SBA’s potential opportunities for savings in these areas.

FIGURE 2-5. OPPORTUNITIES FOR HR COST SAVINGS

Procurement and Grants Management Benchmark Results

In procurement and grants management, SBA spent more than \$750K in operational support, nearly double the amount spent by first quartile companies (see Figure 2-6). SBA also spent approximately double the amount of money each for risk management and decision support than did the first quartile companies. The numbers in the column labeled “At 1st Quartile” represent the difference between SBA’s costs and those of first quartile companies, indicating opportunities for potential savings of \$0.43M in operational support, risk management, and decision support for the procurement function. Most of these savings would come in operational support, primarily in requisition and purchase order processing.

As Figure 2-7 indicates, SBA’s staff devoted slightly more than 80 percent of its time to operational support, approximately 10 percent to decision support, 10 percent to risk management, and almost no time to function management. In comparison, the first quartile companies staff devoted approximately 60 percent of time to operational support, 10 percent to risk management, 10 percent to function management, and 20 percent to decision support.

Procurement opportunities of \$0.43 Million exist

Potential opportunities (\$ millions)	At 1st Quartile	Total cost (\$millions) SBA
Operational	\$ 0.33	\$ 0.75
Risk	0.04	0.09
<u>Decision</u>	<u>0.06</u>	<u>0.13</u>
Total Opportunities	\$ 0.43	\$ 0.97

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FIGURE 2-7. OPPORTUNITIES FOR PROCUREMENT COST SAVINGS

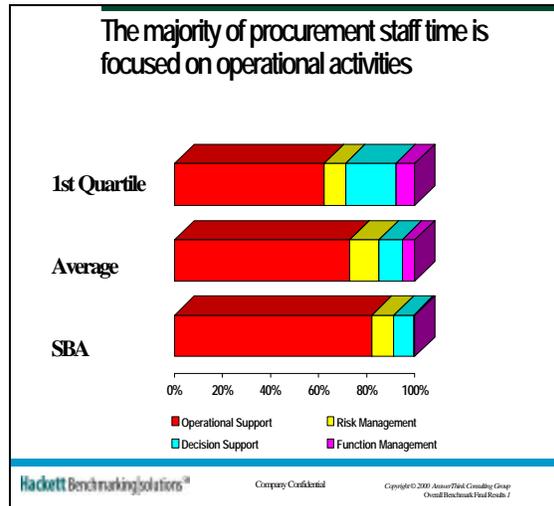


FIGURE 2-6. PROCUREMENT STAFF TIME

SBA did employ some best practices. SBA rated higher than the first quartile companies for purchase orders processed through e-procurement (34 percent vs. 22 percent) and purchased dollars acquired against a blanket contract (37 percent vs. 35 percent). Unfortunately, one best practice that SBA does not embrace is the use of on-line approvals (0 percent vs. 70 percent) in requisition and purchase order processing. Adopting this practice could save SBA much time and money.

Finance and Travel Benchmark Results

Figure 2-8 indicates SBA’s opportunities for savings, broken down by accounts payable, travel and expense, and other processes. SBA can potentially save \$2.2M in labor costs spent on transaction processing. The numbers in the column labeled “At 1st Quartile” represent the difference between SBA’s costs and those of the first quartile companies, indicating a potential total savings of \$2.2M.

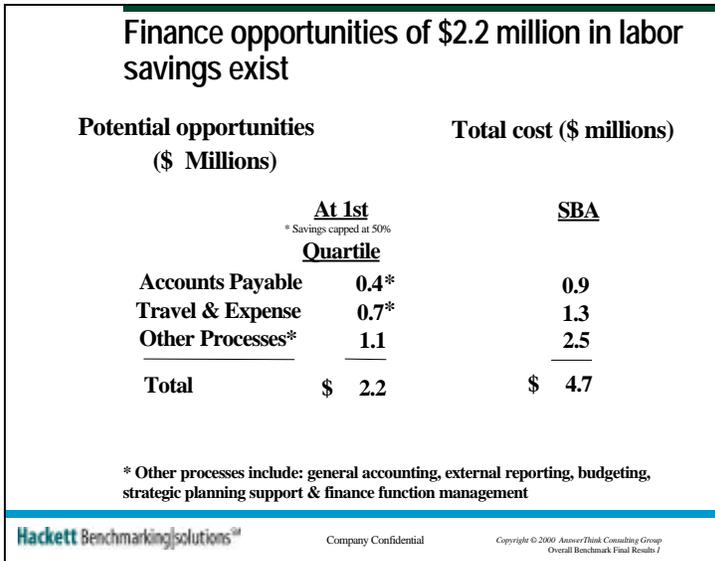


FIGURE 2-8. OPPORTUNITIES FOR FINANCE COST SAVINGS

Figure 2-9 indicates that SBA spent a little more than \$18 to process one vendor invoice, which is approximately 1½ times the amount spent by other government agencies (i.e., approximately \$12) and approximately 9 times the amount spent by the first quartile companies (i.e., approximately \$2). There also is a dramatic difference in the productivity rate of the staff processing vendor invoices. SBA’s staff processed about 2,400 invoices per FTE, and other government agencies processed only slightly more than SBA, but the first quartile companies processed nearly 13,000.

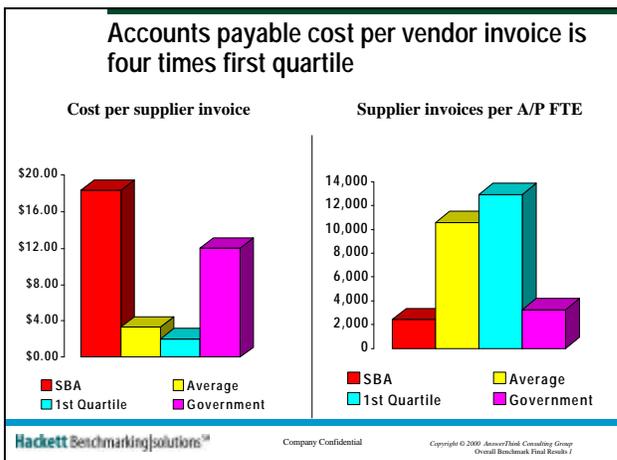
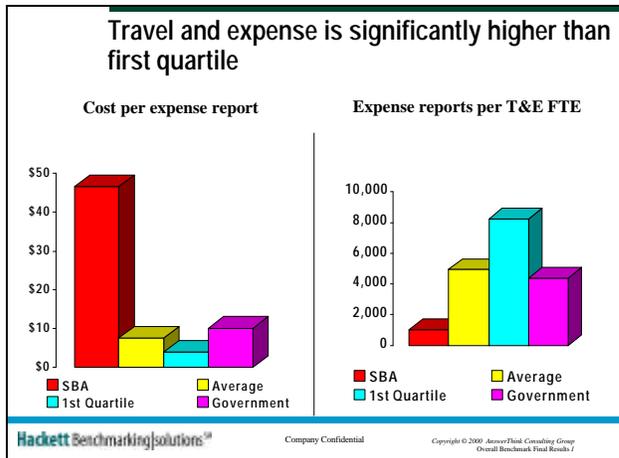


FIGURE 2-9. ACCOUNTS PAYABLE COSTS

As for best practices in accounts payable, SBA scores high in the use of its procurement card. However, it is low in every other accounts payable best practice cited in the benchmarking study. Most notably, SBA scored low in the percent of management approvals obtained on-line and use of on-line systems for registering receipt of goods, both practices used to a high degree by the first quartile companies. SBA also scored comparably low on Internet and Intranet use for vendor queries to inquire about payment status and automated invoice processing.

SBA’s travel and related expense costs are significantly higher than those of other government agencies and the first quartile companies, and its productivity is considerably lower than both. SBA spent more than \$46 to process each expense report, the other government agencies spend approximately \$10, while the first quartile spends approximately \$4. SBA processed slightly more than 1,000 expense reports per FTE, the other government agencies processed approximately 4,400, while the first quartile processed more than 8,000 per FTE. (See Figure 2-10.)



SBA’s staff scored high for employing some best practices (i.e., use of electronic payments, use of ATM machines for cash advances, and efficient sampling of expense report auditing). However, it fell short on its use of the Internet to book travel reservations and travelers’ use of on-line submission of expense reports.

FIGURE 2-10. TRAVEL AND EXPENSE REPORTS

Summary of Benchmarking Study Results

The benchmarking study findings reveal the need for changes at several levels at the SBA, as concluded in Figure 2-11.

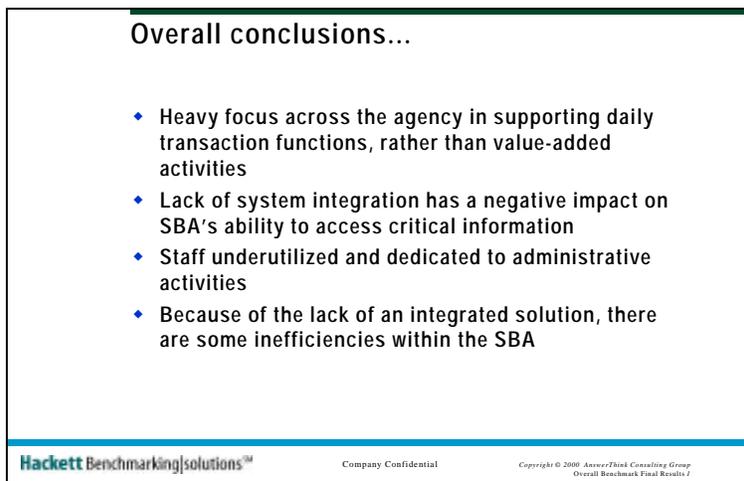


FIGURE 2-11. OVERALL CONCLUSIONS

2.2.4 Need for Change

Benchmarking study results offer additional evidence for SBA's need for change. Another force driving SBA to change is the decision by the Department of Treasury to discontinue its cross-servicing agreements in the near future. Because this advance notice comes with no firm termination date, SBA needs to prepare for the inevitable as soon as possible to avoid a potentially costly and disruptive last-minute transition to a replacement system.

Finally, SBA's current systems are not all compliant with the numerous regulatory rulings such as Office of Management and Budget (OMB) policies, JFMIP requirements, Government Performance Review Act (GPRA), Government Management Reform Act (GMRA), Federal Acquisition Regulation (FAR), and Human Resources Technology Council (HRTC) guidelines. These rulings reflect major trends in the Federal government, including increased information sharing among agencies; improved financial management; streamlining processes; performance measurement; data integrity; increased accountability; and faster response to requests for information, products, and services. These trends emphasize the need for SBA to modernize its technological infrastructure and reengineer its processes accordingly. (See Section 3 of this report for additional discussion of regulatory authorities and their impact on SBA's decision to modernize the way it conducts business.)

2.3 Future Environment

SBA's future environment will provide an integrated enterprise solution for the core financials, travel, HR² administration, procurement, and grants management. The processes for these functional areas will be connected and supported by a package that resides on one technical platform. Also part of SBA's strategy for building an IT infrastructure is to fulfill its vision for a new Loan Modernization System (LMS), which will interface with the JA²MS. The LMS and the JA²MS partnership will form the next generation business enterprise for SBA.

The future environment is specified in SBA's target Information Technology Architecture, October 1999, which embodies principles set forth in the SBA IT vision statement for its Business Architecture. The SBA Business Architecture, depicted in Figure 2-12, is a logical representation of the SBA business enterprise. This context diagram shows the enterprise as a single entity and identifies the information that is required by the enterprise and its external entities—persons, places, things, or events—which SBA encounters in the course of doing business. The center of the diagram represents the SBA enterprise functions, whether they are performed by the SBA, its partners, contractors, or other Federal, state, and local agencies.

The Business Architecture establishes the scope of the enterprise architecture effort from a business perspective. It identifies external entities with which the enterprise interacts,

² Travel information will reside as a separate module that is easily interfaced with JA²MS. Payroll and benefits information will remain with NFC.

as well as the need for interfaces, and provides an understanding of the enterprise interactions that must be accommodated by the Information Architecture.

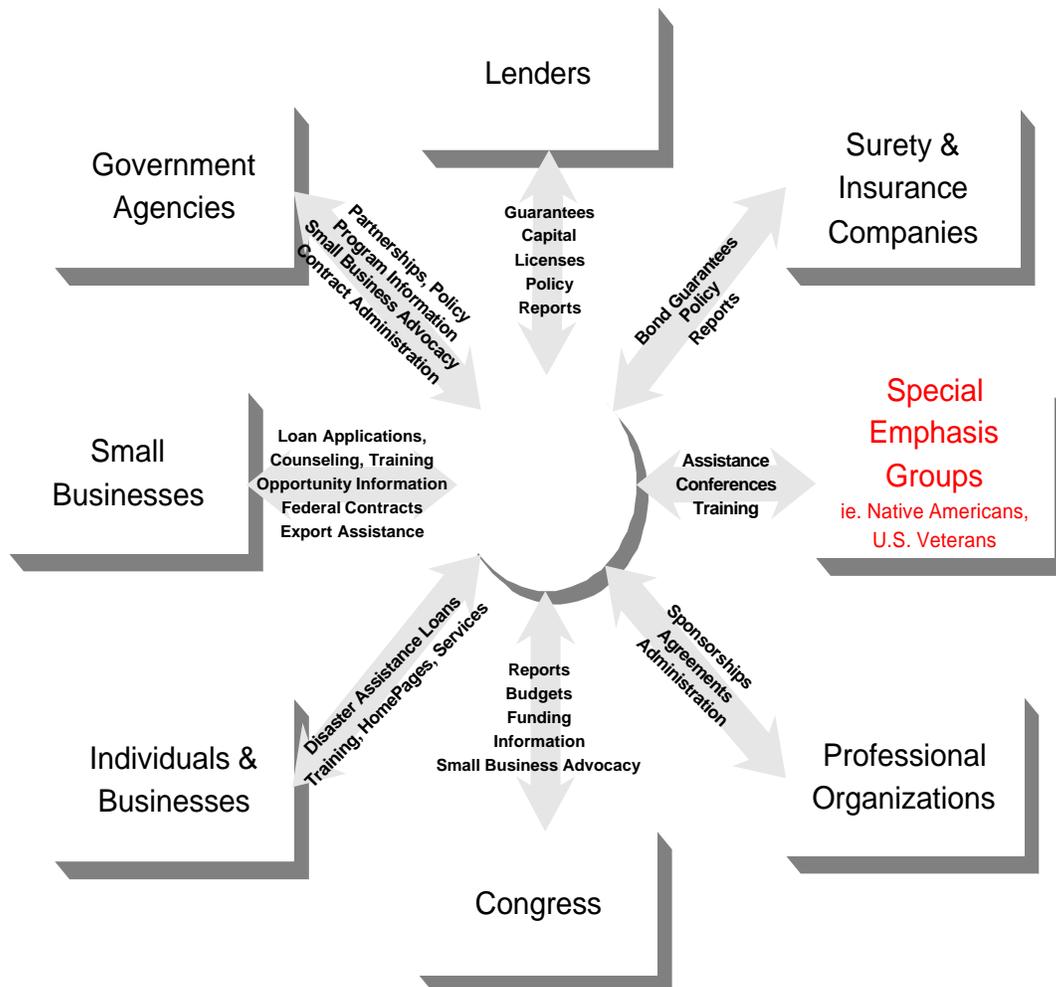


FIGURE 2-12. SBA BUSINESS ARCHITECTURE

The future Information Architecture is also specified in the SBA target Information Technology Architecture, October 1999, which embodies principles set forth in the SBA IT vision statement pertaining to information management. For example, the Information Technology Architecture (ITA) will establish a standardized data access method to enable business process efficiency and effectiveness.

In the target environment, information management will be optimized through a strong information management function that integrates policy, data, database administration, security, and data-quality assurance with storage and access resources that are structured to allow appropriate access to authoritative data and information.

Major goals of the target Information Architecture include

- insulating operational (transaction processing) systems from large *ad hoc* queries that are characteristic of informational systems (e.g., decision support systems, executive information systems, on-line analytical processing systems);
- providing access to data not always available in operational systems, such as summary data and historical data;
- providing a cross-functional view of data and information; and
- enabling better end-user access through standardized data access methods and business intelligence tools.

