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Performance Budgeting:
How NASA and SBA Link Costs and Performance

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IBM Center for
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FOREWORD

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On behalf of the IBM Center for The Business of Government, we are pleased to present this report, "Performance Budgeting: How NASA and SBA Link Costs and Performance" by Lloyd A. Blanchard.

Performance-based budgeting has a long history in the federal government, going back to the first Hoover Commission in 1947. The modern statutory framework for costing performance budgets was established with the Chief Financial Officers Act of 1990 and the Government Performance and Results Act of 1993. Most recently, the President's Management Agenda (PMA) of the George W. Bush administration advanced the development of performance budgeting with its Budget and Performance Integration (BPI) initiative. Because linking performance with full cost and efficiency information is central to improving program performance and making budget decisions, the PMA BPI set standards for the use of performance information by federal departments and agencies.

Dr. Blanchard's report begins with a description of the statutory and conceptual foundations of costing requirements. He follows with a framework for integrating costs and performance. He then tells the story of how two very different federal agencies successfully met the PMA's performance costing requirements. Blanchard draws upon published reports and articles, as well as his own experience leading PMA reform efforts at the National Aeronautics and Space Administration (NASA) and the Small Business Administration (SBA). NASA's Full Cost initiative relies on a statistical-based approach to allocating indirect costs that cannot be directly attributed to program outputs. SBA's survey-based approach uses an Activity-Based Costing model.

Blanchard concludes his report with practical recommendations based on the advantages and disadvantages of the two approaches and specific steps that agencies can take to improve their existing procedures and policies.

Without good cost information, senior managers and members of Congress are hard-pressed to make resource allocation decisions based on performance information alone. The technical costing requirements described in Blanchard's report are the linchpins that integrate, literally and figuratively, budgets and performance, allowing performance budgets to serve their purpose. This report is aimed at assisting federal departments and agencies complete their long and persistent effort to better manage resources, and do so in terms of results.

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EXECUTIVE SUMMARY

The President's Management Agenda (PMA) has done well to shift the focus of federal departments and agencies from the provision of performance information to the use of such information to enhance program management effectiveness and efficiency. As any economist will tell you, good cost information must accompany good performance information if there is any hope to attract demand for the latter. One potential explanation for the lack of use of performance information is that the government analogue to market price information is missing. The complete costs of service delivery as well as the marginal costs associated with producing additional units of service are the price analogues for government. This report argues that costing methods are not well known and this might explain why more agencies have not reached the highest, or "green," standard on the PMA scorecard. This report also argues that the costing requirements included in the PMA's Budget and Performance Integration (BPI) success criteria provide the tools to stimulate demand for and use of performance information.

The full and marginal cost (criterion 5) and efficiency (criterion 6) requirements under the PMA BPI initiative essentially summarize the costing necessary for good performance budgeting. Without this information, senior managers and members of Congress are hard-pressed to make good resource allocation decisions based on performance information alone. In other words, the costing methods presented in this report are the linchpins that integrate, literally and figuratively, budgets and performance, allowing performance budgets to serve their intended purpose.

The National Aeronautics and Space Administration (NASA) implemented a Full Cost initiative that allocates its indirect service costs to direct service delivery accounts based on key drivers of costs. It directly assigns as much costs as feasible to program accounts, and allocates the remaining indirect costs by prorated shares of key cost drivers. This prorated method of allocation has the advantage of being less costly and easier to implement than the preferred cost allocation methods—direct tracing and cause-and-effect.However, a disadvantage is that the accuracy of prorated methods relies on assumptions that may not hold up under scrutiny. For example, NASA allocates headquarters-based "general and administrative" (G&A) costs to programs based on the program's share of the total agency budget. A relatively capital-intensive program, like the space shuttle program, would take on more indirect costs than direct tracing or cause-and-effect approaches likely would allocate.

The Small Business Administration (SBA) implemented a survey tool to collect detailed data on program and support activities for the purposes of its Activity-Based Costing initiative. A potential disadvantage of this direct tracing approach is the reliance on self-reporting by employees about the allocation of their time to various activities. Even completely honest reporting might result in data irregularities that do not reflect accurately the allocation of personnel resources. An employee assigned to multiple program tasks could easily assess his or her time allocation erroneously, and the accumulation of this effect across employees could alter agency allocations in a significant way.

The cost allocation method an organization should use depends on the structure of the organization itself. In general, costs at the highest levels within the organization should be assigned to the next lowest level, and these costs assigned to the levels below it. This report shows how to perform cost allocations using a hypothetical example of a fully costed budget and examples from NASA and SBA.

It starts with a discussion of the performance budgeting foundations for cost allocations, and then shows how cost allocations are central to integrating costs and performance. After analyzing the practical approaches used by these two agencies, this report concludes with the following list of recommendations to help agencies achieve success in meeting the PMA BPI standards:

1. Align performance, costs, and accounts.
2. Build outcome-based measures for ideal cost-performance integration.
3. Develop a cost allocation method that fits the organizational design.
4. Supplement existing systems to support performance costing.
5. Create incentives to improve effectiveness and efficiency.

Introduction

The President's Management Agenda (PMA) of the George W. Bush administration significantly advances the development of performance budgeting in the federal government through its Budget and Performance Integration (BPI) and Program Assessment Rating Tool (PART) initiatives. Faced with the extraordinary task of measuring government performance directly and consistently across thousands of programs, the Office of Management and Budget (OMB) developed PMA BPI standards for agencies and PART evaluation questions for programs with a focus on managerial practices thought to be used by high-performing organizations. The PMA BPI initiative established clear practice standards for intermediate and high levels of success toward aligning agency budgets more closely with mission, goals, and agency performance. PART asked program managers about program purpose and design, planning, and management, as well as results for the purpose of scoring and ranking the programs for budget formulation purposes. While most of these PMA BPI standards are focused on the development and general use of performance information, two are focused on performance costing—the full cost and efficiency criteria. This report highlights the requirements of these two performance costing criteria and demonstrates how two agencies, the National Aeronautics and Space Administration (NASA) and the Small Business Administration (SBA), met these criteria using different costing approaches.[1]

The notion that budget allocations should favor higher-performing programs is the defining principle of performance budgeting. Performance-based allocations are said to give incentives for agencies to improve program performance, providing a more rational basis for allocating tax-funded resources. The alternative to performance budgeting is continued reliance on traditional political forces that dominate budgetary allocations, revealed in two common patterns: "pork" and incremental spending. While performance budgeting reform initiatives are not new in the federal government, the performance focus was firmly established with the Government Performance and Results Act (GPRA) of 1993. The problem is not in the supply of performance information, which GPRA provided in abundance. The problem is the lack of use of performance information for budgetary and managerial decision making.

The PMA BPI initiative seeks to shift the government's performance focus to the use of such information. Through its criteria, it sets standards for using performance information, but it also recognizes that linking performance with full cost and efficiency information is central to successful use in the areas of both performance enhancement and budgetary decision making. To meet the PMA BPI standards of success, federal agencies must demonstrate success on each of the following criteria:

Performance Information

Criterion 1. Regular use of performance information by senior managers,

Criterion 2. Focus on a limited set of outcomes included in PART and the agency's strategic plan,

Criterion 3. Employee performance plans are linked to program and agency goals and effectively differentiate between low and high performers, and

Criterion 4. Demonstrate results on most programs and use PART findings in budget justifications and for management improvement.

Performance Costing

Criterion 5. Agencies report the full cost of their programs, are able to compute the marginal cost of performance changes, and

Criterion 6. Have an efficiency measure for all "PARTed" programs.

The first four of these requirements prescribe the development of performance information (criteria 2 and 3) and its general use (criteria 1 and 4). The last two of these requirements are *performance costing* requirements, and these provide decision makers with the ability to determine the relative *cost-effectiveness* of government programs. Performance costing is defined as the process of linking a program output or outcome with its associated costs into a single cost-based performance measure. Cost-effectiveness is defined as the full cost required to meet a program performance goal. Performance costing produces the full and marginal costs of a program output, and these together with a measure of efficiency are required to obtain a measure of cost-effectiveness. The section of this report "A Framework for Integrating Costs and Performance" (pages 15–20) demonstrates how to develop a cost-effectiveness measure, both quantitatively and qualitatively. Output- and outcome-based performance measures often are not comparable across programs, but the associated costs are comparable, and when they are linked to performance, they provide decision makers with better information to make performance-based budget allocations. This report shows how to perform such performance costing generally and by highlighting the full costing approach used by NASA and activity-based costing approach used by the SBA.

The full cost of a program differs from the program's budget appropriations in that it captures all resources dedicated to delivering program output, and not just the directly appropriated resources. The importance of this distinction becomes clear when one considers the prospect of a small grant program consuming a much larger share of an agency's resources than the program appropriation would suggest. As in the SBA case study, it took the SBA's Activity-Based Costing (ABC) model to help identify the fact that it dedicated $9.5 million of agency personnel resources to deliver a $396,000 grant program. This example shows how program costs can be misinterpreted if all related costs are not considered, and how the ABC model helped the agency properly interpret the cost-effectiveness of the program. The NASA case study shows how that agency uses its full cost policy to reveal the corporate administrative costs (at headquarters and the centers) being included in programs' "fully loaded" budgets, creating an incentive for program managers to push back and question the indirect costs whose burden they now bear. This example shows how including indirect costs within a performance costing framework can create pressure to reduce administrative budgets and shift agency resources toward direct program needs. This report is aimed at not only helping federal managers better understand how to meet the requirements of the PMA BPI initiative, but also to show how to use these required measures to obtain a measure of program cost-effectiveness.

How Should Performance Information Be Used?

In his research report, "Linking Performance and Budgeting: Opportunities in the Federal Budget Process," Professor Philip Joyce (2003) establishes a comprehensive framework for considering budget and performance information. He suggests a number of ways in which performance information can be used strategically within each of the major stages of the federal budget process—formulation, approval, execution, and audit/evaluation. He argues that the performance budgeting focus to date largely has been on the supply of performance information. Joyce, along with John Kamensky, Albert Morales, and Mark Abramson in "From 'Useful Measures' to 'Measures Used' " (2005), propose a shift in focus toward creating a demand for this performance information. It is argued here that, to some extent, the PMA has done this by requiring key cost information. As any economist will admit, good cost (as price) information must accompany good performance information if there is any hope to attract demand for and use of the latter.

A number of other related reports published by the IBM Center for The Business of Government focus on various aspects of performance budgeting. For example, Harry Hatry, Elaine Morley, Shelli Rossman, and Joseph Wholey's report, "How Federal Programs Use Outcome Information" (2004), offers advice toward, and federal government examples of, successful use of performance information. Howard Risher's "Pay for Performance: A Guide for Federal

Managers" (2004) shows how to develop an effective employee performance reward system, while OMB publishes extensive guidance on the application of PART.[2] A cursory review of these requirements will reveal that leadership and experience are being called upon as much as costing proficiency. Accordingly, Robert Behn's "Performance Leadership: 11 Better Practices That Can Ratchet Up Performance" (2004) reviews leadership practices that can help agencies successfully address their deficiencies in PMA BPI status. This report complements these by examining the costing dimension of performance budgeting, which is largely contained in criteria 5 and 6 of the PMA BPI initiative.

As of June 30, 2005, only eight of the 25 agencies rated in the PMA (not including OMB) have reached the highest, or "green," standard in PMA BPI—a success rate of 32 percent. Twenty-one of these agencies have been deemed successful at focusing on a limited set of outcomes tied to their strategic plan (criterion 2), 17 were deemed to have effective employee performance plans (criterion 3), and 14 have demonstrated regular use of performance information by senior managers (criterion 1).[3] This last finding is surprising because this requirement would seem to be the easiest to implement. Could the fact that just over half the agencies are shown to demonstrate regular use of performance information illustrate the lack of demand for performance information by senior managers bemoaned by the scholars mentioned earlier? Senior managers may well obtain a wealth of performance information regularly or on demand, but without the attendant cost information, what can we expect of them in terms of direction and program improvement? For example, with performance information showing a 5 percent shortfall of the target, what should the senior manager do to ensure that the target is reached next month or next year? The shortfall could be the result of the program operating efficiently with inadequate resources, or from the program operating inefficiently with adequate resources.

To determine which explanation is correct requires a measure of efficiency (i.e., output per unit of input). Without such a measure, at best, a senior manager must rely upon program managers' ability to apply intuition and experience to determine whether additional resources are truly needed. A program manager might ask, "What's wrong with using intuition and experience?" Program managers may well possess detailed knowledge relevant to their program, but the level of precision called for in Congress' effort to improve financial management requires more than such skill can provide. It calls for measurable results.

One explanation for the lack of demand for performance information might be found in the lexicon of economics, which defines "demand" as the relationship between the price and quantity of goods and services. In the market, a lack of demand could result from the absence of key price information that consumers use to evaluate the quality of a good or service. This begs the question, "What is the analogue for price information in government opera-

Acronyms and Abbreviations

ABC	Activity-Based Costing
BIC	Business Information Center
BPI	Budget and Performance Integration
CFO Act	Chief Financial Officers Act
FASAB	Federal Accounting Standards Advisory Board
FFMIA	Federal Financial Management Improvement Act
FMS	Financial Management Service
FTE	Full-Time Equivalent
G&A	General and Administrative
GAAP	Generally Accepted Accounting Principles
GAO	Government Accountability Office
GMRA	Government Management Reform Act
GPRA	Government Performance and Results Act
JFMIP	Joint Financial Management Improvement Program
NACA	National Advisory Committee for Aeronautics
NASA	National Aeronautics and Space Administration
OMB	Office of Management and Budget
OSB	Office of Small Business
PART	Program Assessment Rating Tool
PMA	President's Management Agenda
PPBS	Planning-Programming-Budgeting System
RFC	Reconstruction Finance Corporation
SBA	Small Business Administration
SBDC	Small Business Development Center
SLA	Service Level Agreement
USSGL	United States Standard General Ledger
WFE	Workforce Equivalent

tions?" It is argued here that the complete costs of program service delivery as well as the marginal costs associated with producing additional units of service are the price analogues for government. This report focuses on linking the government's price analogue, costs, to performance.

The two performance costing standards, criteria 5 and 6, essentially summarize the costing requirements for good performance budgeting, and without this information, senior managers and members of Congress are hard-pressed to make good resource allocation decisions based on performance information alone. They might see how effective programs are toward achieving their goals, but do not know what new resources are required to meet such goals. With a measure of program full cost, one can obtain the marginal, or additional, cost associated with a performance increment. With a measure of efficiency, one can begin to discern the potential reasons for performance shortfalls. Together, senior managers and members of Congress can better understand the "bang for the taxpayer buck" associated with government programs. Thus, the PMA BPI performance costing requirements are the linchpins that integrate, literally and figuratively, budgets and performance.

Preview of Report

This research report addresses the performance costing requirements of the PMA BPI initiative by establishing the data requirements for the relevant cost measures, showing how to apply these data to produce full cost, marginal cost, efficiency, and cost-effectiveness measures, and telling the story of how two different agencies reached PMA BPI success using two different approaches to costing their programs.

This report draws on evidence from published reports and articles, as well as on the author's experience leading PMA reform efforts at NASA and SBA. While both costing methods are somewhat of hybrids between multiple approaches, NASA's Full Cost initiative relies more on a statistical-based approach to allocating indirect costs that cannot be directly attributed to program outputs. The second costing methodology is SBA's survey-based approach to allocating indirect costs using its Activity-Based Costing, or ABC, model. Indeed, long before the arrival of the PMA, both of these agencies were pioneers in the federal government in developing their respective costing methodologies, and two years after the PMA arrived, NASA became the first federal agency to achieve the "green" rating in PMA BPI. SBA was not far behind.

The remainder of this report proceeds as follows. "The Foundations of Costing Performance Budgets" section provides the reader with background on performance budgeting in the federal government, and a review of the conceptual foundations for costing performance budgets. The next section presents a framework for integrating costs and performance in budgeting, relating the conceptual definitions with the requirements of the PMA BPI initiative. Then a detailed case study of NASA's Full Cost initiative is presented, followed by a case study of SBA's ABC model. The report concludes with practical recommendations based on this discussion.