Figure 2-13 depicts a logical view (i.e., high-level, non-physical) of the target Information Architecture. Viewed from left to right, the exhibit illustrates a simplified flow of data and metadata through the major architectural components in the SBA's information environment. The major components of the target Information Architecture are

- operational data (which consists of data gathered by transactions or data gathered for other operational purposes);
- metadata;
- data transformation/integration tools and processes;
- enterprise data warehouse;
- customer interface; and
- information management layer.

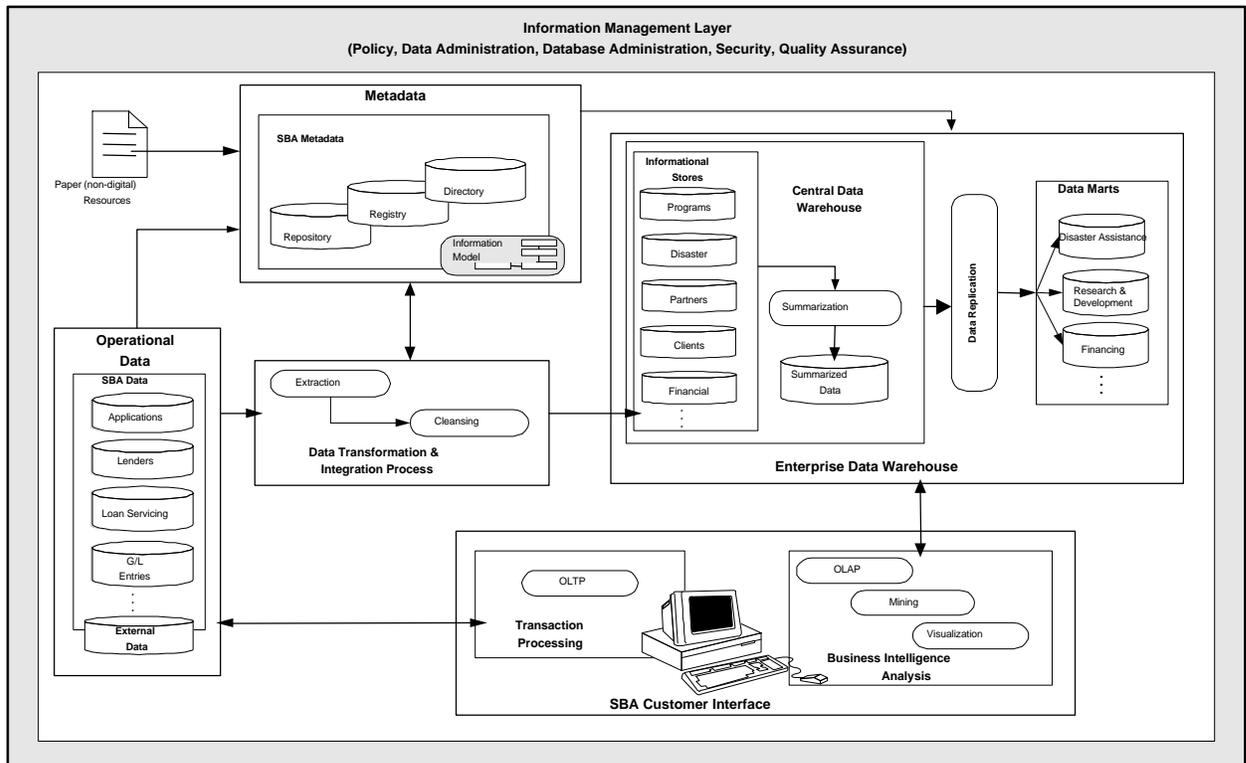


FIGURE 2-13. TARGET INFORMATION ARCHITECTURE

Because the impact of core financial management and administrative support permeates program operations, the success of the JA²MS project will have far reaching implications. With near elimination of duplicative efforts, more timely reporting, higher quality data, and greater efficiency overall, the future accounting and administrative management system at SBA will help the agency achieve many of its strategic objectives. JA²MS will facilitate implementation of strong internal controls, the identification and management of risk, implementation of effective oversight, management of high-quality information, and delivery of excellent customer service. JA²MS will provide the much-needed enterprise-wide management information system for decision making and an integrated risk management system. Modernizing these systems and related processes will enable SBA programs to reach more customers more quickly and more cost-effectively than the current system. Modernizing also will enable SBA to capitalize on continuing technological advances and offer its customers innovative products and services such as tele-application for disaster loans and Internet-registering for the Pro-Net database that advertises small business contractors. It will enable SBA to help small businesses take advantage of a growing market economy and a business community that are more diverse, more technologically driven, and more global in scope. In turn, small businesses will stimulate the nation's economy by creating new jobs, generating tax revenue, and increasing national and international competitiveness.

Developing SBA's future accounting and administrative management system is a significant undertaking that requires a well thought out plan. The IPT scrutinized the

agency's processes to understand what is working well, what is broken, and what can be fixed or at least improved by technology. It then carefully matched SBA's needs with the technological solutions that hold the most promise for helping the agency to achieve its strategic goals and objectives. The following sections document the six-month endeavor that will lead SBA into the future.

3. Requirements for a Joint Accounting and Administrative Management System

Section 3 first explains the process used by the IPT to determine the JA²MS requirements, then summarizes them by functional area: financial (including travel), HR, procurement (including grants management), and IT. Technical requirements such as system infrastructure and architecture, application characteristics, communications protocol, and standards are also discussed³. (For a detailed discussion of the requirements and a complete compilation of them, please refer to the *U.S. Small Business Administration IFM&AS Requirements Analysis*, dated January 14, 2000.)

3.1 Approach to Determining Requirements

The IPT defined the JA²MS requirements baseline as

- the Joint Financial Management Improvement Program requirements for the core financial and travel functional area and JFMIP guidelines for the HR functional area;
- the Human Resources Technology Council guidelines; and
- the Federal Acquisition Requirements for procurement and grants management functional area;
- SBA Information Technology Architecture.

To determine additional requirements and desired, but optional, value-added features, the SRA Team conducted a series of one-on-one and small-group meetings with functional experts over six weeks and reviewed existing requirements definitions. The purpose of these interviews was to understand the needs of each functional area, to define the appropriate boundaries and level of detail for requirements, and to effect consensus among SBA functional leads and stakeholders across the enterprise. The IPT also conducted a workshop on November 30, 1999, with representatives from SBA field offices. Their input was valuable because field-office staff needs differ from headquarters staff needs. In addition, the IPT felt that the field-office representatives could provide new ideas and suggestions for the process. The SRA team's technical specialists, with SBA team members' acceptance, further enhanced the list by adding requirements dictated by integrated COTS packages as well as by adding value-added functional best practices.

Throughout this process, the IPT kept in mind the overarching requirement to minimize the need for extensive software development. Working with SBA staff, the SRA Team developed a matrix of hundreds of requirements and value-added features for each of the

³ For the purpose of this project, *IT functional* requirements relate to the automated processes, such as printing and generating reports, that the system performs. *Technical* requirements, on the other hand, are the specifications for hardware, software, platforms, etc.

four functional areas. SBA functional area leads then ranked each matrix entry in their respective areas on a scale of 1 to 5, with 1 considered mandatory and the others considered value-added, but optional. SBA staff also examined the processes of each functional area to determine how requirements in one area may affect another functional area and formulated a resolution based on impact and importance. The information contained in the requirements matrices was used in the final determination of which integrated package will best enable SBA's business units to operate in a totally integrated manner.

3.2 Functional Requirements

3.2.1 Core Financials

The core financial system is the keystone of a successfully implemented JA²MS. It is a large, complex set of processes with multiple interfaces and transactions and is governed by extensive legal and regulatory guidance. The IPT identified numerous requirements to meet minimum compliance with the laws and directives. JFMIP has been working with Federal agencies to identify, select, and rate the elements that must be present to perform within the government environment and comply with the strict guidelines of OMB, GAO, and the Treasury. Because of JFMIP's effort, the major objective of SBA's review was to validate the requirements for applicability and completeness relative to SBA's mission and functional processes. Upon review, the IPT determined that JFMIP elements and ratings did apply to SBA. Therefore, it is mandatory that the JA²MS perform in the following general areas. The system must

- be able to establish control over budgetary authority from inception through obligation and payment, or cancellation of the authority;
- be based on the U.S. Government Standard General Ledger and apply the standard government accounting entries and controls;
- be able to provide management with information on the status and application of fund resources;
- control the receipt and disbursement of cash and equivalents; and
- be able to produce the full range of required Federal and SBA management reports.

Embedded in these JFMIP general requirements are the policies announced in OMB Circular A-127, "Financial Management Systems," and OMB Circular A-130, "Management of Federal Information Resources." A-127 requires that SBA establish and maintain a single, integrated financial management system. To be integrated, financial management systems must have (1) standard data classifications (definitions and formats) established and used for recording financial events; (2) common processes used for processing similar kinds of transactions; (3) internal controls over data entry, transaction

processing, and reporting applied consistently; and (4) a system design that eliminates unnecessary duplication of transaction entry (single-source input). A-130 requires agencies to use COTS software to reduce costs, improve the efficiency and effectiveness of financial system improvement projects, and reduce the risks inherent in developing and implementing a new system.

During the reviews and discussions, it was determined that as extensive as the financial baseline requirements appear, they do not cover everything SBA needed. SBA personnel identified two additional financial requirements.

The system must provide for the establishment, control, and reporting on performance factors to meet the Government Performance and Results Act (GPRA) and Government Management Reform Act (GMRA) laws.

1. The system must provide a decision support capability to gather data on selected courses of action and assist in evaluating the alternatives.
2. In addition to the requirements, the IPT identified hundreds of optional value-added features. The resulting list embodies a well-structured set of needs that, when met by an integrated COTS/ERP package, will support SBA mission, management, accounting, and reporting functions.

3.2.2 Travel

The IPT determined that, because the travel function is so closely coordinated with the core financial function, it should become part of the core financial system. The major elements of the travel function include (1) travel authorization, (2) travel advance, (3) travel voucher, (4) local travel, (5) non-federally sponsored travel, (6) temporary or permanent change of station, (7) interface requirements, and (8) reports. Because travel systems are very susceptible to fraud and abuse, they are governed by specific limitations on the items and amounts that can be reimbursed. Requirements have been established by various regulatory agencies such as General Services Administration (GSA), OPM, and Department of State as well as by JFMIP. Unlike its extensive study of core financial requirements, however, JFMIP has not ranked or tested its travel requirements to the same degree.

Based on these regulations, the IPT summarized the requirements for the SBA travel system as follows. The system must

- have controls to limit travel authorizations to approved funding levels;
- have controls that will allow only travel advances and reimbursements that are properly approved;
- allow travelers to input their claims and ensure that adequate documentation exists;

- handle the reimbursement for all the different allowances;
- properly compute and verify reimbursement claims;
- ensure the collection of travel advances; and
- allow remote processing and routing.

The IPT also identified numerous optional value-added features by adding increased levels of performance and capability to the requirements to meet the SBA mission and to ensure that the proposed system operates within the SBA technical environment constraints.

3.2.3 Human Resources

The human resources system will interact with the core financial system to validate funds availability before making an HR transaction, update budget execution data, record salaries and other personnel-related expenses, and record other HR-related transactions. Therefore, the JFMIP stipulates some of the HR system requirements as well as the financial ones. The JFMIP has decreed that, at a minimum, the system must enable

- complete, accurate, and prompt payment of pay and deductions;
- complete, accurate, and prompt generation and maintenance of human resources and payroll records and transactions;
- timely access to complete and accurate information, without extraneous material, to those internal and external to the agency who require the information;
- timely and proper interaction of human resources and payroll systems with core financial systems; and
- adequate internal controls to ensure that human resources and payroll systems are operating as intended.

In addition to the JFMIP requirements, the Human Resources Technology Council guidelines were addressed in the JA²MS baseline requirements. The HRTC has reviewed HR systems for input and processing capabilities, output capabilities, and user appropriateness. In doing so, it identified the following functional needs to consider when selecting an automated system.

- speed;
- efficiency;
- information retrieval;
- data integrity;

- printing and report design;
- security;
- distribution needs;
- user sophistication;
- coding; and
- documentation.

The IPT also identified requirements that mandate a high level of system responsiveness. For instance, a good applicant-tracking module must pre-select the most qualified applicants, produce the necessary candidate analysis, schedule candidates for interviews, and create offer letters, thus facilitating the hiring process. The system must also track performance and career-development needs to help managers, employee-relations staff, and others correct, encourage, reward, and develop employees appropriately. With computerized data tracking and reporting, users will be able to obtain relevant internal and external government reports more easily. Additionally, because the payroll and benefits functions will continue to be performed by the NFC, equipment and program interfaces will be required.

These features will be realized through an integrated system that helps the HR department hire, support, develop, and retain the most qualified employees.

3.2.4 Procurement and Grants Management

The procurement and grants management system will be linked to the core financial system, including both the general ledger and accounts payable functions. As a result, it must be compliant with JFMIP requirements for a financial management system. The procurement and grants management system also must be compliant with Federal Procurement Data System (FPDS) requirements and FAR. In addition to these regulatory requirements, the IPT identified the following requirements, which are based on the SBA vision, strategic goals, and industry best practices of the AS-IS and TO-BE procurement and grants management processes. The system must

- provide a procurement module that is a component of a single integrated system;
- be integrated with the financial module to support all shared data elements required for the procurement and grants management processes, including requisitioning, purchase request, funds certification, and commitment/obligation and payment tracking through the life cycle of a procurement action;
- address all cycles of a small purchase or contract (solicitation through award);
- have a grants management function;
- have the ability to automate the requisitioning function.

In total, the IPT identified approximately 450 requirements and optional value-added features related to procurement and grants management, of which it ranked close to 250 as high priority.⁴ Overall, the JA²MS must offer an easy-to-use, intuitive user interface that enables approved SBA buyers to create electronic desktop requisitions and route them using work-flow capabilities for authorization. In addition, SBA envisions leveraging the power of the Internet to integrate supply chains and to take advantage of cost-saving opportunities by using electronic data interchange (EDI) and other electronic means to issue orders directly to a vendor and pay for small purchases with purchasing cards (p-cards). If the JA²MS can help the SBA to achieve these strategic objectives, SBA will be better positioned to compete in the 21st century.

3.2.5 IT Functional

The IT functional requirements specify the Requirements IT functions that will enable SBA to use technology to perform the financial, travel, HR, procurement, and grants management functions, as needed, and operate within the constraints of the existing or planned technical environment. IT functions include user interfacing; Federal compliance; ad hoc querying; reporting and information management; printing; work-flow capabilities; data and database management; security; system management; user training; and software support, maintenance, and documentation. The SRA Team ensured that the IT functional requirements were consistent with and complementary to the requirements of the financial, travel, HR, procurement, and grants management functions to be integrated.

The IPT identified the following IT functional requirements for the JA²MS.

User Interface/Ease of Use

- The software must be user friendly. It must offer graphical user interfaces, thorough help facilities, context-sensitive help screens, report production procedures and distribution, and user support services.
- The system must enable the user to select automatic or discretionary printing of forms and reports.

Federal Compliance

The system must ensure the preservation or appropriate disposal or archiving of SBA's records to comply with Federal statutes and regulations regarding records management.

⁴ Most of these high-priority requirements were taken directly from the Exposure Draft version of *JFMIP Grant Financial Systems Requirements*, dated October 19, 1999. This document is available on the JFMIP Web site.

Reporting and Information Management

- The Reporting and Information Management support must include separate reporting systems that have capabilities to access, summarize, format, and graph financial and other data.
- The system must provide a repository of data against which reports can be run without detracting from normal system performance.
- The system must provide easy-to-use, industry-standard *ad hoc* query and reporting tools.
- The system must provide the capacity to format a report to show multiple levels of detail.
- The system must enable the user to run on-demand analysis reports for general ledger accounts within appropriation/fund at any time during an accounting period.

Work Flow

- The system's work-flow capabilities must be data-effective. That is, they must accommodate the use of multiple levels of document approvals based on transaction data such as dollar amounts, types of items purchased, and document types.
- The system must have the capability to use user-defined routing tables to generate rule-based or exception reports to support the generation of work-flow messages.
- The system must enable authorized users to modify work-flow routings on an as-needed basis.
- The system's support capabilities must include defining work-flow processes and business rules, including approval levels, using a graphical definition facility.
- The system must have the capability to track the status of transactions.

Data and Database Management

- The Database Management Systems (DBMS) supported by the application must follow structured query language (SQL) database standards, support SQL-compliant application programming interface, and use a central repository of metadata.
- The system must have the capability to control or limit user access, update to the same record by multiple concurrent users, and offer referential security.
- The system must maintain an audit log of all application transactions; override events; and direct additions, changes, and deletions of records by authorized persons.

- The system must process data through a series of edits and load directly to the DBMS from an ASCII file or other table outside the financial management system, bypassing the financial management system entry screens.

Security

- The basic security features of the application must include support for standard Public Key Infrastructure (PKI) in accessing external systems or in internal certification processes. The system must support the generation, verification, and use of digital signatures.
- The system's file access restrictions must include read, write, and delete restrictions at the individual user level.

System Management

- The system's "out of the box" system management features must provide tools or processes to assist in the management of common tasks.
- The system must have the capability to monitor its operations and to alert the system manager to malfunctions.
- The application must provide statistics to monitor the functions and operations performed by specific users and to determine whether reports were generated or accessed successfully.
- The system must maintain usage records, including the actions of every user on all terminals, the time and date of use, and the type of transaction by user-ID.
- The system's job streams must have simple well-documented restart capabilities and must be segmented so that a given routine can be restarted without re-running earlier routines.
- The system must use data integrity verifications and provide for sufficient audit trails to trace data errors.

Application Training

The vendor must provide

- application training for SBA personnel; and
- written instructional materials.

Software Support, Maintenance, and Documentation

The vendor must provide both hard and soft copies of software documentation that is complete, user friendly, and updated when necessary.

3.3 Technical Requirements

The functional business areas of finance, travel, HR, procurement, and grants management dictated the vast majority of the requirements for the JA²MS. The technical requirements provided additional guidance. The primary source for these technical requirements was the SBA's ITA and IT vision statement. Other requirements resulted from a collaborative effort by the SRA Team technical experts and the representative of the Office of the Chief Information Officer (OCIO). Requirements addressing technical standards stemmed from JFMIP recommendations.

High-level technical requirements, established by the OCIO to reflect SBA's IT vision and strategic business goals, state that the system will

- support a single enterprise-wide Information Technology Architecture;
- use SBA software, hardware, data, protocol, and other open-systems standards;
- be supported by a documented enterprise-wide implementation methodology;
- use a single, central information repository for data elements;
- use COTS software to the greatest extent possible;
- leverage enterprise-wide licensing of vendor products;
- promote the use of Web-based technology;
- be designed and deployed using a client/server model; and
- ensure enterprise-wide integration of IT security.

The IPT identified the following additionally requirements for the JA²MS.

- The system should employ a three-tier architecture and be capable of integrating web-based solutions.
- The application must be accessible remotely over a transmission communications protocol/Internet protocol (TCP/IP) network.
- The production environment must use one or all applicable modules of the software on a 32-bit Microsoft Windows-compatible operating system.
- The application server must run on a Unix or Windows NT operating system.
- The clients must run on either Windows 95 or Windows NT.

Lastly, the JFMIP requires Federal agencies to adhere to standards to ensure consistency, uniformity, and efficiency of their systems. For JA²MS applications development and information access, the SBA has adopted enterprise standards developed by such groups as the International Standards Organization (ISO), American National Standards Institute (ANSI), and National Institute of Standards and Technology (NIST), as well as numerous engineering and telecommunications organizations. The standards specify that the system must provide capability to support the following functions:

- document management alliance (DMA);
- open document management (ODMA);
- workflow management coalition (WFMC);
- messaging API-workflow (MAPI-WF);
- vendor independent messaging (VIM);
- open document architecture/open document interface format (ODA/ODIF);
- portable document format (PDF); and
- standard generalized markup language (SGML).

Adhering to these standards will enable the SBA to manage the insertion of new technology and the exiting of obsolete technology, leverage the use of technology to maximize its benefits, contain costs, and better control its technology destiny.

In addition to the requirements, other criteria were used to evaluate the products considered for the JA²MS. Evaluators assessed the strengths and weaknesses of the products taking into consideration the seven application characteristics listed in the SBA's ITA. Based on those characteristics, the application should be

- flexible, to enable incorporation of new business requirements as they arise and to take advantage of technology innovation with minimal effort;
- easily maintained;
- reusable, so it can be shared within a single business unit or by various business units throughout the SBA;
- portable to different operating platforms, with minimal effort and without redesign;
- scalable, to accommodate increased numbers of concurrent users accessing data as well as increased volumes of transactions and database size;
- interoperable, to enable access to databases and services across infrastructure platforms; and
- manageable, to enable standard implementation of services for software version control and distribution, installation, invocation, security, monitoring, statistics, alarms, and shutdown with no adverse effect on operations.

These characteristics are important to any business, but especially to ones such as the SBA. Several remote locations, temporary work sites, surges in number of users, dependency on another agency for cross-servicing of some functions, ceiling on in-house staffing, extensive use of the Internet for e-commerce, and fast growth all necessitate an adaptable system.

3.4 Conclusion

The IPT systematically identified the above-mentioned requirements and optional value-added features for the new JA²MS that will help the SBA to achieve many of its strategic goals and objectives. However, the system built today must be capable of integrating with the systems that will be built tomorrow. Dramatic technological changes, new business processes, legislative and regulatory actions, and other internal and external forces may dictate other requirements or may highlight a preference for other features to be added to the JA²MS. All these factors will necessitate continual reassessment of and updates to the JA²MS. Awareness of this “evergreening” of the system was used during the product evaluations to ensure that SBA will implement a versatile system that will serve the agency well for many years.

4. Product Evaluations

This section provides an overview of the integrated software packages under consideration, defining them and discussing the benefits they offer to an organization and specifically to SBA. A description of the month-long evaluation process follows. The section explains the method used to narrow the field of COTS and ERP vendors to four and the quantitative and qualitative analyses used to assess their products and services. A summary of the scoring process is included; details are provided in Appendix C. This section also summarizes the evaluation results (see Appendices A and B for details) including additional factors that were considered during the decision-making process and the sensitivity analysis that was performed. Finally, the results will identify the product ranked by all the evaluation team members as coming the closest (no product will be 100 percent) to meeting the SBA requirements.

4.1 Overview of Integrated COTS/ERP Products

COTS/ERP software packages provide cost-effective means to design or upgrade a computerized business system. Non-ERP COTS packages provide the software to perform single functions such as financial management or procurement. These packages can be integrated with as many other COTS packages to perform as many functions as desired by an enterprise. ERP packages are basically COTS packages that are pre-assembled to perform more than one function across an enterprise. Although many of these packages can be configured to meet a customer's specific needs and workflow, customization is usually minimal, because the product developers have based the processes on industry-standard best practices. For example, the way an accountant at Agency A fills out a general ledger should be very similar to the way an accountant at Agency B fills one out. Some packages are tailored for the Federal Government or local or state governments. Such packages include government forms and terminology and are compliant with JFMIP and other regulations.

In an integrated system, data are entered only once and shared by the various component functions of the system through a centralized database operating on a common computing platform. Integration ensures consistent data and data-field definitions consistent to the enterprise. Today's leading ERP also make data available immediately in real time, rather than using the more outdated overnight batch. For example, when a field user enters an order into an agency's integrated system, the data are immediately available to the regional and/or headquarters staff. Headquarters operations staff can then begin filling the purchase order while accounting is checking funds availability and formulating the customer invoice and shipping is notifying the vendor of a future delivery. Ideally, the customer can interrogate the system to monitor progress of the order. These features translate into more efficient and consistent operations that in turn translate into more effective response to both internal and external customer needs.

Integrated packages can fulfill many of SBA's requirements and help the agency achieve its mission and goals. SBA is well aware that its current systems will not suffice. A few of the current deficiencies can be improved with an integrated system that will

- be compliant with various regulatory and legislative requirements;
- enable SBA to keep pace with the anticipated growth of its business;
- enable the numerous SBA locations to communicate with each other as efficiently as necessary and operate as a cohesive organization;
- allow the SBA to respond to its customers' requests in a timely manner by the standards accepted today or in the future; and
- enable SBA to interact with other government agencies and businesses in a cost-effective way.

The SBA needs to take advantage of other emerging technologies that can augment its effort to become a leading-edge 21st century institution, that is an institution with increased efficiency, greater agility and innovation, and redefined customer and external agency relationships.

4.2 Evaluation Process

As shown in Figure 4-1, the dynamics of evaluating ERP packages vary significantly from the normal evaluation of applications development and support efforts. The evaluation methodology begins with recognition of a business need, a systems and requirements analysis to determine the organization's functional and technical activities, and a market survey to determine which companies could potentially satisfy the need.

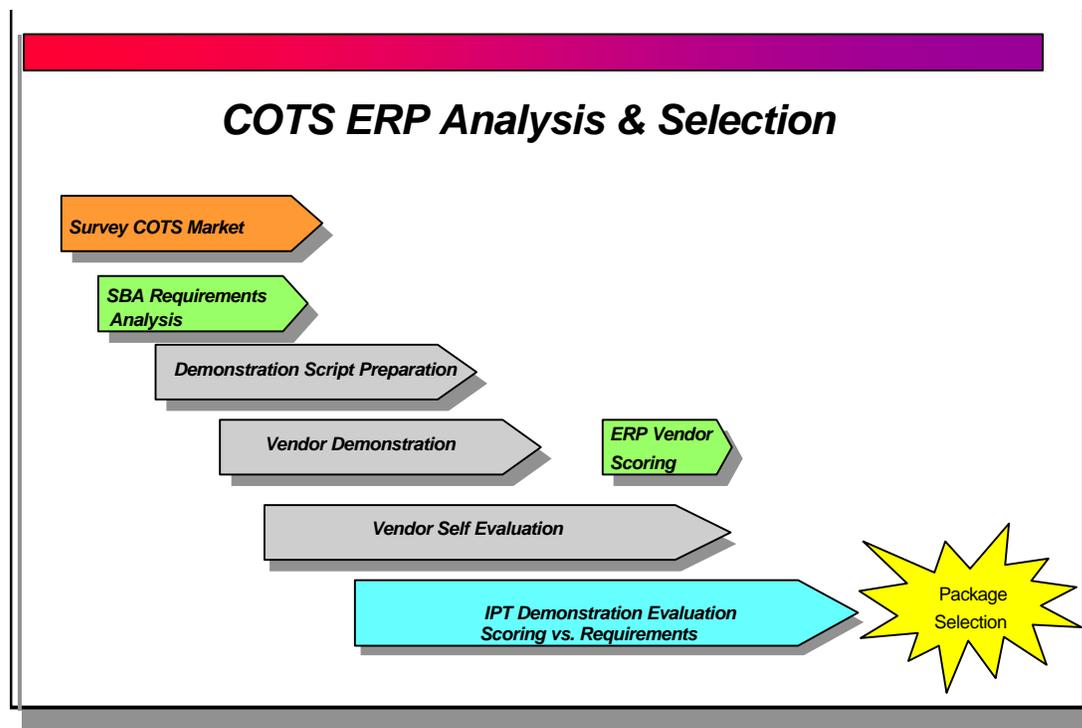


FIGURE 4-1. COTS/ERP ANALYSIS PROCESS

For the SBA analysis, a market survey was omitted because the key requirements of the desired enterprise package were (1) to be JFMIP compliant prior to business case analysis; (2) to provide functionality in two or more SBA functional areas; and (3) to be in use by Federal clients, at least in some version. Only four vendors have solutions that currently meet these specifications; all four were included in the in-depth evaluation. To prepare for the in-depth evaluation, the IPT established a formal requirements baseline to help determine the suitability of each product. Factors considered included the following: (1) business functionality match; (2) necessary purchases of additional packages, tools, and utilities; (3) amount of change management needed to accommodate the package; and (4) amount of work needed to integrate the package with existing systems and other enterprise solutions and components.

During the business requirements activity, the IPT focused on defining what the information system must do to support the SBA's future state business scenarios that will be included in the JA²MS. The SRA Team provided SBA with a common industry set of requirements derived from our knowledge repository and JFMIP requirements. These requirements served as a starting point for creating a complete requirements list. Through a coordinated effort with SBA staff, the SRA Team updated the list so that it included all the required SBA functional areas. The SRA Team emphasized identification of those requirements that are unique to SBA and/or not commonly supported by COTS software packages. This is a crucial step in identifying the product having the best fit. (For a detailed discussion of the requirements and a complete compilation of them, please refer to the *U.S. Small Business Administration IFM&AS Requirements Analysis*, dated January 14, 2000.)

The IPT used a quantitative and qualitative approach to assess the COTS/ERP vendors. The quantitative analysis included an evaluation of the vendor product against the SBA requirements identified in the requirements analysis. The vendors performed a self-evaluation, that was used in developing the quantitative evaluation. In the self-evaluation, the vendors indicated which SBA requirements their products satisfy and to what degree. During the demonstrations, they also addressed any remaining questions from the IPT as to whether their product met the requirements. This quantitative analysis also included the JFMIP evaluation of the core financial functional area.

To accomplish the qualitative analysis, the vendors were asked to perform a demonstration using a set of IPT-developed scripts. Each demonstration, vendor carried out a three-day witnessed and scored by the full IPT. Evaluation workbooks were used by each evaluator to ensure consistent and thorough evaluation of each product. These workbooks defined the key criteria, weighted according to their relative importance. The results of the quantitative and qualitative analysis were stored in multiple matrices.

4.2.1 Evaluating the Product Field

As previously discussed, the SRA Team conducted an extensive review of the JFMIP evaluation process and test results. While six vendors had financial products that passed the comprehensive JFMIP evaluation process, only Oracle, AMS, PeopleSoft, and SAP offered COTS solutions to more than one of the functional domains and also met the

FAR and HRTC guidelines. All four vendors were invited to demonstrate their products' fit to the SBA requirements as well as their functionality and ease of use.

As illustrated in Figure 4-2, the IPT compiled the financial, travel, procurement, grants management, HR, and technical requirements and optional value-added features into matrices.

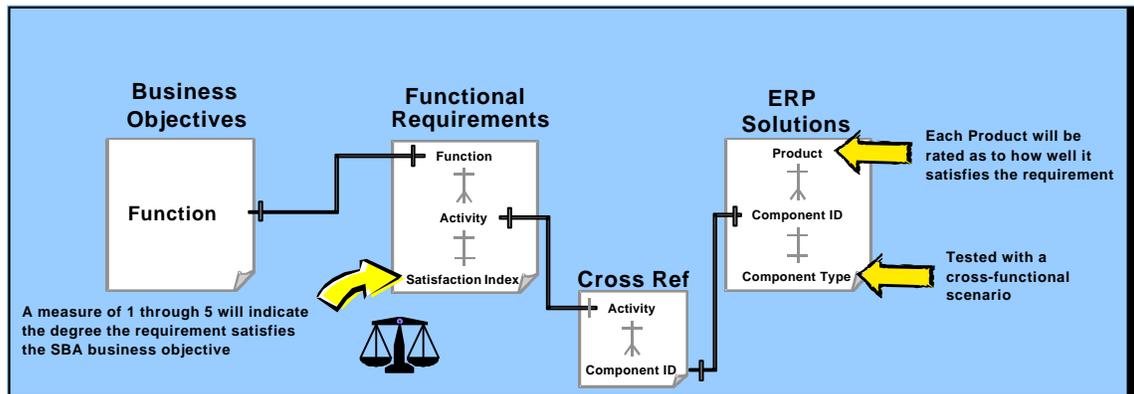


FIGURE 4-2. The JA²MS Project Requirement Process

The SRA Team then developed 19 demonstration scripts, which consisted of SBA functional threads that included most of the key requirements and desired features in a way that depicted the key SBA business processes. The scripts were specifically designed to enable the IPT to assess the products' capabilities in direct relation to the SBA's needs, such as capabilities to define work-flow processes, track the status of various transactions, and emulate Federal business practices. The matrices, scripts, and a vendor-profile questionnaire formed the basis of the demonstration package, which the SRA Team sent in hard and soft copy to the four vendors. The package also included background information about the SBA's SMI, instructions for participating in the demonstrations, and a brief explanation of the scoring. (See Appendix A for the complete package.) Vendors were allowed to submit questions regarding the demonstration package and the selection process; responses to all questions were provided to all vendors. Prior to delivering their oral presentations, the vendors returned their completed packages to the SRA Team. They were expected to demonstrate how their products respond to SBA needs specified in the scripts.