The Foundations of Costing Performance Budgets

While many attribute the advent of performance budgeting to GPRA, it has a much longer history in the federal government. Joyce (2003) and the Government Accountability Office (GAO) (2005) provide brief reviews of this history, but the review here focuses on the foundations for developing costing requirements. The concepts identified with performance budgeting emerged with President Harry S Truman's establishment of the Commission on Organization of the Executive Branch of the Government in 1947 (known as the first Hoover Commission), which first recommended that budgets shift the focus away from the inputs of agency operations to its "functions, activities, costs, and accomplishments" (GAO, 2005). Following the commission's recommendations, Congress enacted the Budget and Accounting Procedures Act of 1950 that, among other things, required the president to present the "functions and activities" of the government in his budget submission to Congress, curiously avoiding the "cost and accomplishments" part of the commission's recommendations. It took a second Hoover Commission during the administration of President Dwight D. Eisenhower to observe that many programs did not have adequate cost information and suggest that the government synchronize "budget classification, organization, and accounting structures" (GAO, 2005).

Successful synchronization of budget and program performance data would prove critical to the success of later reform efforts, starting with the Defense Department's Planning-Programming-Budgeting System (PPBS) of the 1960s all the way up to the PMA of today.[4] One of the biggest and long-standing obstacles to integrating performance, cost, and budget information was the need for program and agency budget accounts to be restructured to align with their associated appropriation accounts. According to GAO (2005), the federal budget is organized into about 1,100 appropriations accounts, and most of these have subsidiary program activities that show budget authority for inputs funded by the account. This account structure may help satisfy congressional oversight objectives, but it does not always align well with agency performance goals. NASA and SBA paid particular attention to similar account structure issues that kept other federal agencies from replicating the Defense Department's success with PPBS 30-plus years ago.

Statutory Foundations of Cost Requirements

As summarized in the sidebar "Key Legislation," the modern statutory framework for costing performance budgets, as reviewed in GAO (1999), starts with the Chief Financial Officers (CFO) Act of 1990 and the Government Management Reform Act (GMRA) of 1994. While these laws established the CFO function and position in federal agencies, the CFO Act calls for the "development and reporting of cost information" and instructs the CFO to regularly review "fees, royalties, rents, and other charges" for services provided and "make recommendations on revising those charges to reflect costs incurred."[5] Congress has long been concerned about the lack of sophisticated financial management practices in the federal government, stating the following as a rationale for the bill:

> Current financial reporting practices of the federal government do not accurately disclose the current and probable future cost of operating and investment decisions, including the future need for cash or other resources, do not permit adequate

comparison of actual costs among executive agencies, and do not provide the timely information required for efficient management of programs.[6]

Just before the passage of the CFO Act, but surely in response to the concern cited above, the secretary of the treasury, director of OMB, and the comptroller general (of GAO) established the Federal Accounting Standards Advisory Board (FASAB) for the purpose of establishing the financial accounting standards called for in the CFO Act.[7] The CFO Act requirement that is most relevant for the FASAB is the "integration of accounting and budgeting information." This means that the principles used in accounting for accruing, monitoring, and managing program costs should be consistent with those used in budgetary accounting. It is this requirement that creates the mandate for full cost accounting in the federal government, and it will be discussed in greater detail in the following section and, indeed, throughout this report.

The most significant law related to performance budgeting is clearly GPRA. Since there is a substantial literature addressing the merits of this legislation, which establishes federal requirements for strategic planning and performance accountability reporting, this report will not go into detail on GPRA's contributions.[8] While GPRA is largely responsible for the supply of performance information that we now observe in federal agency budget plans and accountability reports, it did not create specific requirements for costing the performance budgets it sought to create. This is true despite the requirement that performance plans describe how the agency will meet the newly required listing of goals and objectives, including a description of the operational processes and resources required.[9] This requirement suggests that Congress intended for the agency to show a clear link between program performance and the requested budgetary resources. However, this link has been missing from agency strategic and performance plans since the time they were first required (strategic plans for fiscal year 1998 and performance plans for fiscal year 1999).

In its first status report on GPRA, "Performance Budgeting: Initial Experiences Under the Results Act in Linking Plans With Budgets," GAO (1999) found that 30 of the 35 agencies whose performance plans were reviewed provided some discussion of the relationship between program activities and performance goals, but only 14 translated this relationship into budgetary terms showing how funding would be allocated to achieve performance goals. GAO (1999) found that agencies were more likely to have allocated funding to program activities if they

Key Legislation

Chief Financial Officers Act of 1990 (CFO Act)
Created the deputy director for management position and the Office of Federal Financial Management (with head as comptroller) at OMB, and established federal financial management and related system policies and requirements. Created agency CFO and deputy CFO in 24 agencies, and required them to develop and maintain integrated financial management systems; and direct, manage, and provide policy guidance and oversight of all agency financial management personnel and operations.

Government Performance and Results Act of 1993 (GPRA)
Required all agencies to set strategic goals, measure performance, and report on the degree to which goals were met. Required an annual performance plan that provides a direct linkage between the strategic goals and employees' daily activities. Required an annual report on program performance for the previous fiscal year, and in each report, the agency is to review and discuss its performance compared with the performance goals it established in its annual performance plan.

Government Management Reform Act of 1994 (GMRA)
Required all agencies covered by the CFO Act to have agency-wide audited financial statements, required a government-wide audited financial statement, allowed agencies to consolidate various financial and performance reporting requirements into a single report with a common reporting deadline, and extended the CFO Act to all agencies.

Federal Financial Management Improvement Act of 1996 (FFMIA)
Required agencies to implement and maintain financial management systems that comply substantially with federal financial management systems requirements, applicable accounting standards, and the United States Government Standard General Ledger at the transaction level.

Source: *GAO (1998).*

(1) showed simple and clear relationships between activities and performance goals, (2) fully integrated their performance plans into congressional budget justifications, or (3) changed their program activity structures to reflect their goal structures. GAO's (2005) update, "Performance Budgeting: Efforts to Restructure Budgets to Better Align Resources with Performance," shows that of the nine agencies it reviewed that had revised their budget and/or performance reporting structures, four have achieved green status in PMA BPI (NASA, SBA, and the Departments of Labor and Transportation). Since GAO (2005) summarizes the account structure changes made by NASA and SBA, this report will not repeat this component of their efforts. Naturally, both of these agencies also changed the structure of their congressional budget justifications to facilitate consistent reporting.

Finally, the Federal Financial Management Improvement Act (FFMIA) of 1996 required independent auditors to determine whether agencies comply substantially with financial management system requirements, applicable federal accounting standards, and the United States Standard General Ledger (USSGL) at the transaction level. The Joint Financial Management Improvement Project (JFMIP) established the financial management system requirements, FASAB established the accounting standards, and the Financial Management Service (FMS) of the Treasury provides guidance on posting to the USSGL.[10] The FFMIA cost requirements are largely embedded in the relevant accounting principles. For the purpose of performance budgeting, the relevant conceptual principles are enunciated in FASAB's Statement Number 4: "Managerial Cost Accounting Concepts and Standards for the Federal Government," which we review next.

GAO (1998) includes other legislation in its review, but these focus on reporting and acquisitions and are only tangentially related to the cost requirements that are relevant for this report.[11] Nevertheless, there is a very broad statutory foundation for performance budgeting, but this foundation does not create the demand for performance information that is critical to being used as intended by Congress. The legislation reviewed here—CFO Act, GPRA, and FFMIA—provide a solid foundation for the costing of performance budgets that are largely based on the Generally Accepted Accounting Principles, or GAAP, that govern private sector accounting. This is perhaps another explanation for why agencies have not adopted cost accounting for performance budgeting; the principles that guide budgetary costing are steeped in accounting principles. As budgeting is a prospective exercise and accounting a retrospective one, and because practitioners of the two are trained differently, there needs to be a set of clear guidelines that federal managers can use to align their budgetary accounting more closely with performance measurement. This report does not try to reconcile budgeting with accounting, but focuses on the key budgetary accounting tools required by the PMA BPI initiative and law.