With SBA and vendor concurrence, the SRA Team established the following demonstration schedule:

PeopleSoft	February 8-10, 2000
AMS	February 16-18, 2000
Oracle	February 22-24, 2000
SAP	February 29-March 2, 2000

Following each vendor's product overview and demonstration of its capabilities, a question-and-answer session was held to clarify and amplify issues raised during the demonstration. The IPT, as well as additional SBA staff, witnessed each vendor

presentation. Finally, each vendor was asked to supply a list of references that the IPT could contact if there were questions remaining about each vendor.

4.2.2 Requirement Weighting

The project team categorized the requirements into two major categories: business functionality and the technical functionality which included vendor corporate qualifications. The team conducted multiple user workshops at the SBA to verify that all requirements were placed in the correct category and weighted appropriately. User attendees included SBA functional area experts and technical representatives. Business functionality was further divided into four sub-categories: finance, travel, human resources, and procurement and grants management. The functional groups initially assigned a relative score to each of the major sub-categories. The scores were translated into a relative weight for each top-level sub-category. The overall evaluation score was weighted as reflected in Table 4-1.

TABLE 4-1. FUNCTIONAL AND TECHNICAL REQUIREMENTS WEIGHTING

Category	Weighting
Business Requirements	80%
Finance & Travel	40%
Procurement & Grants	20%
HR & Payroll	20%
Technical Requirements	20%

The functional groups then reviewed the requirements within each category. Attendees had the opportunity to comment on the content and placement of each requirement, and were asked to assign a score from 1 to 5 reflecting the degree of importance that should be assigned to that requirement. The results of the session — major and sub-category weights and comments — are provided at Appendix B. Also, after each requirement was scored, the total points for all requirements within each functional business area were totaled, then normalized back to 100 percent based on the particular weight assigned to the functional business area. This process was necessary because one functional area may have had a disproportionate number of requirements associated with it but be valued at only 20 percent of the total package. If the totals were not normalized, the number of requirements potentially could lead to that function outscoring a more valued function and thus selection of a product with the highest score but in the less valued function.

4.2.3 Vendor Solution Summaries

As part of the analysis, each vendor provided a description of the proposed solution to satisfy the SBA requirements. The solutions consisted of the COTS/ERP product and recommended bolt-on products (i.e., stand-alone modules, usually developed by a third-party vendor, that can be easily interfaced with the application software and system database). A synopsis of each vendor's submission follows. (Graphics provided in these vendor descriptions are property of the vendors and cannot be used for purposes other than evaluating their products for this project.) The SRA Team technical experts

received complete packages of vendor materials and have forwarded them to the SBA JA²MS project manager.

4.2.3.1 PeopleSoft

The PeopleSoft product family includes a comprehensive suite of government applications, offering functionality specific to the needs of Federal Government agencies. As shown in Figure 4-3, PeopleSoft products support Federal budget execution and budget control, flexible multi-fund/appropriation accounting, commitment and obligation-based accounting, the U.S. Standard General Ledger, personnel management (the most widely used HR package in the Federal government), and interagency reimbursable billing. The procurement and travel modules (ITG Procure and Gelco's Travel Manager, respectively) offered with the PeopleSoft solution are products developed by other companies and would need to be interfaced into the rest of the system. To help with this integration, PeopleSoft also offers PeopleTools, a complete set of client/server application development and reporting tools that are common to all PeopleSoft applications.

PeopleSoft's integrated, adaptable system provides SBA with integrated business applications that include some best business practices and a solid technology architecture in Sybase that is compatible with SBA's technical infrastructure.

PeopleSoft proposes a semi-distributed technical architecture. PeopleSoft applications can be adapted to changes in underlying technologies to keep pace with advances in information technology, such as databases, Web technologies, and hardware. This scalability and flexibility are important to ensure that SBA can adapt to changing legislation; evolving business practices; and emerging technologies such as EDI, laser MICR printing, and imaging.

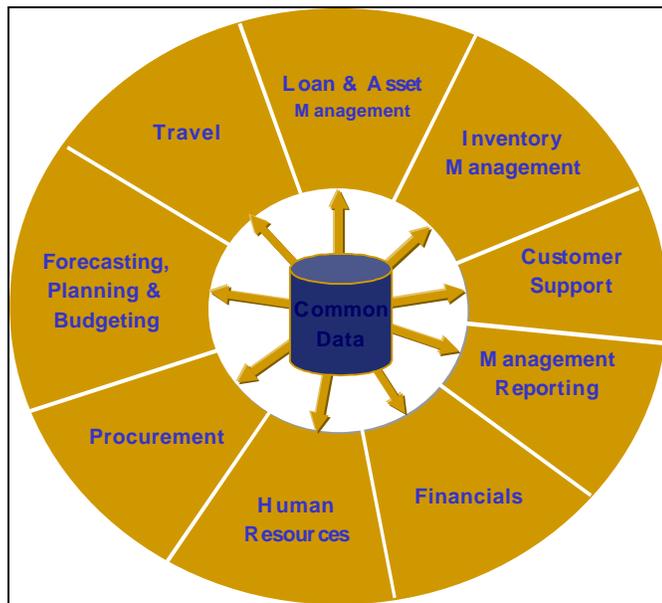


FIGURE 4-3. The Proposed PeopleSoft Solution

Most PeopleSoft reports are viewable on-line and can be catalogued for later retrieval, decreasing the need for paper printouts. The Federal applications include a variety of reports that are already set up, such as Status of Funds reports and Obligations reports. SBA can also query the system and build customized reports as needed to respond to *ad hoc* requests for information. To satisfy additional SBA report and query needs, many reporting tools are all fully integrated into the PeopleSoft solution without further cost or separate maintenance dependency.

4.2.3.2 American Management Systems (AMS)

AMS has 15 years experience serving the financial management needs of 60 Federal agencies. It developed the FFS product that is being used today by many government agencies, including SBA, through a cross-servicing agreement with the U.S. Treasury. AMS has an in-house research and development department that keeps abreast of changes initiated by Treasury, GAO, OMB, and the CFO Council and tailors its new releases and products to meet the needs of the Federal financial marketplace.

For SBA's current needs, AMS proposed its latest financial product, Momentum[®] and its Federal contract management package, Procurement Desktop[®]. AMS also offered Gelco's Travel Manager module. AMS proposed Ariba's ORMS, a Web-based product that facilitates government-to-business e-commerce. It did not propose a complete HR module, but did offer its own Integrated Time and Attendance System (ITAS) to be used for SBA's time and attendance function. AMS calls this its "Best of Breed" solution, which enables its users to select modules that best meet their specific business requirements. This solution, though, denies users of the ERP advantage of simpler implementation and maintenance.

Although various providers are involved in the AMS solution, AMS serves as the single point of contact for acquisitions, implementation, operations, and maintenance of the entire suite. As part of its offering, AMS would provide full integration of Momentum[®] with its own Procurement Desktop and Ariba's ORMS at no additional cost to SBA. Interfaces exist between Momentum and various products, but it is unknown whether those interfaces can be adapted to fit SBA's system. Interfaces between other internal or external systems would need to be developed.

AMS provides standard software to convert from baseline FFS to Momentum. Because SBA is currently an FFS client, this conversion software could reduce the costs and risks associated with migrating from FFS to Momentum. This conversion software would be provided with the Momentum software at no additional cost to SBA.

4.2.3.3 Oracle Corporation

Oracle Corporation is a leading supplier of software for information management and business applications. Oracle-based products are used throughout the Federal government and the world. Oracle Federal services clients in the defense, civilian, and intelligence communities. During the past 5 years, Oracle has gained expert knowledge in Federal financial management as a result of implementing its financial applications in 25 Federal agencies. It is a leader in developing Web-based integrated systems, and is currently implementing its Web-based financial systems at the Department of Transportation and the Department of Education.

Oracle's ERP solution offers Oracle-finance and HR modules developed; the other modules (including Aldmyr Systems' Zegato travel package and Compusearch's PRISM package for contracts management) are based on Oracle technology and operate from the same Oracle database. Additional applications include Oracle's Automated Desktop Integrator, Alert, Self-Service Purchasing, Financial Analyzer, Discoverer, Projects (for

costing only), Training Administration, Workflow, Designer and Developer (for implementation phase only). The ERP suite is offered through World Wide Technology, Inc. (WWT), Oracle's preferred small 8(a) business, which holds a GSA schedule for Oracle software products.

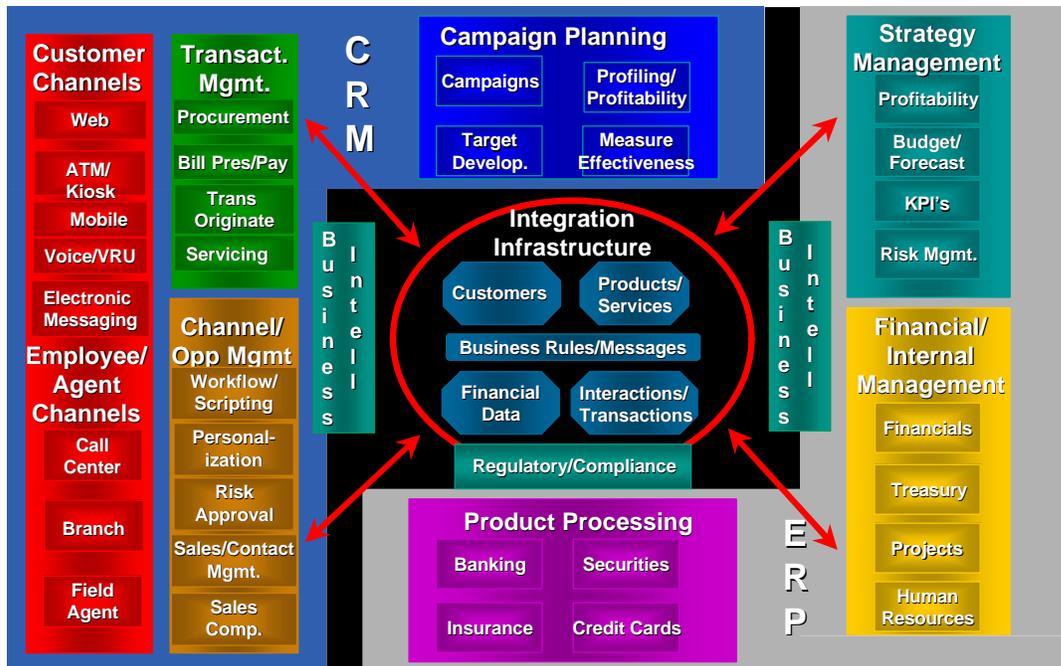


FIGURE 4-4. The Oracle Solution Is Designed For Both Near And Far Term

The Oracle ERP solution consists of the architecture as depicted in Figure 4-4 and is built on the Oracle technology stack. It consists of the Internet-based federalized 11i product, OFA, and the third-party travel and procurement modules mentioned earlier. Its overarching development philosophy is to support the total organization, from the transaction processing front end to the financial and administrative back end.

Oracle offers database products, tools, and applications software, along with related consulting, education, and support services. It offers a variety of training options, including instructor-led training, media-based training, computer-based training, Internet-based training, and course-in-a-box training.

For the SBA solution, Oracle Corporation offers the applications described in Figure 4-5, which are integrated into a cohesive working unit to meet the SBA requirements.

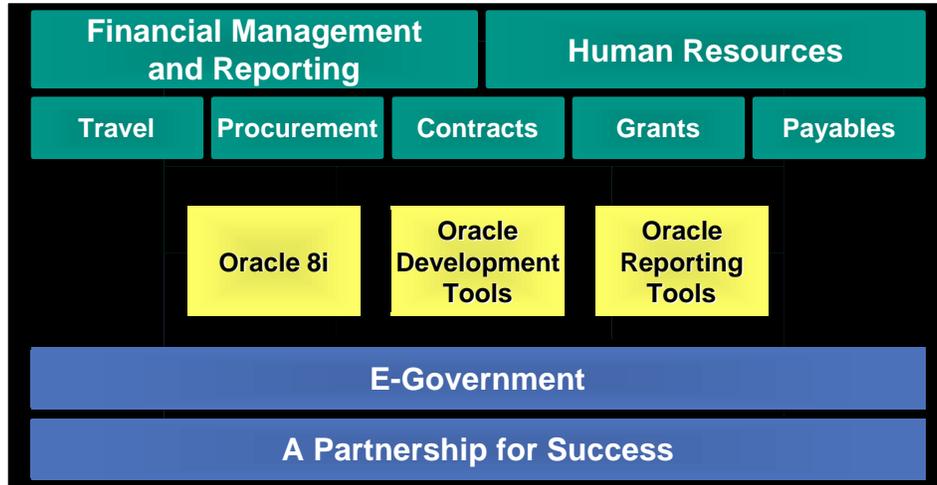


FIGURE 4-5. THIS SPECIFIC ORACLE FOOTPRINT

4.2.3.4 SAP

SAP is the world’s largest supplier of ERP solutions in the commercial world. Primarily devoted to the private sector for the last 25 years, SAP has now established SAP America Public Sector to serve U.S. Federal, state, and local governments. To date, only minimal federalization of the system has been accomplished.

SAP proposed to SBA its R/3 system, which seamlessly integrates financial, HR, and procurement functions. SAP proposed Gelco’s Travel Manager package to interface with

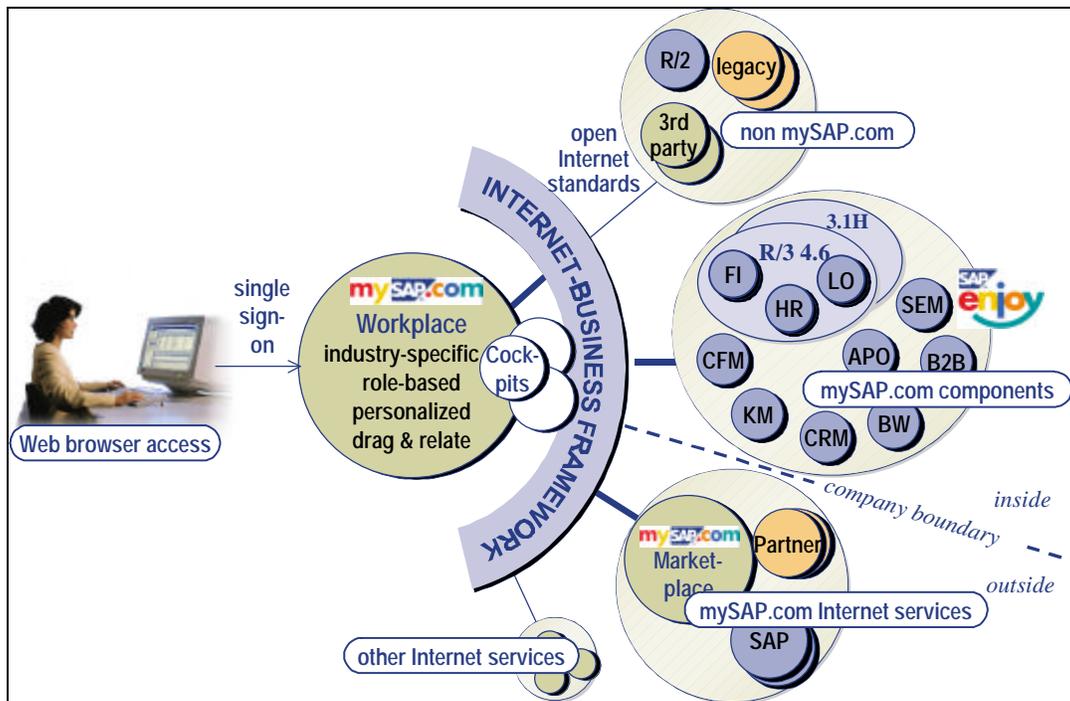


FIGURE 4-6. The SAP Framework

its ERP system. The R/3 structure is integrated with both Oracle and Sybase databases, and therefore is compatible with SBA's infrastructure. Its extensive tool set provides a complete set of applications to meet the needs of an ERP. As illustrated in Figure 4-6, the SAP ERP solution includes a single sign-on capability, which enables a user to invoke a second program without closing the first. The SAP Business Technology, as the basis of SAP R/3, coordinates vast amounts of information and seamlessly links business processes into a logical flow.

SAP supports flexible, reliable, and cost-effective operation with a wide array of best-practice tools and services. SAP can provide SBA with extended automation, from Web front end to SAP and legacy systems, and links to SBA's Internet-based services such as *ProNet*.

4.3 Evaluation Framework

To assess the four products, the SRA Team conducted both quantitative and qualitative analyses. During both types of analyses, each product was rated first on its own merits, then in comparison with the other products. The evaluation score for each requirement is the SBA rating of importance (not supplied to vendors) multiplied by the degree of fit.

4.3.1 Quantitative Analysis

For the quantitative analysis, the SRA Team provided each vendor with a checklist of requirements for the areas of financials, human resources, procurement, technical, travel, and vendor background. The objective of the requirement checklist was to provide the IPT with a quantitative method for evaluating the degree of fit between each product and the SBA requirements. Each vendor was required to respond to all six checklists. Each vendor also submitted a written response to the Technical and Corporate Qualification sections of the requirements.

Each vendor was required to respond to the following for each requirement in each checklist area.

- Is the requirement available "out of the box"?
- What is the "degree of fit" between 100% and 0%?
- What is the name of the product release and module that provides the required functionality?
- What is required to obtain a 100% fit (e.g., next release, third party software, enhancement, customization, interface)?
- What is the estimated software cost of obtaining 100% fit?

Vendors were asked to provide explanations, as needed, that would allow the IPT to better understand their response to a requirement.

4.3.2 Quantitative Results

As would be expected, the vendor self-evaluation of their products satisfying the SBA requirements in the business categories were both very high and they showed very little difference between the products. The primary reason for the difference in the product scores in this category is the degree (Figure 4-7) of functionality included with the product versus the functionality that can be obtained through modifying the product. The Oracle product contains more in-the-box functionality than the other products. This difference would significantly impact the time required to implement the system, the number and qualifications of the implementation team, and the SBA configuration management process (less modification results in simpler configuration management).

Business Categories	Total Score	AMS	Oracle	PeopleSoft	SAP
FINANCE	35.0	34.0	34.9	32.8	33.2
Core Financial System Management:	7.93	7.20	7.93	6.02	6.25
General Ledger Management:	1.82	1.82	1.82	1.82	1.82
Funds Management:	8.65	8.65	8.65	8.55	8.65
Payment Management:	6.07	6.07	6.07	6.07	6.07
Receipt Management:	5.07	4.90	4.94	4.92	4.94
Cost Management:	2.42	2.42	2.42	2.42	2.42
Reporting:	2.90	2.80	2.88	2.90	2.90
Integration with Program & Administrative Systems - General	0.14	0.11	0.14	0.14	0.14
TRAVEL	5.0	4.1	4.9	4.1	4.1
General	0.24	0.24	0.24	0.24	0.24
Travel Authorization	0.17	0.15	0.17	0.15	0.15
Travel Advances	0.08	0.05	0.08	0.05	0.05
Travel Vouchers	0.29	0.27	0.29	0.27	0.27
Local Travel	0.04	0.04	0.04	0.04	0.04
Non-Federal Sponsored Travel	0.04	0.04	0.04	0.04	0.04
Temporary/Permanent Change of Station:	3.48	2.81	3.40	2.81	2.81
Interface Requirements	0.19	0.05	0.18	0.05	0.05
Reports	0.12	0.12	0.12	0.12	0.12
System Administration	0.34	0.34	0.34	0.34	0.34
Records Retention	0.01	0.01	0.01	0.01	0.00
HUMAN RESOURCES	20.0	1.9	19.3	19.6	18.5
Human Resources Management:	6.57	0.00	6.18	6.46	5.72
Payroll Management	8.20	1.89	7.99	7.94	8.11
Other Management	4.50	0.00	4.50	4.48	3.96
General System Requirements	0.73	0.00	0.67	0.73	0.73
PROCUREMENT & GRANTS MANAGEMENT	20.0	19.4	19.9	19.3	19.8
Grants Management	3.28	3.27	3.28	3.14	3.21
Procurement	11.05	10.85	11.02	10.76	10.93
General	5.67	5.24	5.57	5.36	5.67
INFORMATION TECHNOLOGY	15.0	13.3	14.4	14.5	14.7
VENDOR PROFILE	5.0	4.8	5.0	4.9	5.0
Total Score	100.0	77.5	98.3	95.2	95.3

FIGURE 4-7. The Quantitative Analysis Indicates That Oracle Has A Slight Edge

4.3.3 Qualitative Analysis

The project team developed a functional scenario-driven evaluation package to provide to each vendor. These scenarios served as the basis of the product demonstrations. The qualitative evaluation not only reflected the SBA business processes but was evaluated by a cross-functional team that is intimately familiar with SBA business processes and whose members created the detailed scripts to reflect the business workflow. Vendors were required to present a product demonstration addressing the requirements in each scenario. It should be noted that many factors influenced the teams assessment. Factors

such as the vendor presentation and demonstrators, each vendors emphasis on functionality, technology, vision, and time management for each scenario, were just a few factors that influenced the evaluators perceptions of the solution and its ability to satisfy the SBA requirements.

The 19 functional scenarios are identified in Table 4-2. It was stressed to the vendors that integration of the vendor’s solution should be emphasized throughout the demonstration. The sequence of the demonstration scripts was arranged so that the process would look like the integration that is required to connect all SBA business transactions and workflow.

TABLE 4-2. SCRIPTED FUNCTIONAL SCENARIOS

1. Accounting Classification Structure	11. HR Reports, Reconciliation/ Records Retention
2. Funds Initiation & Subdivision	12. Creating, Routing & Authorizing a Requisition
3. Budget Preparation & Execution	13. Issuing an Order
4. Cost Accounting/Tracking/Reporting	14. Performing Contract Management
5. Position Management/ Classification	15. Receiving an Invoice/Creating a Payment
6. Recruitment & Staffing	16. Grant Requisition, Authorization & Payment
7. Personnel Action & Administration	17. Travel
8. Pay Processing	18. Payment Management
9. Time, Attendance & Leave Processing	19. General Ledger Management
10. Benefits Administration	

The scenarios were designed to assess each product’s capabilities in performing routine SBA business functions. The IPT felt that this approach provided a more accurate picture of how a product operated on a desktop than a standard point-by-point demonstration of functions. While the quantitative analysis provides a more comprehensive assessment (vendor’s perspective) of how each solution set satisfies all the SBA requirements, the qualitative analysis gives a truer reflection of how each package satisfies SBA business needs. The evaluation scenarios are provided in Appendix C.

For the qualitative analysis, the SRA Team provided each SBA project team member with a Demonstration Checklist Workbook for evaluating each product. Each of the 19 demonstration scripts was divided into many individual scripts. Each evaluator was required to assess how well the vendor’s process matched with the SBA business practices. The following 5 ratings and scores were used: 5-Very Good; 4-Good; 3-Acceptable; 2-Poor; and 1-Unacceptable.

To facilitate the scoring, the scripts were numbered, the main headings being labeled from 1 to 19 and the subordinate topics for each heading being assigned corresponding subordinate numbers. The numbering scheme permitted a maximum of four levels. Only scores for items at the highest level or the next level down were tallied. If items on the third and fourth levels were scored, the scores for those items within a main heading were averaged and included in the score for the second level.

Scoring was conducted on both the individual and group levels. The individual scoring was conducted immediately after the completion of each presentation. Two SBA

representatives from each functional area and one SRA Team representative from each functional area privately scored each product based on how well he or she perceived the product to match the SBA’s business practices. If the member rated the product 1-Unacceptable or 2-Poor, the member was asked to rate the product on his or her perception of (1) whether the vendor process was a better business practice; (2) the likelihood of SBA revising its practices to match the vendor’s process; and (3) ease of use. Not all representatives with voting rights rated all items in the workbooks. Some opted for rating only the features impacting their particular functional area.

4.3.4 Qualitative Results

The results summary, as reflected in Figure 4-8, was developed using the following process. Immediately following the last scenario demonstration, the SRA technical experts entered the workbook entries into an Excel template. The scores were tallied, the scorers’ comments were documented, and a PowerPoint presentation was developed for that vendor. The group scoring and analysis was conducted on the day after the vendor completed its demonstration. If the group members disagreed on any score, the SBA leader of that functional area, in collaboration with the other SBA functional leads, was granted final say. Following the group evaluation workshop, the SRA Team’s technical

Demonstration Categories	Total Score	PeopleSoft	AMS	Oracle	SAP
FINANCE	40.0	27.5	31.3	30.0	28.6
Accounting Classification Structure	5.00	3.5	4.0	3.9	3.5
Funds Initiation & Subdivision	5.00	3.2	4.4	3.6	3.3
Budget Preparation & Execution	5.00	3.9	4.1	3.9	3.8
Cost Accounting/Tracking/Reporting (Performance Fac	5.00	4.2	3.5	3.7	4.5
Receiving an Invoice and Creating a Payment Request	5.00	3.5	4.0	3.7	3.7
Travel Process	5.00	3.0	3.0	3.2	3.0
Payment Management	5.00	3.0	4.3	4.0	3.3
General Ledger Management Function	5.00	3.2	4.0	4.0	3.5
PROCUREMENT & GRANTS MANAGEMENT	20.0	12.1	17.1	16.1	14.7
Creating, Routing, and Authorizing a Requisition	5.00	3.0	4.0	4.0	3.9
Issuing an Order	5.00	3.2	4.3	3.7	3.7
Performing Contract Management	5.00	3.1	4.8	4.5	3.6
Grants Requisition, Authorization, and Payment	5.00	2.8	4.0	3.9	3.5
HUMAN RESOURCES	20.0	13.5	3.5	15.6	15.6
Position Management & Classification	2.86	1.7	0.0	2.3	1.8
Recruitment & Staffing	2.86	2.1	0.0	2.3	2.3
Personal Action & Administration	2.86	2.1	0.0	2.3	2.3
Pay Processing	2.86	1.7	1.6	1.9	2.2
Time, Attendance & Leave Processing	2.86	1.9	1.9	2.2	2.2
Benefits Administration	2.86	1.7	0.0	2.3	2.3
HR Reports, Reconciliation & Records Retention	2.86	2.3	0.0	2.3	2.5
INFORMATION TECHNOLOGY	20.0	14.9	12.5	16.1	16.3
Application Characteristics	1.43	1.1	0.6	1.3	1.2
Architecture	1.43	1.0	0.9	1.1	1.2
Performance	1.43	1.1	0.9	1.1	1.2
User Interface and Ease of Use	1.43	1.1	0.9	1.2	1.2
Reporting and Information Management	1.43	1.1	1.1	1.1	1.2
Workflow	1.43	1.0	0.7	1.3	1.3
Data and Data Base Management	1.43	1.1	0.7	1.2	1.2
Security	1.43	1.1	1.0	1.1	1.2
System Management	1.43	0.9	0.9	0.9	1.0
Application Development Tools	1.43	1.1	0.9	1.2	1.2
Application Training	1.43	1.1	1.1	1.1	1.1
Software Support Maintenance & Documentation	1.43	1.0	1.0	1.2	1.1
Infrastructure Architecture	1.43	1.1	0.9	1.1	1.1
Information Technology - Value Added	1.43	1.1	0.9	1.2	1.1
Total Score	100.0	68.0	64.4	77.8	75.2

FIGURE 4-8. The Qualitative Analysis Indicates Oracle Has The Overall Better Score

experts tallied the group consensus scores. These scores were used in the final qualitative evaluation. This process was repeated each week for each vendor evaluated.

After all demonstrations were completed and all scores were calculated, the SRA Team’s technical experts showed the IPT the four vendors’ totals item by item. Without knowing the total score for any product, the IPT compared the products by item, discussing the relative advantages and disadvantages of each of the vendor solutions and adjusting the item scores accordingly. This was done to gain consistency in scoring the “bolt-on” modules that were the same for one or more vendors (i.e., Gelco travel manager). As part of the qualitative analysis, the SRA Team not only assessed the product alternatives but also identified the major strengths and weaknesses, which are summarized in Table 4-3.

TABLE 4-3. MAJOR STRENGTHS AND WEAKNESSES IDENTIFIED BY THE EVALUATION TEAM

	STRENGTHS		WEAKNESSES
PeopleSoft	Reporting Tools (Crystal) PS nVision Tree Manager People Tools Work Flow Effective Dating Cognos OLAP tool Business Process Map PS Query	Speed “button” Date Calendar Sybase Out of Box Federal HRMS WEB Direction EMAIL Integration Budget Preparation ITG Procure Extendability	Some Customization WEB Processing ITG Procure Integration GELCO Integration CM with 3rd party packages Progress Database No Real Time GL Update Visual complexity of screens
AMS	3-Tier Architecture Federal Expertise In Box/Out Box/Cabinets Tab user interface Momentum Document Presentation Multiple Database Types Table Driven Environment SQR View Publishing Tool for Budget NFC Interface User Defined Fields	Queries using screen Input Combination screens Real Time GL Posting Salary & Benefits Forecaster (FTE) Data Conversion Standard Federal Reports Standard Interfaces End user Transition Training (FFS) Business Objects	Separate “Stovepipe” Systems Multiple “Look & Feel” No HRMS Budgeting Modules GELCO Integration CM with 3rd party packages Interfaces with Travel, HRMS, Ariba Progress Database Data Duplication Multiple DBMS Products System and Database Management Performance Issues in a distributed environment Document vs. transaction structure No integrated workflow Product “Inextensibility” Transaction Restriction (Ariba)
Oracle	Technology Stack <i>Oracle 8i,</i> <i>Discoverer, etc.</i> <i>Developer, PL/SQL,</i> <i>TOOLS</i> Integrated Product & Shared Tables Browser-based Apps Workflow & Alerts ADI Single Vendor OFA & Express Short Cut & Top Ten List Context Sensitive Flex-Fields	Tightly coupled with Database Query Governor OEM & Apps Manager Excel to OFA & Back Work Folders Attachments (any type) PRISM Self Service Product Extensibility 3rd Party Vendor implementation	External System Integration (i.e. NFC) Interface with <i>Prism</i> <i>Zegato</i> CM with 3rd party packages Federal Implementations w/new product Federal Expertise? Zegato Unproven

SAP	Workplace, Marketplace, & B2B Portals	Decentralized Security	External System Integration (i.e. NFC)
	Self Service	Strategic Enterprise Mgt & Balanced Scorecard & Management Cockpit	Interface with
	Reporting & Graphics, BW, EIS, & SAP Query	Solution Maps	<i>IPRO</i>
	LUW, Infrastructure, ABAP	MAPP Integration	<i>Gelco</i>
	Workbench, Interface Advisor, Data Transfer Workbench, & On-demand Trainer, & CCMS	Single Sign-on(sans Gelco)	CM with 3rd party packages
	Workflow	Real-time 3 -Tier Arch. Web enabled	Non-Federalized HRMS
	9 Sessions	Complete Business Integration	Federal Implementations
	Contractor Independence		Federal Expertise?
	ASAP Implementation		Proprietary Tools
			More Configuration Needed
		Standard Reports	
		Additional Screen Fields?	