Conceptual Foundations of Cost Requirements

The FASAB sets the budgetary and financial accounting standards on which the government bases budget and accounting policy. One of the defining characteristics of performance versus traditional budgeting is the focus on program *costs* rather than direct allocations. The FASAB defines cost in the following manner:

> "Cost" is the monetary value of resources used or sacrificed or liabilities incurred to achieve an objective, such as to acquire or produce a good or to perform an activity or service. Costs incurred may benefit current and future periods. In financial accounting and reporting, the costs that apply to an entity's operations for the current period are recognized as expenses of that period.[12]

FASAB's Statement #4: "Managerial Cost Accounting Concepts and Standards for the Federal Government" establishes five accounting standards most relevant to performance budgeting. These standards, shown in the sidebar "Key Components of FASAB Statement #4," set the overarching framework for managerial cost accounting in the federal government, and thus provide a framework for meeting the requirements of the PMA BPI initiative. It was argued earlier that one explanation for the lack of success toward meeting the first PMA BPI criterion (also the first standard listed in the sidebar) is that agencies have struggled with developing appropriate cost accounting systems. The problem could be in the quality of the data itself, which could well be related to account syn-

Key Components of FASAB Statement #4: Managerial Cost Accounting Concepts and Standards for the Federal Government

Five standards establish fundamental elements of managerial cost accounting:

1. Accumulating and reporting costs of activities on a regular basis for management information purposes.
2. Establishing responsibility segments to match costs with outputs.
3. Determining full costs of government goods and services.
4. Recognizing the costs of goods and services provided among federal entities.
5. Using appropriate costing methodologies to accumulate and assign costs to outputs.

Paragraph 35
Measuring costs is an integral part of measuring performance in terms of efficiency and cost-effectiveness. Efficiency is measured by relating outputs to inputs. It is often expressed by the cost per unit of output. While effectiveness in itself is measured by the outcome or the degree to which a predetermined objective is met, it is commonly combined with cost information to show "cost-effectiveness." Thus, the service efforts and accomplishments of a government entity can be evaluated with the following measures:

(1) Measures of service efforts which include the costs of resources used to provide the services and non-financial measures;

(2) Measures of accomplishments which are outputs (the quantity of services provided) and outcomes (the results of those services); and

(3) Measures that relate efforts to accomplishments, such as cost per unit of output or cost-effectiveness.

Source: *FASAB Statement #4.*

chronization difficulties. Thus, accumulating and reporting costs are key system elements in producing good performance budgets.

The cost management function of financial management systems is where costs are matched with activities and outputs.[13] The level of sophistication of this function within the financial management system is dependent on the operational nature of the programs involved, but according to JFMIP, four basic functions must be present: cost recognition, cost accumulation, cost distribution, and a working capital fund.[14] Table 1 on page 14 summarizes these requirements. Once costs have been recognized as per the definition above, the financial system accumulates them in accordance with agency requirements.[15] The distribution function relates to the assignment of indirect costs to program cost objects, and the case studies will show how NASA and SBA perform this function, respectively.

Cost recognition is a fundamental aspect of the accounting process. It determines when expense transactions are to be posted in the financial management system and ensures that all similar financial events and transactions are accounted for consistently. Cost accumulation refers to the measurement of resources used in performing a service, providing a product, or carrying out an activity. FASAB Statement #4 requires that costs be accumulated by responsibility segments and classified by type of resource, such as costs of employees, materials, utilities, etc. Cost distribution is the process by which certain accumulated costs are assigned to responsibility segments that deliver strategic services. FASAB Statement #4 states that:

> … the purpose of cost accounting by a responsibility segment is to measure the costs of its outputs. Thus, the final cost objects of a responsibility segment are its outputs: the services or products that the segment produces and delivers, the missions or tasks that the segment performs, or the customers or markets that the responsibility segment serves.

It is up to the agency to define the basis for consistent assignment, or distribution, of costs. Agencies that have been successful toward integrating their performance and budget information have made this critical choice. The next section will present a comprehensive framework for integrating costs and performance, followed by examples of how NASA and SBA used full costing and Activity-Based Costing, respectively, to distribute indirect costs to their program-based responsibility segments.

Table 1: JFMIP Requirements for Cost Management Function

Cost recognition	• Have the ability to post accruals to recognize the costs of goods and services used, consumed, given away, lost, or destroyed within the period of time the event occurred, regardless of when ordered, received, or paid for. Revenues must be recognized when earned. • Reduce asset balances as the assets are used and expensed. • Use the agency's accounting classification structure to identify fund, program, organization, project, activity, and cost center information to support the cost accumulation and assignment processes. • Provide the capability to measure and report the costs of each segment's outputs.
Cost accumulation	• Support the ability to capture, at lowest level, costs related to fees, royalties, rents, and other charges imposed by the agency for goods and services it provides. • Identify all costs incurred by the agency in support of activities of revolving funds, trust funds, or commercial functions. • Provide for a variety of information to support decision making, agency management, and external reporting, including cost reports, schedules and operating statements, and, among others, meaningful cost information needed to support performance measures.
Cost distribution	• Provide for identifying costs based on the accounting classification structure. • Identify and record direct costs incurred, including input on costs from feeder systems, such as inventory, travel, or payroll. • Assign indirect costs to interim and final cost objects using a method consistent with agency cost accounting standards. Indirect costs will be assigned on a basis that best provides for a causal/beneficial relationship between the costs being distributed and the cost object receiving the cost. Indirect cost assignment may be based on total cost incurred, direct labor hours used, square footage, metered usage, or any other reasonable basis. • Allow for multilevel assignment and reassignment. • Support the use of historical data to conduct variance analysis, adjustment of rates, and disposition of variance by performing periodic assignments to adjust cost based on estimated rates to the actual costs incurred for the period. • Assign costs to entities or cost centers regardless of how they have originally been posted to the system (e.g., for financial statement presentation). • Provide an audit trail that traces the transaction from the original cost pool to the final cost object.

Source: *JFMIP, Core Financial System Requirements, February 1999.*

A Framework for Integrating Costs and Performance

FASAB Statement #4 stipulates that the financial management system must assign costs to intermediate and final cost objects (for example, outputs) using either "a direct tracing, a cause-and-effect basis, or a prorated basis using a cost allocation methodology." This cost distribution function is the key to integrating costs and performance and is a necessary step toward meeting the full cost requirement of the PMA BPI initiative. Table 2 on page 16 summarizes how FASAB Statement #4 defines the three distinct methods of allocating indirect (non-program) costs to direct cost centers (programs).

The preferred method is through direct tracing, which implicates a financial management system with broad access to program accounts for direct posting of a wide range of costs. We will see that NASA implemented a system that facilitates direct tracing to a large extent. Assigning costs on a cause-and-effect basis is appropriate when an intermediate output serves as the link between indirect resource costs and program outputs. In this case, the resource cost of the intermediate output is determined, and then the program's use of the intermediate output determines the indirect costs allocated to the program. NASA uses the cause-and-effect approach to allocate its service pool costs, which are costs derived from homogenous groups of intermediate services charged to programs based on the consumption of such services. SBA uses the cause-and-effect approach (through its ABC model) to allocate its loan servicing and liquidation costs to the respective loan programs. These methods will be discussed further within the context of the NASA and SBA case studies. This section concentrates on describing the prorated allocation method, and how to integrate the result—program full cost—with performance to inform decision making.

The Prorated Allocation Method

Cost allocation on a prorated basis is a common, relatively low-cost approach to performing the cost distribution function critical to deriving the full cost of programs. The cause-and-effect approach is preferred by FASAB over the prorated allocation method, and it is used often when an intermediate output exists to provide a clear consumption basis. However, in lieu of such a clear consumption basis, the prorated allocation method uses one or a few "cost drivers" as intuitive proxies, which can be any number of quantifiable measures of "general and administrative" (G&A) services. A program's prorated share of the cost driver—say employees or square feet—determines the basis of allocation, and is thus multiplied by the total indirect costs to be allocated to determine the program's share of the indirect costs.