4.3.5 Overall Product Scores

Figure 4-9 presents the combined scores for the COTS/ERP products in each of the major categories. All ERP products could feasibly satisfy SBA’s business needs. In the self-evaluation, Oracle led the other vendors in the overall evaluation, after downward

QUANTITATIVE <i>(Self Evaluation)</i>	Total Weight	AMS	PeopleSoft	Oracle	SAP
Business Functionality	80.00	69.40	75.80	76.90	75.60
Technical Functionality	20.00	18.10	19.40	19.40	19.70
Totals:	100.00	77.50	95.20	96.30	95.30

QUALITATIVE <i>(Demonstration)</i>	Total Weight	AMS	PeopleSoft	Oracle	SAP
Business Functionality	80.00	51.90	53.10	61.70	58.90
Technical Functionality	20.00	12.50	14.90	16.10	16.30
Totals:	100.00	64.40	68.00	77.80	75.20

FIGURE 4-9. The Combined Quantitative And Qualitative Analysis Favors Oracle

adjustments were made to the Oracle self-evaluation in the area of interfaces. Oracle’s score was adjusted to make all interface ratings equal for all vendors. In the demo evaluation, Oracle led SAP in both finance and procurement and PeopleSoft in all major categories. AMS ranked last in both evaluations, due primarily to the lack of a HR function and an integrated solution. In the demonstrations, SBA users ranked AMS first for finance and procurement functionality, but only slightly higher than they rated Oracle and SAP. The key differences the project team discovered during the evaluation were the amount of integration and interfaces required to implement each of the solution sets, the flexibility of technical architecture allowed by the products, and the degree of federalization provided with product functionality. The decision drivers were as follows:

Product suite integration - is not reflected in these results. All vendors require products from a variety of sources, and the success of JA²MS will depend on how well all components are integrated (e.g., travel, contracting, payroll and HR).

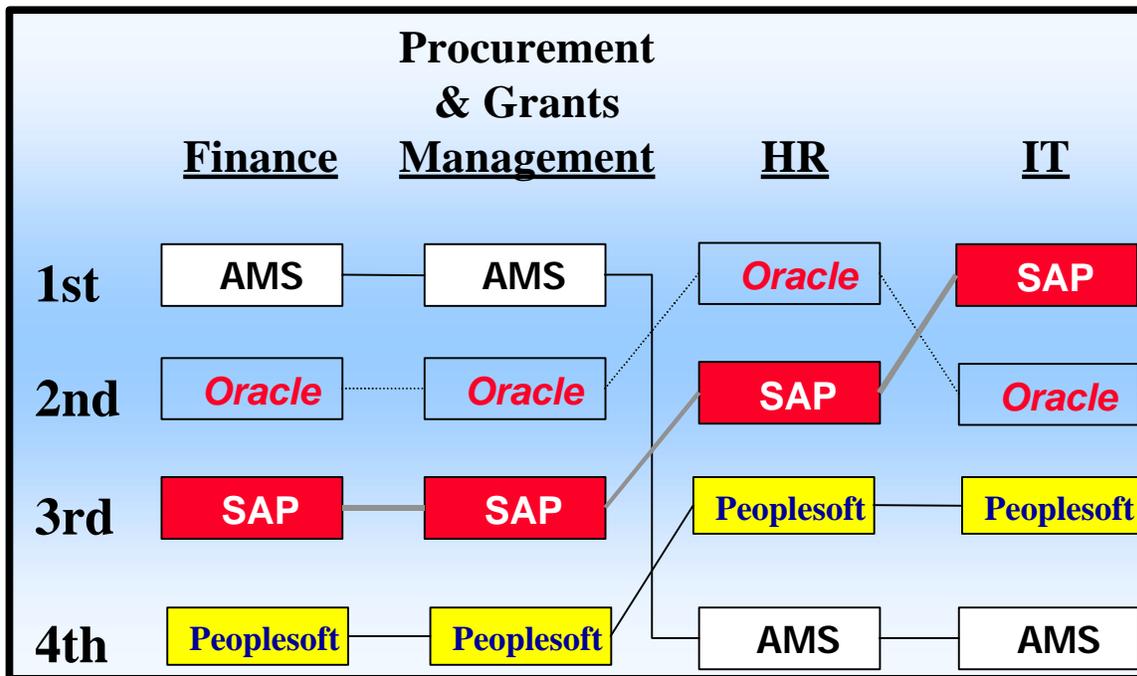
Integration to external government systems (e.g., NFC, OPAC, FACT I & II) - The self-evaluation process did not really elucidate how well each vendor links to these systems. It is unknown whether they have a fully functioning interface today or do some vendors have superior technology and tools to deliver an interface better and cheaper than other vendors.

Technology - Based on their technology, each vendor has a different ability to deliver the required integration within JA²MS and to external systems. The SBA architecture strategy may have to be defined to a lower level of detail as part of the selection decision.

4.4 Product Recommendation

Based on evaluation of all four products, as indicated in Figure 4-10, the project team recommends that SBA implement the Oracle Federal ERP product. Oracle Applications

FIGURE 4-10. Oracle Scored 1st Or 2nd In All Major SBA Categories



provides the best overall integrated ERP solution for SBA’s business needs. Although other vendors’ offerings may have satisfied SBAs needs in one or more functional areas, the combined team preferred the range of options Oracle Applications offers. A single vendor solution avoids having to fit all the pieces together. Besides its integration advantages, Oracle Applications offers another big plus: the Oracle database would provide a central data store for all the new applications—a far cry from what SBA currently uses. With Oracle Applications, all users pull data from the same source. Over the years, SBA has built a series of shadow systems to collect data, and of course,

because they all run on different databases, nothing was ever consistent within the organization.

There are other benefits as well. A standardized IT infrastructure would minimize the total cost of ownership and provide flexible future growth opportunities.

Given the clear functional advantage that Oracle currently maintains over all but AMS, and the lack of product integration and inferior IT architecture with the AMS solution, there is compelling reason to adopt the Oracle Federal COTS ERP package.

5. Analysis of Implementation Alternatives

The previous sections of this business case describe SBA's requirements for a joint accounting and administrative management system and COTS alternatives for meeting those requirements. Based on a structured evaluation of COTS products, the IPT determined that the Oracle ERP solution offers the best fit for SBA. However, regardless of the fit, implementing an ERP solution is a formidable undertaking that requires significant investment and commitment. While ERP offers clear benefits, SBA should carefully consider the associated costs and risks before making a decision to implement.

The analysis presented in this section should help SBA answer two fundamental questions. First, should SBA pursue an ERP to support administrative requirements? Second, if SBA does choose an ERP, how should the solution be implemented?

To examine these questions, this business case analyzes the baseline (current scenario) and the following three alternatives:

Alternative I, in which SBA moves to a new cross-server, with the addition of Procurement Desktop, but makes minimal other changes to system functionality;

Alternative II, in which SBA implements the Oracle ERP package and hosts and maintains the system in-house; or

Alternative III, in which SBA implements the Oracle ERP, but outsources application hosting and maintenance.

The following conventions were used in all calculations:

All costs are expressed in constant FY00 dollars.

A 6-year horizon—from FY00 through FY05—is used in the analysis.

A *real* discount rate of 4 percent was used in all present value calculations.⁵

Section 5.1 defines the baseline scenario. Sections 5.2 to 5.5 give descriptions, costs, and risks for the three implementation alternatives. Section 5.6 presents a cost-performance comparison of alternatives, including an economic analysis. All personnel cost savings can be used in redirecting the labor force where their expertise can be used in decision support. Finally, Section 5.7 gives recommendations.

5.1 Baseline

SBA currently cross-services with the Treasury Department to use the FFS. Procurement support is provided by the SACONS application. In addition to these two systems, numerous spreadsheets, databases, and crosswalks have been developed locally to help SBA staff get the information and support needed for finance, HR, and procurement activities. Baseline costs are shown in Table 5.1 below.

⁵Based on the Treasury Department cost of borrowing funds. See OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, October 92 (Revised January 2000).

TABLE 5-1. BASELINE ADMINISTRATION SYSTEMS COSTS (\$000S)

	FY00	FY01	FY02	FY03	FY04	FY05
Treasury-FFS	900	900	900	900	900	900
SACONS	6	6	6	6	6	6
Total	906	906	906	906	906	906

In this case, the baseline is not a viable option for SBA. The Treasury Department has announced that it will not continue cross-servicing agreements with other agencies beyond FY02. This forces SBA to find an alternative solution for finance. Possibilities include alternative sources for FFS (same functionality) or transition to a finance solution with greater functionality. Alternative I, presented below, involves moving to a different cross-servicing provider, with incremental improvements in system support.

5.2 Alternative I — Cross-Servicing Agreement

5.2.1 Description

With this alternative, SBA will continue to perform many of its administrative functions manually or with the help of basic desktop automation software. The payroll and benefits functions will continue to be performed by NFC. The automated financial management and related functions will continue to run on the various nonintegrated computer systems currently in use, which were developed during the 1966–1980 time frame. In short, the current complex environment—consisting of multiple, poorly integrated systems—will be perpetuated.

SBA will be forced to make at least one significant change during the next two years, as the Treasury Department, through which SBA processes its core financial transactions, will soon discontinue its cross-servicing agreements with other Federal agencies. To compensate for this loss, SBA can contract with another Federal agency to host and maintain its core financial system. One such option exists with the Department of the Interior (DOI), which uses the same financial system as SBA (FFS) and offers the improvements of a graphical user interface (GUI) with their Flashpoint application and an integrated procurement module (Procurement Desktop). If SBA chooses incremental change at this time, then cross-servicing with DOI is a likely, and representative, option. As such, DOI serves as the basis for this alternative.

5.2.2 Costs

The estimated costs shown in Table 5-1 are based on the following assumptions for the baseline scenario. (Note: costs are based on an estimate to perform cross-servicing with another federal agency.)

- 200-user software license;
- one-time conversion cost is included;
- yearly fee for cross-servicing support includes upgrades;
- current SBA desktop configuration and network infrastructure is sufficient to support implementation, with only incremental funding set aside for infrastructure upgrades;
- customization will be minimal;
- costs for data cleansing were not included because it will be required for all and is not considered a differentiator;
- SI services costs are for the cross-servicing agency to provide implementation, conversion, and interface analysis. Also includes programming and reports development, and training on the GUI front-end.
- Costs assume a three month overlap of parallel processing with existing FFS and new cross servicing provider.
- conversion start date will be June 1, 2000;
- delivery dates will be in phases to be determined, but the core financial system must be up and running in production mode on October 1, 2001;
- operational staffing will be provided by the hosting agency;
- cost for start-up and planning phases: includes three principal consultants to the SBA from a systems integrator (SI) for 2 months;
- training of 200 staff would be for the Flashpoint GUI usage and Procurement Desktop for approximately one week; and travel expenses of students are not included.
- costs are an average of the high and low ranges provided by DOI; and
- costs do not cover human resources or travel modules.

TABLE 5-2. ALTERNATIVE I COSTS (\$000S)

	FY00	FY01	FY02	FY03	FY04	FY05
Investment Costs						
SI Services	300	1,094				
Software Costs	133					
Training	42	126				
Infrastructure	150	300				
Recurring Costs						
Training			65	65	65	65
Ops & Maintenance		232	928	928	928	928
Total	626	1,753	993	993	993	993
6-Year Total: 6,351						

SBA Labor Cost. An additional cost of Alternative I (not included in the table) is for four FTEs of SBA labor to support system integration and implementation. Using a

typical average salary for senior personnel of \$74k, SBA labor costs will be \$99k in FY00 and \$296k in FY01.

5.2.3 Performance

An incremental approach dictates that the SBA continue business as usual—paper-intensive processes, duplicative efforts, errors in data entry and computations, delayed responses, minimal risk management and internal controls, and the inability to satisfy numerous regulatory authorities. As discussed in Section 2, the benchmarking analysis revealed that SBA productivity is hampered by inefficient, manual processes, and redundant tasks. The time dedicated to operational and administrative support is at the expense of higher-level management functions such as decision support, investment, and risk management. This alternative, while improving procurement functionality, will not address core problems and inefficiencies.

5.2.4 Risks

The risk of implementation failure is low with Alternative I, as little would change from the baseline. Working with a new cross-service provider introduces some uncertainty, but for operations it will be mostly business as usual.

The biggest risk associated with this alternative is that it does little to change the way SBA performs administrative processes. By continuing to do business as it does today, the SBA postpones achieving its goal of becoming a leading-edge 21st century institution, and it will not fulfill its vision of being recognized for its innovation and technology leadership. In the near term, the SBA will be unable to achieve key objectives: to establish an integrated risk management system that accurately identifies and measures risk, to help its resource partners reduce the paper transactions currently performed by 25 percent, to operate an enterprise-wide management information system for decision making, and improve the quality of its information as reflected in a standardized and consistent source for program statistics. SBA will be unable to keep pace with the anticipated growth of its business. Finally, the baseline scenario means the SBA will remain non-compliant with many regulatory authorities. When these authorities enforce their compliance regulations, SBA will need to evaluate its operational and technical environments and needs once again, research the requirements and products, and train its staff to use the new system and adapt to the new processes.

Furthermore, by continuing to do business the way it does business today, SBA will fall further behind in participating in and providing e-commerce opportunities. SBA will be less able to take advantage of other emerging technologies that can augment the way it conducts business and to interact with other government agencies and businesses in a cost-effective way. Data sharing among the numerous SBA offices around the country will remain inefficient, preventing the agency from operating as a cohesive organization in the faster-paced business world. In turn, SBA jeopardizes its ability to provide the

level of support and resources small entrepreneurs and would-be entrepreneurs across the country need and have come to expect from the agency. SBA will not be able to respond to its customers' requests in a timely manner by the standards accepted today or in the future. These inabilities diminish SBA's chance of fully achieving its goals of increasing opportunities for small business success, helping businesses and families recover from disasters, leading small business participation in welfare-to-work, and serving as the voice for America's small businesses. Ultimately, because the nation's 23 million small businesses employ more than 50 percent of the private workforce, generate more than half of the nation's gross domestic product, and are the principal source of new jobs in the U.S. economy, an antiquated SBA will impact negatively on the national economy.

As the SBA moves forward with the System Modernization Initiative, the JA²MS solution will need to interface with the LMS solution. It will be difficult to attempt to interface a new, modern LMS solution with the older FFS system.

Another risk is how well the new cross-servicing provider will perform its work and how well the system will meet the SBA's needs. If problems arise, SBA will need to address them accordingly. A second factor is how much SBA's workload will change in the future. If Congress and other regulatory authorities place more demands on Federal agencies for accountability, streamlining, and technological advancement, SBA will be at a disadvantage to adjust. Also, if SBA's business grows, the increase in workload may be more than the staff can handle without the aid of an integrated system. Consequently, additional staff may be required.

5.3 Introducing the Oracle ERP Solution

5.3.1 Oracle ERP Description

The Oracle solution consists of Oracle's 11i software for financials and human resources, Compusearch Corporation's PRISM module for procurement, and Aldmyr Systems, Inc.'s Zegato module for travel. This complete Oracle package is sold through the GSA schedule through World Wide Technology, Inc. (WWT).

As mentioned in Section 4 of this report, Oracle is the world's leading supplier of software for information management and the United States' largest provider of business applications. Oracle's financial applications are being used in 25 Federal agencies. The Oracle ERP solution is built on the Oracle technology stack consisting of Oracle's Web-based federalized financials, financial analyzer, and HR modules, with bolted-on travel and contracts modules. Oracle development and reporting tools, as well as Oracle databases, are used.

Compusearch was founded in 1983 and exclusively developed electronic procurement solutions for governments. It was the first to develop an electronic version of the U.S. FAR with full text search capability and document assembly. It also was the first to build

a commercial EDI gateway for government agencies seeking to participate in electronic commerce. Compusearch's product incorporates Windows and Internet technologies. Today, more than 500 public sector sites worldwide use Compusearch's software products.

Aldmyr Systems, an 8(a) firm, specializes in paperless travel and expense management systems. Its Zegato software enables users to plan and process business travel and offers them control over travel budgets and expenditures.

WWT is Oracle's preferred small 8(a) business partner for its suite of ERP systems. It provides hands-on training with Oracle products, technical support, software development services, and consulting services specializing in Oracle Application implementations. WWT holds a GSA schedule for Oracle's software products.

5.3.2 Oracle ERP Performance Profile

The ERP profile is a discussion of how the ERP will impact performance of the SBA in meeting its mission and goals as the ERP is introduced.

The table below summarizes ERP features and benefits that all evaluated ERP solutions offer. It should be noted that while an ERP is integrated, no ERP solution offered 100% integration. Oracle will still need to integrate travel and contracts management. But this amount of integration is a significant improvement over the current baseline system.

<u>ERP Feature</u>	<u>Benefit</u>	<u>Performance Impact</u>		
		<u>Cost</u>	<u>Speed</u>	<u>Quality</u>
Integrated ERP	Elimination of multiple systems	✓	✓	✓
Single point of data entry	Elimination of duplicate data entry and error reduction	✓	✓	✓
Improved Data Warehouse capability	Easy access to reliable data & reports	✓	✓	✓
Single IT & functional architecture	Standardization of processes		✓	✓
Workflow (best practices)	Reengineered processes	✓	✓	✓
Financial management system	Funds control	✓	✓	✓
Self-service	Employee access to info/transactions	✓	✓	✓
Activity accounting & OLAP	Performance measurement	✓		✓

TABLE 5-3. ERP FEATURES AND BENEFITS

Of the four COTS/ERP packages that met the JFMIP regulations, FAR, and HRTC guidelines, Oracle offers the most integrated system. All applications run off of Oracle technology, including the travel and contracts modules even though companies other than Oracle provide them. This feature enables information from tables in various modules to be shared across the system, thus providing faster report generation, more extensive and sophisticated compilation and analysis of data, and more accurate information. Another

benefit of this configuration is that it will entail a simpler implementation than a system with numerous stovepipes and interfaces.

The Oracle ERP package is a Web-enabled, browser-based system, which greatly enriches the SBA's remote-access capabilities. This feature would provide all SBA staff, including those at SBA field offices, with real-time access to SBA forms and databases. It would also equip the SBA with the mechanism to participate in e-commerce and to provide electronic interactive opportunities to its customers.

As illustrated in Figure 5-1, the Oracle ERP package features such technology enablers as workflow and alerts to enhance product extensibility, work folders and attachments, APIs to interface to external systems, the Query Governor to monitor database query times, and context-sensitive flex-fields.

Oracle has had a Federal government presence for 20 years, and offers an ERP package with some federalized modules. Many of the forms in Oracle 11i look like Federal Government forms. The screen format and the fields on the screens are familiar to Federal employees. Oracle 11i uses Federal, not commercial, terminology and includes formulas for calculations specific to the Federal Government. Oracle has also incorporated OPM and OMB rules in the software. As one of the world's largest software companies, its stability in the marketplace is expected to continue, assuring its clients of continuity of product and support. Consistent with the equal-opportunity objectives of the Federal Government, Oracle has teamed itself with 8(a) companies.

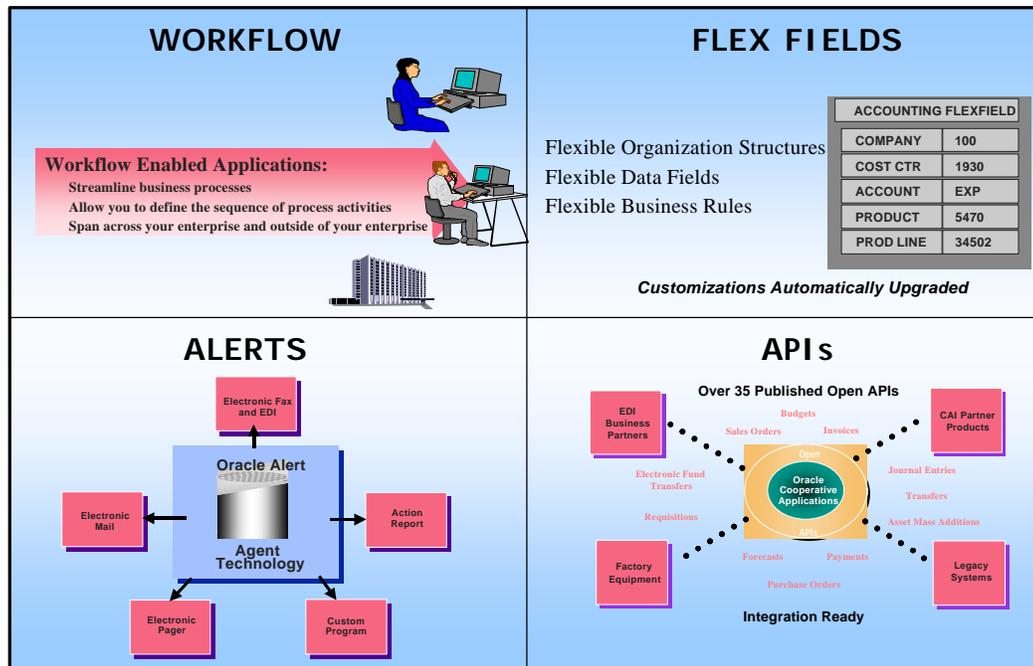


FIGURE 5-1. ORACLE ERP TECHNOLOGY ENABLERS

Another benefit of Oracle is that it would allow the SBA to contract with a third-party vendor for implementation.

5.3.3 Oracle ERP Risk Profile

Although the Oracle ERP package offers many positive features, a few negatives do exist. First, although an interface between Oracle and the NFC system has been developed, it has never been tested. Because of the configuration of the NFC system, any interface developed will necessitate incorporating SBA-specific business rules. Also, SBA believes that implementing the interface may be more complicated than Oracle anticipates. Second, the integration of PRISM and Zegato dictates that interfaces will need to be developed between Oracle and these third-party packages; this could burden the configuration management of the system if done by SBA staff. Third, both Oracle 11i and Zegato are new releases.⁶ Oracle 11i's predecessor, Smart Client 10.7, is widely used around the world in public and private sectors. Zegato, on the other hand, is a completely new product, though its developer specializes in paperless travel and expense management systems. Fourth, because Oracle 11i lacks total federalization, the SBA staff will need to take the time to educate the implementation staff, if the implementers are not familiar with the Federal Government and specifically with the SBA processes. A fifth risk is the open-endedness of the Zegato travel package. Here the SBA will incur costs for every travel transaction. This could be come very costly whenever a disaster strikes and great numbers of travel orders are issued. These large travel costs come at a

⁶ The federalized version of Oracle 11i is due out in the second quarter of 2000. The SBA does have the option to select a different travel package.

time when the SBA can ill-afford to bear unexpected costs. Finally, as Oracle proceeds with their web-based offerings, the risk of security on the internet becomes very apparent. While they claim to have an answer for the security issue, there are daily examples of internet “hacking” and break-ins on what was previously thought to be secure systems.

In addition to these Oracle-specific risks, other risks related to ERP implementations in general exist. Unrealistic expectations often stem from lack of a thorough understanding of an ERP package’s capabilities and of an organization’s own needs. Planning before implementation is time-consuming, but crucial, and, when done properly, can decrease the number of unanticipated complications that occur. Management and staff need to identify processes and employee roles that will change as a result of the new system, and to identify which internal systems will be integrated with the ERP package. Interfaces will need to be developed to external and internal systems that cannot or will not be integrated (e.g., the NFC). Disruption of work during implementation should be anticipated. Current systems may be down during data conversion. Some staff will be taken away from their normal duties to devote time to the implementation, which will burden other staff with additional workload. Also, training will need to be orchestrated so as not to interrupt customer service. Some staff will resist change, but an organization can assuage some of this by involving the user community early in the planning stages and keeping them informed throughout the process. Cost overruns are common for ERP implementations, though they often result from inadequate planning. More serious, perhaps, is underestimating the amount of planning, the commitment of staff time, and the amount of time the successful implementation takes. Rushing to “go live” on a specific date can jeopardize the quality of the system. Both the data and the users need to be ready. Overlapping the running of both old and new systems is advisable and can help smooth the transition.

One last factor that can be a risk or benefit is the commitment to a single vendor. Obviously, if the vendor should go out of business or discontinues producing upgrades for the ERP package purchased or if the product is not widely supported by independent service providers, SBA would be left with an outdated system with few options to turn to for help. This dilemma can be avoided by selecting a vendor with a reputable history and promising future. The benefit of commitment to a single vendor is integrated modules and the convenience of working with a single representative.

After SBA makes the decision to implement an ERP package, the next decision is to decide whether it will outsource the hosting and maintenance of the system, host and maintain it in-house, or combine the two. Hosting options for the Oracle ERP solution define Alternatives II and III.

5.4 Alternative II — Maintain Oracle ERP In-House

5.4.1 Description

If SBA decides to host and maintain the ERP system in-house, it will be accepting the responsibility for the upkeep of the hardware and software, including: troubleshooting problems, developing interfaces with internal and external systems, upgrading the software, performing backups of data, and training the IT staff and end users. The skills required to operate an Oracle ERP include expertise in Oracle database administration, applications development, system administration, help desk processes, and programming.

While hosting and maintaining the entire ERP system or part of the system is an ambitious undertaking, the effort would give SBA total authority over the administrative systems comprising the heart of its infrastructure. SBA would control the applications used, the workflows, the processes, the data, and all the decisions as to if and when to upgrade. Keeping the operations in-house also affords SBA control over work quality, timing of when things get done, and staffing issues. This control could also enhance the security of data, hardware, applications, and software.

With the in-house system it would be the responsibility of SBA to do the implementation and to make any necessary modifications. SBA will also be responsible for developing the interfaces and daily system operation. For the purposes of this business case evaluation, it is assumed that SBA will decide to procure the services of a contractor to perform the implementation and development as well as operate the system on a daily basis for the term of the contract.

5.4.2 Costs

The costs presented in Table 5-3 are based on the following assumptions for an ERP in-house implementation:

- a 150 named user software license and a 50 casual user license for Oracle Financials;
- HR support for 4,000 SBA employees;
- support for self-service users;
- support for four major applications, Financials (GL, AP, AR, ADI, Alert), Purchasing, Human Resources, Compusearch, and plus miscellaneous (Training, Discoverer, Workflow);
- sufficient current SBA desktop configuration and network infrastructure to support implementation, with a small amount of money set aside for infrastructure upgrades;
- minimal customization;
- conversion start date of June 1, 2000;
- delivery dates in phases to be determined, with the core financial system up

- and running in a production mode on October 1, 2001;
- operational staffing provided by an SBA subcontractor, with pricing for eight FTEs at a rate of \$62.50 per hour for 2000 hours per year;
 - services for start-up and planning phases: provided by three principal consultants for 2 months for systems integration;
 - SI services costs are for the implementation, conversion, and interface planning and analysis. Performing the actual implementation, programming and reports development, and training;
 - Costs assume a three month overlap of parallel processing with existing FFS system and the new in-house ERP;
 - implementation activities by 10 contractor FTEs for 15 months;
 - costs for data cleansing were not included because it will be required for all and is not considered a differentiator;
 - training of 160 users; 100 advanced users; and 60 developers, implementers, and software support specialist, excluding the trainees travel expenses;
 - software costs were taken from published GSA schedules; and
 - Zegato travel transaction costs were based on a typical annual usage of 9,500 transactions per year, 7,500 of which included travel arrangement support. Zegato defines a transaction as one complete travel cycle, from authorization through voucher(s) payment. Extended trips with multiple vouchers per trip are considered one travel transaction.

TABLE 5-4. ALTERNATIVE II COSTS (\$000S)

	FY00	FY01	FY02	FY03	FY04	FY05
Investment Costs						
SI Services:	900	2,400	450			
Software	479	898				
Training	77	230				
Infrastructure	150	300				
Recurring Costs						
Training			65	65	65	65
Software Maintenance			615	615	615	615
Transaction Costs – Zegato			252	252	252	252
Operations & Maintenance			1,075	1,075	1,075	1,075
Total	1,606	3,828	2,457	2,007	2,007	2,007
6-Year Total: 13,912						

SBA Labor Cost. An additional cost of Alternative II (not included in the table) is for 10 FTEs of SBA labor to support ERP integration and implementation. Using a typical average salary for senior personnel of \$74k, SBA labor costs will be \$246k in FY00 and \$740k in FY01.

5.4.3 Risks

As mentioned previously, maintaining an ERP system requires a variety of skill sets such as expertise in networks, platforms, applications, operations, and end-solutions. If SBA should decide to host and maintain the system in-house, it would risk not having the full range of expertise needed and therefore would need to hire supplementary staff. Finding qualified people, finalizing employment paperwork, and familiarizing the new employees with SBA infrastructure and processes could take months. This kind of effort would place extra burden on current staff and take valuable time away from their other responsibilities and from their learning the new ERP system. This becomes more critical under the current government philosophy of doing more with less staff.

Not having the money to augment the current staff and to continually update skills of the staff also presents a risk faced all too often by government agencies. The current trend is for all government agencies to do more with less staff. While SBA would have an option to contract out the operation and maintenance of the ERP, SBA would risk losing control over the number and quality of personnel that the contractor brings on board. SBA always has the option to terminate a contractor, but with a project as large and vital as the JA²MS project, SBA could not afford downtime.

A third risk is the level and depth of technical support. SBA would be responsible for providing, or obtaining, the senior-level technical support to back up the day-to-day operations in case of a serious technical problem.

5.5 Alternative III — Oracle ERP Support Outsourced

5.5.1 Description

Outsourcing all or some of the support work involved with an ERP system is a third option for SBA. In this scenario, SBA could contract with one or more application service providers (ASPs) to host the hardware and applications to maintain its system. These third-party providers would host and manage the applications either from their facilities or from co-location centers and coordinate the ongoing support, maintenance and upgrades of the applications. To provide high quality services, contractors need expertise in the areas of networks, platforms, applications, operations, and end-solutions. Because few contractors have this combination of expertise, ASPs often team with other providers that offering the skills and depth they lack.

Outsourcing with an ASP would allow SBA to quickly ramp-up needed skills for the ERP and would simplify customer management of the IT environment. Contracting with ASPs would shift SBA's cost from large capital investment to a pay-as-you-go option, which would provide a more predictable outlay of money than when the work is performed in-house. By combining software, hardware, networking technologies and technical expertise, ASPs may provide increased security, reliability, and scalability over

applications run in-house. SBA would avoid spending the money and time to hire staff with the appropriate skills and ERP-specific knowledge, reassign staff whose skills cannot be adapted to the new system, and training staff with skills that can be adapted. The administrative work of coordinating upgrades, licensing, and system backups would also be borne by the ASPs.

Before entering into an agreement with an ASP, SBA will need to decide if it wants to retain any responsibilities for the system support. This decision will depend on, among other things, SBA's in-house capabilities and its confidence in the ASP. Cost is typically a secondary factor in this decision.

5.5.2 Costs

The costs presented in Table 5-4 are based on the following assumptions for an ERP outsourced implementation:

- a 200 named user software license, which means 100 concurrent users for core financials;
- HR support for 4,000 SBA employees;
- self-service user support included;
- support for four major applications, Financials (GL, AP, AR, ADI, Alert), Purchasing, Human Resources, Compusearch, plus miscellaneous (Projects, Training, Discoverer, Workflow).
- implementation costs spread over three years; (covering the same amount of implementation work as in-house);
- sufficient current SBA desktop configuration and network infrastructure to support implementation, with a small amount of money set aside for infrastructure upgrades;
- minimal customization;
- conversion start date of June 1, 2000;
- delivery in phases to be determined, but with core financial system up and running in a production mode on October 1, 2001;
- operational staffing to perform hardware operations, backups, and system helpdesk provided by the ASP;
- cost for start-up and planning phases includes three principal consultants to the SBA from a systems integrator for 2 months;
- implementation phase: 10 contractor FTEs for the 15 months;
- costs for data cleansing were not included because it will be required for all and is not considered a differentiator;

- SI services costs are for a contractor to provide implementation, conversion, and interface planning and analysis. Includes the actual ERP implementation, programming and reports development.
- Costs assume a three month overlap of parallel processing with the existing FFS system and the new ASP hosted system;
- training for 160 daily users and 100 advanced users, with travel expenses excluded as it will be consistent and not a discriminator;
- costs of software will be part of the negotiated ASP recurring contract. Initial development software costs may be attributed directly to SBA, the Oracle application and all third party applications will be part of the recurring costs.
- outsourcing costs estimated conservatively from previous experience with ASPs;
- Zegato travel transaction costs based on a typical annual usage of 9,500 transactions per year, 7,500 of which includes travel arrangement support. Zegato defines a transaction as one complete travel cycle, from authorization through voucher(s) payment. Extended trips with multiple vouchers per trip are considered one travel transaction.