Cost drivers are those factors that explain the largest share of costs incurred by a program. With labor-intensive operations, the main cost driver is full-time equivalent, or FTE. With capital-intensive operations, material is the main cost driver. In terms of the allocation of indirect costs, cost drivers represent the factors that most influence G&A costs, and these factors depend on the management function. Procurement costs are usually incurred on behalf of programs, where much of the direct materials or service costs are directly traced to programs. However, the indirect procurement costs are driven mostly by the FTE performing the function. Allocating procurement personnel time to programs based on the time spent on the respective program procurements is possible, but a good proxy may be the program share of procurement actions (weighted or not by the size of the procurement). Allocating human resource management costs to programs clearly should be

Table 2: The Three Methods of Assigning or Distributing Costs

Direct tracing	Direct tracing relies on the observation, counting, and/or recording of the consumption of resource units, and directly assigning the associated costs to specific programs, to be linked to program outputs. It can be a relatively costly process, and should be applied only to items that account for a substantial portion of the cost of an output and only when it is economically feasible. For example, direct tracing the cost of office supplies to outputs may not be worth the increased accuracy in assigning such resources by such a method.
Cause and effect	For costs that are not directly traced to outputs, intermediate objects can be established as links between resource costs and outputs. Costs that have a similar cause-and-effect relationship to outputs can be grouped into cost pools. Activities or work elements that contribute to or support the production of outputs are commonly used as intermediate objects, based on the premise that, on the one hand, outputs require the performance of certain activities, and, on the other hand, the activities cause costs incurred by the program. Thus, an activity is considered a linkage between the cause and the effect.
Prorated allocation	Sometimes, it might not be economically feasible to directly trace or assign costs on a cause-and-effect basis. These may include general management and support costs, depreciation, rent, maintenance, security, and utilities associated with facilities that are commonly used by various segments. These supporting costs can be allocated to segments and outputs on a prorated basis. The cost allocations are usually based on a relevant common denominator such as the number of employees, square footage of office space, or the amount of direct costs incurred in segments.

Source: *FASAB Statement #4*

driven by the program's share of total employees, and facility management cost allocation might be driven by the respective program use of agency facilities, measured in square feet, floors, buildings, or whatever makes the best sense. Financial management costs are driven by the number of financial transactions and reporting requirements, and measures that capture the respective program share are good cost drivers for such a G&A service.

As shown in the case study, NASA's Full Cost initiative allocates its G&A costs to direct service delivery accounts based on key cost drivers using the prorated allocation method. NASA directly assigns as much costs as feasible to program accounts, and allocates the service pool costs on a cause-and-effect basis. The prorated basis of allocation has an advantage over the other methods due to its being relatively easy to implement. As shown in the second case study, SBA implemented an ABC model to collect detailed data used in the application of each method. SBA directly traces most personnel support costs, uses cause-and-effect methods for allocating certain support costs, and uses the prorated allocation basis for all other indirect costs.

A detailed example of the prorated allocation method using multiple bases is provided in the Appendix and in Table A.1 (see page 41). It takes the indirect and administrative costs of a hypothetical town, and allocates them to direct program lines within departments. It shows how town-level administrative costs cascade down in the prorated allocation method to the department level. At this level, department-level administrative costs are added to the allocated town-level costs, and further allocated to the program level. Finally, the town's costs are shown only in program full cost terms, which allows comparisons of total resources used by the government's programs. What can we do with full cost information? The following section shows how full cost information can be integrated with performance information to create intuitive measures to aid decision making.

Integrating Performance and Costing for Decision Making

The sidebar on page 13 restates paragraph 35 of FASAB Statement #4, which emphasizes three performance terms relevant to using performance for budget decision making: effectiveness, efficiency,

and cost-effectiveness. The PMA BPI's full and marginal cost requirements in criterion 5 allow a senior manager to discern the relative cost-effectiveness of programs, with the ability, for example, to project the cost requirements associated with planned performance increments. The PMA BPI's efficiency requirement in criterion 6 provides the senior manager with information that helps her to determine the source of ineffectiveness (or performance shortfall). If an ineffective program operates efficiently, the ineffectiveness may be due to inadequate resources. If the program is operating inefficiently, however, then operational changes alone can lead to greater effectiveness. This section shows how having cost, effectiveness, and efficiency measures can significantly improve the use of performance information. Next, the cost and performance measures are defined carefully, and then we show how they can be integrated with performance output or outcome measures to create measures of efficiency and cost-effectiveness—both cost-based performance indicators.

Full Costs

To measure the full cost of government programs, and satisfy part of the requirement for PMA BPI criterion 5, one of the methods described earlier (and detailed in Table 2) must be applied to assign indirect costs to program outputs. The full cost of a program is the sum of all direct and indirect costs associated with the delivery of a program output. It allows senior managers to see the extent to which the various components of agency costs are (1) uniquely and directly related to the services provided, (2) pooled and shared by other programs, and (3) centrally based administrative functions. The full cost of a program's output takes into account all three of these costs. Most people think about cost distinctions in terms of fixed and variable costs, or direct and indirect costs, but these are helpful only for the most basic understanding of costs. The first of these three are direct costs, which may be fixed or variable, but most likely variable, and are directly traceable to the services provided. The second of these are the costs of shared or support services that can be directly attributed to programs based on program use or consumption. The third are G&A costs, which are fixed in the short run and variable in the long run, and most decidedly indirect. Since these indirect costs are substantial in the federal bureaucracy, it makes sense to find a reasonable method to assign these indirect costs to programs. Budget allocations across programs that do not consider the full costs of programs essentially treat non-programmatic services strategically, like programs. If non-programmatic services are not supporting programs, they are not necessary. Computing the full cost of programs by linking indirect to direct costs creates an incentive for program managers to scrutinize the potentially unnecessary indirect costs, and helps senior managers better understand the relationship between the two.

Marginal Costs

A reasonable question to ask in performance budgeting is, "How much does a performance increment cost?" The answer to this question requires a measure of marginal costs, which are the additional costs associated with a program producing one more unit of output or outcome. If federal agencies provided Congress with this kind of information together with their capacity to produce a given level of performance, Congress would make more efficient budget allocations simply because it would have a much better understanding of the budget and performance link than it did before.

The marginal cost of performance increments is perhaps the most difficult requirement of the PMA BPI, but knowing it is crucial to allocating resources efficiently. For economists, resource allocation efficiency in the market requires the unit price of services to equal the marginal costs of producing that additional unit. Linking performance increments with their marginal costs allows Congress to "value shop" in ways that consumers do in the market. Equation 1 defines marginal cost, which satisfies part of the requirement in PMA BPI criterion 5.

EQUATION 1: MARGINAL COST

$$\text{Marginal cost of performance increment} = \frac{\text{Change in full cost}}{\text{Change in output or outcome}}$$

Fixed costs are not relevant to computing marginal costs. If program costs were all variable, and non-program costs were all fixed, then a full costing exercise would not be necessary, as the marginal cost of a performance increment is the variable cost. However, fixed and variable costs comprise program

and non-program costs, so a full cost measure is necessary to obtain an accurate measure of the cost changes associated with performance increments. Indeed, non-program support service personnel—say employees in the human resources office—would argue that they face additional work when one program or another staffs up. Thus, the costs of support services can vary with program activity and should be linked to the programs impacting them.

Effectiveness

Paragraph 35 of FASAB Statement #4 (see sidebar on page 13) defines program effectiveness as "the degree to which a predetermined objective is met," and suggests that it can be measured in a number of ways. A common challenge in performance measurement is using outcome measures for measures of effectiveness. FASAB Statement #4 defines an output as the quantity of services provided, and outcomes as the results of these services. Another way to look at this distinction is to think of outputs as that which the program produces, and outcomes as the impact these outputs have on citizens' lives. Clearly, the program manager has some control over the output, but much less so over the outcome, largely due to the environment in which the program services are being delivered, which is beyond the control of the program manager.[16] For this reason, program performance, or effectiveness, in government has been measured largely in terms of outputs.

This is adequate if one wants to understand the operational effectiveness of a program, but not if one wants to understand its service effectiveness. The author defines the former as the extent to which a program reaches its operational goals, which are output focused and completely under the control of the program manager. The author defines the latter as the extent to which the program achieves its outcome-based service goals, which are the true impacts sought by policy and legislation initiating the programs in the first place. Unfortunately, the program manager has less control over outcomes. To understand how to achieve the latter, a manager must know how much the environment mitigates the translation of operational outputs to service outcomes, a topic beyond the scope of this report.

Efficiency

FASAB Statement #4 defines efficiency as a measure relating outputs to inputs, and since inputs can be expressed in terms of the financial resources used to purchase them, efficiency is often expressed by the cost per unit of output. Given our distinction above on outputs as measures of operational effectiveness and outcomes as measures of service effectiveness, we can expand the efficiency definition to be expressed in outcome terms as well. Thus, operational efficiency is measured by the cost per unit of output, and service efficiency is measured by the cost per unit of outcome. Since outcomes are often difficult to quantify, programs rely on outputs, focusing on operational efficiency—again, factors completely under the control of the program manager.

Let's return to the senior manager faced with a performance shortfall in one of her programs. How would she know whether the program was efficient and thus requires more resources, or whether the program squandered the resources provided? She needs a measure of efficiency to judge how well or poorly the program used the resources provided. This means that she needs cost information linked with the performance indicators. To the extent that the cost information is comprehensive, she can make a better judgment on the resource shifts required. However, if costs are expressed only in terms of direct appropriations, senior and program managers will misjudge the additional resources required, as we will learn with some NASA and SBA experiences.

If a program manager has quantitative output- or outcome-based performance measures, he can use one of two equations. First, he can divide the performance measure by the number of the most important input (usually FTE) to get a basic efficiency measure, as shown in Equation 2 below. The disadvantage of this basic version is that it is limited to a single input. However, if the single input is a dominant one, then it facilitates a more comprehensive measure of efficiency, and if the input is FTE, it is also a measure of labor productivity.

EQUATION 2: EFFICIENCY I

$$\text{Efficiency} = \frac{\text{Output or outcome}}{\text{Relevant input}}$$

Because this basic approach does not capture all inputs relevant to producing program outputs or outcomes, a second approach is commonly used, which divides the total costs of the inputs by the

performance measure to obtain a measure of efficiency expressed in cost terms. To obtain this, simply invert Equation 2 and replace the single input measure with the program's full costs. With no inversion, the efficiency interpretation is in "output per dollar" terms, but since dollar amounts often exceed output unit amounts, the interpretation in fractional terms is awkward and unintuitive. For example, dividing 10,000 output units by $250 million produces an efficiency measure of .00004 output units per dollar. With the inverted version shown in Equation 3, the interpretation is in "cost per unit of output" terms—$25,000 per output unit in this case. And although efficiency increases with smaller values, it is a more intuitive and useful efficiency measure, and satisfies criterion 6 of the PMA BPI initiative.

EQUATION 3: EFFICIENCY II

$$\text{Efficiency} = \frac{\text{Total costs}}{\text{Output or outcome}}$$

Equation 3 represents an intuitive way to integrate costs and performance information. The average citizen, senior manager, and member of Congress can make more reasonable judgments about the relative value of programs when such integration takes place. The trade-off between the benefits derived from five shuttle launches versus 26,000 business loans is placed in stark relief when one also considers the relative costs—$4.5 billion for the former (at $900 million per launch), and $22 million for the latter (at $950 per loan), according to NASA's and SBA's FY 2006 budget submissions respectively (both in full cost terms). These are measures of efficiency for NASA's and SBA's main programs, and they are examples of intuitive, cost-based performance measures that can enhance the quality of budgetary decision making.

What if the program manager has a performance measure that is not quantitative? Qualitatively measured outputs or outcomes can also help accomplish the performance budgeting goals of GPRA and the PMA. One can create categorical measures for just about any output or outcome simply by delineating "above average," "average," and "below average" performance, or by making finer distinctions. Developing a cost measure can be done in a similar fashion. Table 3 shows how efficiency can be captured in categorical terms, relating categorical performance and cost measures. Of course, the categorical terms can be defined however the user chooses; those used in Table 3 are illustrative.

Let's say that average performance at average costs is the baseline target for efficiency (the center cell in Table 3). If performance improves or is deemed better than average (moving left from the center cell), or if total costs decline or are deemed lower than average (moving up from the center cell), then efficiency is said to have improved to say a "good" level. If both happen (moving diagonally up and to left), then we might say that efficiency is "excellent." On the other hand, if total costs increase to the above average range with average performance (moving down from center cell), or if performance declines to below average range on average costs (moving right from center cell), efficiency will have declined to "poor" levels, leading to inefficiency. Negative movements on both dimensions could be deemed "unacceptable," while a positive movement on one dimension and a negative movement on the other might produce a "fair" efficiency result. The point here is to provide a way to measure program efficiency using an easy-to-implement qualitative framework.

Table 3: Measuring Efficiency Using Categorical Measures

		Performance output or outcome		
		Above average	**Average**	**Below average**
Costs	**Below average**	Excellent	Good	Fair
	Average	Good	Baseline	Poor
	Above average	Fair	Poor	Unacceptable

Cost-Effectiveness

Paragraph 35 of FASAB Statement #4 defines cost-effectiveness as the integration of cost and performance information. While the efficiency measure in Equation 3 integrates cost and performance by showing the average cost of production, cost-effectiveness is distinguished by its focus on the performance *goal*. Thus, cost-effectiveness measures the costs associated with achieving a performance goal (i.e., the costs of being effective), which is different from actual performance. Equation 3 measures the costs of actual performance, but cost-effectiveness measures the costs of expected performance. As with the efficiency measure in Equation 3, the lower the value the better.

EQUATION 4: COST-EFFECTIVENESS

$$\text{Cost-Effectiveness} = \frac{\text{Total costs required}}{\text{Output or outcome expected}}$$

The denominator in Equation 4, the expected performance level, is the policy parameter. Decision makers set this number, and then analysts determine the costs of obtaining it. The numerator, the required costs to reach this goal, can be estimated using two methods. The first method takes the full cost of present program performance level and adds the product of the marginal cost of a performance increment and the difference between actual and expected performance. The second method substitutes average costs (i.e., full costs divided by output, or efficiency) for marginal costs, as shown in Equation 5.

EQUATION 5: TOTAL COSTS

Total costs required =
Full cost + marginal or average cost
x
(expected output – actual output)

The difference between the two methods depends on whether the program faces increasing, decreasing, or constant returns to scale in service production. Increasing returns to scale means that as the program produces more output, its average output costs decline (improving efficiency). Constant returns to scale imply no efficiency gains from producing more output. If program production faces increasing or decreasing returns to scale, the marginal cost method would be the most appropriate. However, marginal cost would have to be measured at each level of output to be precise. Assuming average cost per output is constant at all levels of output (i.e., cost environment displays constant returns to scale), the average cost method is appropriate. Nevertheless, as the costs decline, the program becomes more cost-effective, and Equations 4 and 5 demonstrate how program cost-effectiveness can be derived from the measures required in criteria 5 and 6 of the PMA BPI initiative.

The full cost requirement in PMA BPI's criterion 5 is the main requirement for costing performance budgets, but good performance measures are important, too. However, "good" need not mean "quantitative" in a continuous manner. Thoughtful performance measures can be characterized in categorical terms. And while marginal cost calculations need continuous measures, one can still strive to measure a reasonable marginal cost proxy by calculating the costs from changing from "below average" to "average" performance, and from "average" to "above average" performance, which could differ based on the cost environments. The PMA BPI's criterion 6 is the efficiency requirement that is rather straightforward, but requires some clarity on the type of efficiency measured. Again, this means one must have good performance measures to have good measures of efficiency. Nevertheless, allocating indirect costs is at the heart of costing performance budgets, so the next sections focus on how NASA and SBA allocated their indirect costs, concluding with recommendations on how agencies can adopt certain practices that will help them "get to green."

Case Study of NASA: How Full Cost Supports Performance Budgeting

The National Aeronautics and Space Administration (NASA) is one of the world's premier research and development organizations focused on aeronautics and space. Its mission is "to understand and protect our home planet, explore the universe and search for life, and inspire the next generation of explorers … as only NASA can." Clearly, the agency faces extraordinary challenges as a matter of course. Originally established as the National Advisory Committee for Aeronautics (NACA) in 1915, Congress transformed NACA into NASA with the National Aeronautics and Space Act of 1958.[17] For the first time since President John F. Kennedy committed the nation to achieving the goal of landing a man on the moon, President George W. Bush, on January 14, 2004, significantly expanded NASA's mission by announcing his new vision for space exploration, which seeks to return humans to the moon as a stepping-stone for human exploration on Mars.