TABLE 5-5. ALTERNATIVE III COSTS (\$000S)

	FY00	FY01	FY02	FY03	FY04	FY05
Investment Costs						
SI Services	900	2,400	450			
Software Costs	100					
Training	40	120				
Infrastructure	150	300				
Recurring Costs						
Training			65	65	65	65
ASP fee for Operations & Maintenance		317	1,269	1,269	1,269	1,269
Transaction Costs – Zegato Travel			252	252	252	252
TOTAL	1,190	3,137	2,036	1,586	1,586	1,586
6-year total: 11,121						

SBA Labor Cost. An additional cost of Alternative III (not included in the table) is for 10 FTEs of SBA labor to support ERP integration and implementation. Using a typical average salary for senior personnel of \$74k, SBA labor costs will be \$246k in FY00 and \$740k in FY01.

5.5.3 Risks

Because the ASP concept is relatively new and the ASP market is still developing, the primary risk is the untried and unproven factor. Recent research by the Gartner Group identifies (1) bad choice of partners, (2) inability to execute what is promised; and (3) fluctuation in an immature industry as the major risks associated with outsourcing to ASPs.⁷

Few, if any, ASPs have competencies in all the areas necessary to successfully run an ERP system support center (e.g., network expertise, platform expertise, applications expertise, operations expertise, and end-solutions expertise). Therefore, ASPs often team with each other to complement their specialties. In this type of situation, the purchaser must rely on the judgment of the prime ASP to partner with other reputable and competent providers. Furthermore, because ASPs are currently in such high demand, they may not always have staff available to service all their customers in a timely manner. Some may perish amidst the competition leaving the customer without much notice to find a replacement. Others may flourish on their own or through consolidation with other ASPs. This consolidation may prove disruptive to the customer in the short run while internal reorganization takes focus away from customers' needs. The customer also is advised to enter into a written service level agreement (SLA) with the prime ASP and assign responsibility for the final outcome to the provider. Such an agreement will establish expectations of service and guidelines for monitoring the ASP's work.

Regardless of the type of agreement and the relationship the customer has with the ASP, some loss of control and security is inevitable. The hardware, applications, and data are no longer within the customer's immediate environment. The amount and type of security are controlled by the ASP, not by the customer. ASPs also will be reluctant to modify applications to meet a unique need or to develop an interface to a customer's internal application. Also, as the ASP team grows, the customer exercises less control over those subcontractors.

If an ASP did not work out, SBA would not be able to seamlessly transfer operational control from one ASP to another ASP without potential lengthy downtime. This would seriously impact the daily SBA operations.

Finally, the risk of disappointment exists if the customer enters into the implementation phase assuming that outsourcing the hosting and maintenance of the new system will reduce the total cost of ownership. Many variables affect this outcome, which makes it difficult to predict whether a savings will be realized.

⁷ Gartner Group Research Note, Strategic Planning Assumption, January 11, 2000, *Choosing an ASP: Understand the Links and Layers*, A. Apfel and R. Terdiman.

5.6 Cost/Benefit Analysis

5.6.1 Alternative I Cost Savings

Alternative I will give finance users a GUI that should increase system friendliness, particularly for new users. However, the impact on costs will be marginal, as the underlying system functionality for finance (and HR—none) is unchanged from the baseline scenario. Thus, savings will not be realized in these areas. Procurement, however, will benefit from Alternative I through the addition of *Procurement Desktop Software*, which will give SBA greater functionality than the current SACONS system. Expected procurement savings are for reduced cost (in terms of staff time) to perform requisition and purchase order processing.

SBA will also save IT costs (compared with the baseline), by discontinuing the use of Treasury FFS and the SACONS system for procurement. Table 5-5 shows cost savings for Alternative I.

TABLE 5-6. ALTERNATIVE I COST SAVINGS (\$000S)

	FY02	FY03	FY04	FY05
Procurement	38	75	75	75
Requisition & PO Processing	38	75	75	75
IT	906	906	906	906
Treasury-FFS	900	900	900	900
SACONS	6	6	6	6
Total	944	981	981	981

5.6.2 Alternatives II and III Cost Savings

Alternatives II and III both have the same savings profile, shown in Table 5-6, and described below. Those cost savings that are related to personnel may not actual result in a bottom line savings, but would allow SBA to redirect the labor force into performing more decision support tasks and less clerical work.

TABLE 5-7. ALTERNATIVE II AND III COST SAVINGS (\$000s)

	FY02	FY03	FY04	FY05
<u>Finance</u>	430	860	860	860
Reduction in interest payments	20	40	40	40
Efficiencies in transaction processing	275	550	550	550
Budgeting	84	168	168	168
GL maintenance	24	48	48	48
Other financial processes	28	55	55	55
<u>HR</u>	121	241	241	241
Admin & Risk Mgmt	83	165	165	165
Employee Staffing & Selection	38	76	76	76
<u>Procurement</u>	60	120	120	120
Requisition & PO Processing	38	75	75	75
Problem Resolution	23	45	45	45
<u>IT</u>	906	906	906	906
Treasury-FFS	900	900	900	900
SACONS	6	6	6	6
Total	1,517	2,127	2,127	2,127

Finance

- *Reduction in interest payments* – SBA pays \$80–\$90k in interest penalties each year for late payments on mishandled vouchers. Savings based on 50% reduction of penalties.
- *Efficiencies in transaction processing* – According to Hackett, SBA spends \$2.2M annually on accounts payable (AP) and travel and expense (T&E) processing. First quartile companies are at \$1.1M. Estimated savings assume that through ERP, SBA can cut the difference in half, for annual savings of \$550k in AP and T&E.
- *Budgeting* – SBA spends \$1.676M on budgeting. Savings here could be considerable, as budgeting happens as a standard sub-application within an ERP. Conservatively, we are assuming a 10% gain in efficiency for budgeting activities.
- *General Ledger Maintenance* – SBA spends \$272k annually on general accounting; 35% (\$95k) of which is for GL maintenance. Assuming a 50% gain in efficiency for GL maintenance yields annual savings of \$48k.
- *Other financial processes* – SBA spends \$550k annually on external reporting, strategic planning support, and finance function management. Through better information, reports, and processes SBA may be able to improve efficiency in

these areas by 10%.

HR

- *Administration and Risk Management* - According to Hackett, SBA spends about \$1.7M annually in this area, which is \$330k more than first quartile companies. Employee data management is a particular opportunity. Estimated savings assume that through ERP, SBA can cut the difference in half – for an annual savings of \$165k.
- *Employee Staffing and Selection* – SBA spends \$760k more than first quartile companies in this area. Closing this gap by 10% will yield annual savings of \$76k.

Procurement

- *Requisition & PO Processing* – SBA spends at least \$150k more than first quartile companies in this area. Estimated savings assume that through ERP, SBA can cut the difference in half – for annual savings of \$75k.
- *Problem Resolution* – SBA spends at least \$90k more than first quartile companies in this area. Estimated savings assume that through ERP, SBA can cut the difference in half – for annual savings of \$45k.

IT

As with Alternative I, SBA will no longer have to pay support costs for Treasury-FFS and SACONS, as those systems will be phased-out. Additional cost savings should result from discontinuing the use and maintenance of myriad spreadsheets and crosswalks that SBA has developed to consolidate information from disparate data sources. However, because these costs are not readily traceable, no savings are estimated.

5.6.3 Economic Analysis

Table 5-8 below summarizes costs and savings for the alternatives. Net costs are equal to the sum of investment and recurring costs, minus cost savings.

Note that over a 6-year horizon, Alternative I, cross-servicing to a new provider with minimal changes to system functionality, has the lowest net costs due to a relatively low investment. When this analysis is carried out to a 9-year horizon, however, outsourcing an ERP has lowest net costs, due to greater cost savings in the out-years. Outsourcing an ERP has lower total net costs than an in-house ERP, primarily due to lower recurring costs for operations and maintenance.

TABLE 5-8. ECONOMIC ANALYSIS OF ALTERNATIVES I–III

	COSTS (\$000s)				
	FY00	FY01	FY02	FY03-05 (annual)	Total
Baseline	906	906	906	906	5,436
INVESTMENT COSTS (IC)					
Cross Servicing	724	1,816	-	-	2,540
ERP In-house	1,852	4,568	450	-	6,870
ERP Outsourced	1,436	3,560	450	-	5,446
RECURRING COSTS (RC)					
Cross Servicing	-	232	993	993	4,204
ERP In-house	-	-	2,007	2,007	8,028
ERP Outsourced	-	317	1,586	1,586	6,661
COST SAVINGS (CS)					
Cross Servicing	-	-	944	981	3,887
ERP In-house	-	-	1,517	2,127	7,898
ERP Outsourced	-	-	1,517	2,127	7,898
NET COSTS (Baseline + IC + RC - CS)					
Cross Servicing	1,630	2,954	955	918	8,293
ERP In-house	2,758	5,474	1,846	786	12,436
ERP Outsourced	2,342	4,783	1,425	365	9,645

5.6.4 Financial Risk Analysis

Because a certain amount of risk and uncertainty accompanies every decision, point estimates of costs and benefits offer somewhat limited insight to decision makers. To gain further insight on likely cost-savings scenarios, a financial simulation was performed to compute expected risk-adjusted net costs for each alternative. The financial risk analysis is based on historical behavior of information systems implementations. When projects finish under budget, which is rare, it is normally by a marginal amount. However, when projects go over budget (the typical scenario), the overrun can be quite large — sometimes orders of magnitude larger than the original estimate. For this reason, risk-adjusted expected net costs for IT projects are greater than the non-adjusted net costs. Figure 5-2 below shows the results of the financial simulation (1,000 different outcomes) for Alternative III. Note that the non-adjusted net cost of Alternative III is \$9.6M. Adjusting for risk, however, the expected cost for Alternative III is \$11.61M. The simulation gives decision-makers a range rather than a point estimate. For Alternative III, a 95% confidence interval is defined by \$6.5M (low-cost) to \$16.1M (high-cost). This is a large range, but appropriate for the evaluative stage of a major project. As Costs should be refined, and the range reduced, as detailed planning and implementation work ensues.

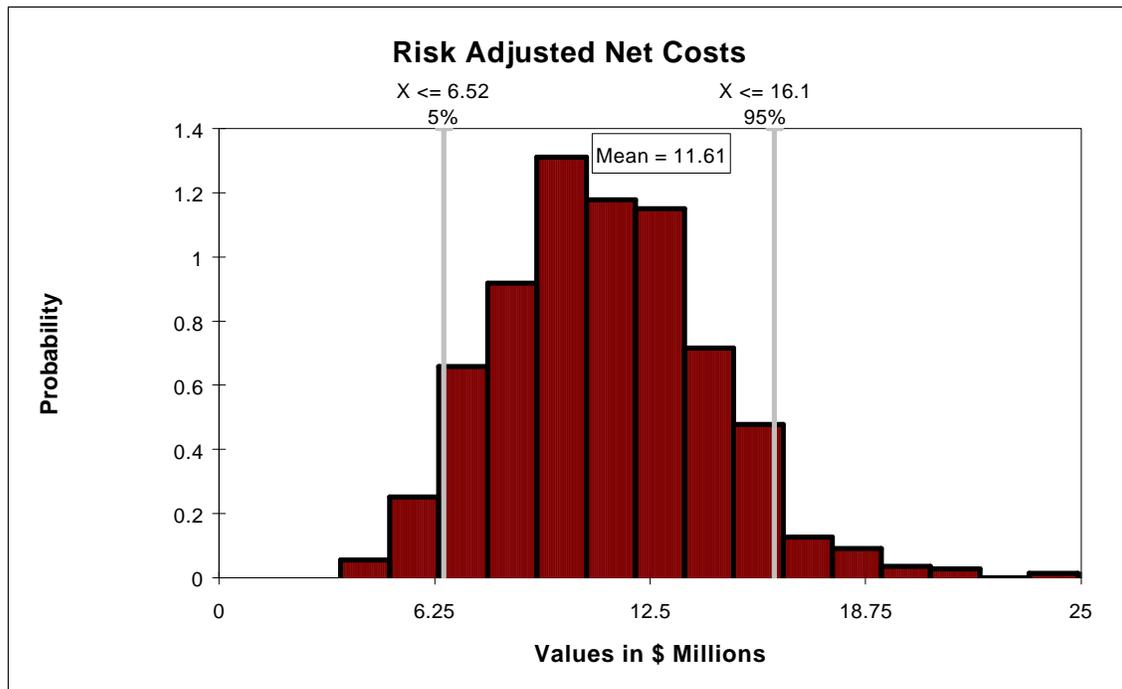


FIGURE 5-2. RISK ADJUSTED NET COSTS

The risk-adjusted net costs, shown in Table 5-9, represent the expected (mean) costs, and a 95% confidence interval of net costs for each alternative. For comparative purposes, non-adjusted net savings for the period of analysis are included in the right-most column of the table. The risk-adjusted costs reflect the fact that Alternative I, which calls for incremental change to SBA operations, has the lowest financial risk. Alternative II holds the highest risk for SBA, primarily due to the uncertainty of hosting an ERP application in-house.

TABLE 5-9. RISK ADJUSTED NET COSTS OF ALTERNATIVES I–III

	Risk-Adjusted Net Costs			Non-Adjusted Net Costs
	Low	Expected	High	
Alternative I	7,770	9,090	10,730	8,293
Alternative II	9,480	14,500	20,380	12,436
Alternative III	6,520	11,180	16,100	9,645

5.7 Recommendation

The introduction to this section raised two questions:

1. Should the SBA pursue an ERP to support administrative requirements?
2. If SBA does choose an ERP, how should the solution be implemented?

The answer to the second question is straightforward. SBA should not attempt to build and manage an organic infrastructure to host and maintain an ERP solution. This is clearly outside of SBA's core competency and there is a rapidly developing market of outsourcing alternatives for this type of support. Even at a higher cost, which is unlikely, outsourcing application hosting is a far more appealing option for SBA.

As for the first question, yes, SBA should pursue an ERP as part of an overall effort to cleanup and standardize administrative processes and to build the infrastructure to conduct business like a modern day financial institution. If SBA is to remain viable and to achieve its strategic objectives, this type of change is inevitable within the next decade. The primary remaining factor is timing. SBA recommends that SBA proceed with the implementation of Oracle ERP financials and procurement, with a goal of October, 2001, for system activation. Independent of ERP adopted, SBA must transition to a new finance system (or host) in the next couple of years. SBA should seize this opportunity to move financial operations to a modern infrastructure. Particularly in the finance area, SBA has the needed in-house skills and experience to successfully implement an ERP. The financial module is the cornerstone of the system, other modules can follow at a pace that is practical and consistent with SBA objectives. (See Appendix D for a detailed implementation approach). Focusing on financials initially will minimize implementation risks, maximize probability of success, and will yield the greatest near-term benefits. Implementation should be structured with clear milestones to be accomplished before moving on to the next phase.

The conclusion that Hackett determined after benchmarking SBA against 1400 other companies and federal agencies was that:

- SBA had a heavy focus in supporting daily activities;
- SBA had a lack of system integration; and the
- SBA staff was under utilized and dedicated to administrative activities.

Throughout the previous chapters, this business case highlights how well an ERP would assist the SBA in automating their daily activities, allowing existing staff to redirect their daily activities from administrative to value added decision support activities. Also, an ERP is designed to integrate multiple stovepipe systems into one cohesive, integrated system.

The recommendation to proceed with Alternative III (outsourced ERP) is predicated on the assumption that SBA will have active leadership support and involvement in all phases of the implementation. Implementing an ERP requires the sacrifice of near-term objectives for long-term gain. Such an endeavor is not possible without meaningful commitment and support at all levels. If SBA suspects that this commitment and support is lacking, then the low-risk approach of Alternative I is the best course of action.

Appendix A

Quantitative Evaluation Matrix

Part I. Vendor Self Evaluation Summary

Part II. Vendor Self Evaluation Results

Part III. Comparison of Vendor Profiles

Appendix B

Qualitative Evaluation Matrix

Part I. Final Workshop Composite Results

Part II. Vendor Demo Scores

Part III. IT Architecture Results

Appendix C

Vendor Demo Package

Appendix D

Implementation Plan

Appendix E

GAO Planning Steps

Appendix F

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Presentation of Results