These challenges impose unimaginable pressure on NASA, and its organizational structure reflects the complexity of its missions. With a civil workforce of over 19,000 supplemented with 40,000 contracted employees, spread across its headquarters in Washington, D.C., and 10 research centers across the nation, NASA's programmatic divisions are represented by five mission directorates: Science, Exploration Systems, Space Operations, Aeronautics Research, and Education. These directorates comprise 12 programmatic themes, which provide the organizational basis for NASA's strategic and budgetary planning, management, and reporting. Table 4 on page 22 summarizes the relationship between the mission directorates, the programmatic themes, and the research and flight centers.[18] Within each of the themes are the many related programs and projects (not shown), and NASA's strategic plan shows how these themes map to 10 strategic goals—seven science and research goals, and three "enabling" goals.[19]

NASA's budget has remained relatively stable over the past decade, ranging from $13.7 billion in FY 1994 to $14.6 billion in FY 2004. However, considered in 2004 constant dollar terms, NASA faced a slight but steady decline in real resources from FY 1991 to FY 2001, only for this to increase the past four fiscal years, with most significant increases coming between fiscal years 2004 and 2005, when the budget increased by 12 percent to $16.3 billion to accommodate the new exploration vision.[20] For NASA, restructuring its budget to align more closely with its mission and programs was a necessary step to clarifying its complex responsibilities and improving internal management and programmatic costing. This is where its Full Cost initiative comes into the picture.

Full Cost Is More Than Budget Realignment

The complexity of NASA's organizational structure made it very difficult to manage its resources in a consistent fashion, partly because the budget, accounting, and management structures were not in alignment. Prior to the realignment, budgetary resources would come in a form that had little relation to the strategic plan, and resources for mission support were funded in a separate appropriation account from the programs being supported, with no clear relationship between the two. This disconnection was the result of a traditional budgetary framework that emphasized line-item amounts and incremental funding on object classes (for example, salaries, rent, and telecommunications). While tracking object-class spending across the agency is

Table 4: NASA's Mission Directorates, Program Themes, and Centers

Mission Directorate	Program Theme	Centers (State)
Science	• Solar System Exploration • The Universe • Earth-Sun System	• Ames (California) • Goddard (Maryland) • Jet Propulsion Laboratory (California)
Exploration Systems	• Constellation Systems • Exploration Systems, Research, and Technology • Nuclear Systems and Technology • Human Systems Research and Technology	• Headquarters (Washington, D.C.)
Space Operations	• International Space Station • Space Shuttle • Space and Flight Support	• Johnson (Texas) • Kennedy (Florida) • Marshall (Alabama) • Stennis (Mississippi)
Aeronautics Research	• Aeronautics Technology	• Dryden (California) • Glenn (Ohio) • Langley (Virginia)
Education	• Education Programs	• Headquarters (Washington, D.C.)

important, it does not allow the interested, taxpaying citizen to read the budget and clearly understand how much of the budget is dedicated to a given object class for every program. Moreover, there was no incentive for program managers to create efficiencies, because they were allocated resources that were essentially "free." That is, the program manager could have been assigned additional staff without having to worry about paying for or being held accountable for these additional resources.

To NASA's credit, the agency could have simply reformatted the budget to show more clearly how specific resources, mission-based and support, were connected to specific programs. Under the leadership of former NASA Administrator Sean O'Keefe, the agency chose to use the Full Cost initiative to align its budget, accounting, and management structures. Not only did it re-format its budget submission and justifications, it sought help from Congress to realign its appropriation structure and create flexibilities to give managers the "freedom to manage." And it implemented an agency-wide integrated financial management system that would consolidate all separate center-specific accounting systems into a single one. While the implementation of the integrated system has had its challenges, this effort demonstrated NASA's commitment to build the infrastructure necessary to support the best practices in financial management called for in the legislation reviewed earlier and the PMA.[21]

However, the most important component of NASA's full cost policy was the effort to link changes in management practices with the budgetary and accounting structure changes. NASA changed the allotment process at the beginning of the fiscal year and began allotting appropriated funds "directly" to program managers (through theme-based overseers in the mission directorates), who were then given greater flexibility to choose how to allocate their resources to accomplish their specific part of the theme-based mission. Previously, program and project managers had control over their contractor and non-personnel budgets only; they didn't have control over their civil service employee budgets. Prior to the full cost policy, program managers had no incentive to simply say, "I only need 15 FTE, not 25, for the new project." This statement should produce a chuckle in some knowing readers, as it reflects a violation of one of the sacred truisms in the federal bureaucracy: More is always better! NASA's full cost

policy sought to create the incentive reflected in this hypothetical statement. How did NASA do this? This section will provide a detailed account.

What Is Full Cost?

"Full cost" is the term used by NASA to describe a comprehensive financial management policy that links all agency resources to its strategic programs in a meaningful way. For the reform to be meaningful, incentives had to be created to allow program managers to become more efficient on their own initiative, rather than on command. To accomplish this, NASA took the following coordinated actions:

- **Budgeting:** The FY03 budget was re-formatted in full cost terms, while budget formulation in full cost terms took place for headquarters in FY04 and for the programs in FY05. Appropriation accounts were changed to align with programs instead of with the centers.[22]
- **Accounting:** To execute the FY04 budget, NASA reconfigured its core financial management module to accommodate full cost alignments reflected in the budgetary changes.
- **Management:** To execute the FY04 budget, NASA allotted budget resources flexibly to program managers and allowed them to decide the number of civil service employees they could afford to pay for and still accomplish their mission.

These budgeting and accounting changes were made to support effective management practices, and the changes in all three together are what allowed for meaningful change to take place. According to NASA officials, it was not enough to make budgeting and accounting format changes, as these wouldn't have changed the behavior of program managers. The key was to allow these changes to support the managerial incentives that would arise from giving program managers greater discretion over the use of budgetary resources. For example, prior to full cost, all civil service employees were assigned to a mission or support program and funded out of a separate line item not linked to these areas. After full cost, a new budgetary category was developed called "Workforce in Transition" to denote the salary costs of those employees who had not been chosen to work in a mission or support program.[23] In other words, the full cost management changes created the incentive for program managers to reveal their true need for civil service employees, leaving some in this "limbo" status. These personnel would still be paid, but through center-based general and administrative cost pools (Center G&A), which in turn imposed costs on these resource managers, who face incentives to keep their G&A rates down (discussed in detail below). This new policy ultimately forces a decision on what to do with these unassigned civil service employees—either find managers willing to pay their salaries or consider the application of other (dreaded) personnel actions, like buyouts or reductions in force.

With NASA's traditional budget structure, program and project budgets included only the direct research and development costs, which consist of contract and supporting costs. These program and project budgets did not cover the costs for civil service employees or travel, nor did they cover the institutional and infrastructure costs, such as the business management functions and basic center operations. The full cost budget structure allocates the entire agency budget among programs, using upgraded reporting systems to directly assign related costs to the programs where feasible, and straightforward statistical methods to allocate indirect and other costs where direct assignment was not feasible. Before describing the elements of full cost, we review definitions of the key cost concepts used by NASA.[24]

The Mechanics of Full Cost

Full cost provides for the allocation or assignment of costs to NASA's programs. The sidebar "NASA Full Cost Concepts" defines some of these costs, like direct costs, as those that are directly traced to a given program or project account. Other costs, like service pool costs, are assigned using the cause-and-effect method, relying on the program consumption of the respective pool's services. General and administrative, or G&A, costs are not very easily assigned, and therefore the prorated allocation method is used to accomplish this task.

The costs of each program can be broken down into direct, service pool, and indirect costs. While service pool costs contain both direct and indirect components, one can think of indirect costs as the costs of being in business, and the direct costs as the costs of performing the business activities themselves. Another way to think about this dis-

NASA Full Cost Concepts

Costs: The monetary value of resources used or sacrificed, or liabilities incurred to achieve an objective, such as to acquire or produce a good or to perform an activity or service. Costs incurred may benefit current and future periods.

Direct costs: The costs that are obviously or physically related to a project at the time they are incurred and are subject to the influence of the project manager. Examples include contractor-supplied hardware/software and project labor, whether provided by civil service or contractor employees.

Indirect costs: Costs that cannot be specifically or immediately identified to a project, but can subsequently be traced or linked to a project and are assigned based on usage or consumption. For NASA, this includes general, administrative, and service pool costs.

General and Administrative (G&A) costs: The support costs that cannot be directly related or traced to a specific project in an economical manner, but benefit all activities. Such costs are allocated to a project based on a reasonable and consistent basis. Examples of G&A costs include costs associated with financial management, procurement, security, and legal activities.

Corporate G&A: The indirect costs of headquarters personnel and activities such as the administrator and his immediate staff, mission directorate management, headquarters operations, and functional management are managed through a pool and allocated to individual projects, including activities implemented and managed by the centers on behalf of the agency.

Center G&A: The indirect costs of center-based personnel and activities such as the center directors and their immediate staff, center management, center operations, and systems management are managed through center-based pools and allocated to individual projects based on on-site workforce.

Service pools: The accumulation of similar costs and cost types that are distributed to projects by an assignment or allocation methodology that best represents the types of costs in the pools. Service pool costs are those that cannot be specifically and immediately identified to a project, but can be subsequently traced or linked to a project and assigned based on usage or consumption. These costs are charged or assigned to a project based on project-controlled use of the service. Examples include information technology and fabrication services.

Source: *NASA Financial Management Requirements, Volume 7.*

tinction is that direct costs are those that are "pay as you go" costs, and indirect costs are assessed against the program budgets based on a determined basis of allocation. The direct cost elements for a program include the associated civil service labor costs (including salaries and fringe benefits), procurements, and travel costs. The service pool cost elements derive from the production of specific intermediate services on behalf of the programs, and include both direct and indirect cost elements. The indirect cost elements include mainly G&A costs based at headquarters and at the centers. Thus, the full cost of a program is given by Equation 6.

EQUATION 6: FULL COSTS

Full costs =
Direct costs + Service pool costs + G&A costs

Clearly, the assessment and allocation process that assigns service pool and G&A costs to the programs is at the heart of the full cost policy, allowing one to determine the full cost of programs called for in GPRA, FASAB Statement #4, and the PMA BPI initiative. How is this accomplished? Let's start with the G&A costs.

Corporate G&A

Corporate G&A costs include agency-wide (non-program specific) management and operations (whether at headquarters or at a center on behalf of headquarters), independent verification and validation activities, construction and demolition of facilities, security, and safety and assurance activities. Corporate G&A, expected to total $882 million in FY 2006, include the costs associated with the offices

of the chief financial officer, chief information officer, chief engineer, space architect, and others, as shown in Table 5. The assessment of Corporate G&A costs occurs on a monthly basis, and these costs are assigned to programs based on their share of total program budget authority. That is, Corporate G&A costs are allocated by the program's share of the agency-wide sum of new budget authority for all direct and service pool cost elements. Corporate and Center G&A are not included in this calculation. Thus, the Corporate G&A rate is computed by Equation 7, and represents the agency-level overhead rate, which is 5.4 percent of the total agency budget of $16.3 billion.

EQUATION 7: CORPORATE G&A RATE

$$\text{Corporate G\&A rate} = \frac{\text{Headquarters G\&A costs}}{\text{Total program budget authority}}$$

This process begins with an assessment cycle that assesses accrued Corporate G&A costs to the programs based on this rate. For example, if a program had a total budget authority of $20 million, then of the $73.5 million worth of accrued Corporate G&A costs agency-wide for the first month ($882 million divided by 12 months), this program would be assessed $90,000 ($20 million divided by 12 months times 5.4 percent) for the first month, which represents the project's share of the Corporate G&A costs incurred to date.[25] Once the budget allotment process assigns all budget resources to the programs, the programs must pay for the headquarters-based overhead costs, and this is accomplished in the assessment process just described. So, each month, this program would face a $90,000 reduction in their budget amount available for obligations to cover accrued Corporate G&A. Since the program manager knows this, he will set aside $1.08 million ($90,000 monthly assessment times 12 months) of his annual budget to cover these cost assessments.

Center G&A

At the same time the Corporate G&A pool manager begins assessing costs against programs, the Center G&A pool managers do the same thing. Center G&A

Table 5: NASA's Corporate G&A costs

Corporate G&A item	FY 2006 amount ($ millions)
Headquarters corporate activities	373
Engineering and Safety Center	79
Integrated Financial Management Program	77
Chief information officer	70
Environmental compliance and regulation	69
Chief engineer	53
Safety and mission assurance	52
Agency operations	27
Independent verification and validation facility	27
Advanced planning and integration	20
Center-based Corporate G&A	11
Corporate construction of facilities	10
Security management	9
Chief health and medical officer	5
Total Corporate G&A	**882**

Source: *NASA FY 2006 Budget Request.*

costs, which total $1.5 billion in FY 2006, include costs associated with the center director and his or her immediate staff, center management and operations, and systems management. These costs, shown in Table 6 for nine of the 10 centers, are the costs required to operate and maintain each center, largely independent of the programs being carried out at the center.[26] Center G&A costs are allocated to programs based on the on-site workforce, which NASA calls Workforce Equivalents (WFEs). The on-site workforce includes civil service and contract employees. Center G&A is funded through budget transfers from the programs like that described for Corporate G&A. Thus, the Center G&A rate for a given center is computed by Equation 8, and represents the center-level overhead rate, which in FY 2006 is estimated at $1.505 billion, or 9.1 percent of the total agency budget.

EQUATION 8: CENTER G&A RATE

$$\text{Center G\&A rate} = \frac{\text{Center G\&A costs}}{\text{Total Center WFEs}}$$

The Center G&A rate is expressed as an average cost per employee (regardless of civil service or contract status), and the monthly assessment at this level is based on this rate. For example, if a center had annual G&A costs of $200 million, 1,000 full-time civil service employees, and 3,000 full-time contract employees, then the Center G&A rate would be $50,000 per WFE ($200 million divided by 4,000 WFEs). Accrued G&A costs for this center in the first month would be $16.7 million ($50,000 rate divided by 12 months times 4,000 WFEs). If 300 of these WFEs were assigned to a given program, this program would be assessed $1.25 million in the first month for Center G&A costs (300 WFEs times $50,000 rate divided by 12 months). Again, since the budget allotment process assigns all budget resources to the programs, the programs pay for the center-based overhead costs through the assessment process. In this scenario, the program manager would set aside $15 million ($1.25 million monthly assessment times 12 months) for the year's Center G&A costs at this one center, and he would have to complete the same calculations for each center containing civil service or contract employees assigned to his program.

One might say that in this full costing framework, the programs are being "taxed" for the G&A services being provided by headquarters and the relevant centers. This implies an involuntary transfer of resources, but this is precisely how NASA wants the program managers to feel. NASA intends to create a managerial environment where program manag-

Table 6: NASA's Center G&A Costs*

Centers	FY 2006 G&A ($ millions)
Kennedy Space Center (Florida)	232
Marshall Space Flight Center (Alabama)	226
Goddard Space Flight Center (Maryland)	214
Johnson Space Center (Texas)	207
Langley Research Center (Virginia)	195
Ames Research Center (California)	191
Glenn Research Center (Ohio)	161
Dryden Flight Research Center (California)	40
Stennis Space Center (Mississippi)	39
Total Center G&A	**1,505**

**These costs do not include Jet Propulsion Lab costs.*
Source: *NASA FY 2006 Budget Request.*

ers question the costs on which these assessments are based, effectively holding the providers of G&A services (for example, human resources and general counsel) accountable for the costs they impose on the programs. One can argue, as some have at NASA, that a lower cost alternative is to allocate these funds directly to the G&A pools, but this wouldn't give the program manager a sense of how much they draw upon these services or any incentive to reduce their reliance on these services. We will return to this debate below.

Service Pool Costs

Corporate G&A costs are allocated on the basis of a program's share of total program budget authority, and Center G&A costs are allocated on the basis of the on-site workforce. In addition to these, NASA uses "service pools" to allocate a hybrid class of costs (some direct, some indirect) to programs. As defined in the sidebar "NASA Full Cost Concepts" (see page 24), service pools are mechanisms by which NASA accumulates the costs of similar services that cut across programs (like indirect G&A costs), but are more readily attributable to a program based on its usage or consumption of the service (like program direct costs). NASA has established seven standard service pools at each of the 10 centers, and they are listed in Table 7 along with their respective bases of consumption (allocation).[27]

During budget formulation, service pool managers must estimate the amount of services they expect to provide to their program customers. This service level then allows them to establish a per unit rate that covers the costs of delivering the service provided by the pool. For a given program customer within the agency, their budget transfer to the pool would equal this per unit rate multiplied by the units of the relevant service. However, this budget transfer does not account for all costs associated with the service activity, but only those costs incurred by the service pool entity in delivering the service. A good way to think about the operation of service pools is to think about how you are billed when you take your car to the auto shop for repairs. Some of the costs of the repair work appear on your bill as itemized charges, such as for parts or fluids. The remaining portion of the repair costs are rolled into an hourly rate multiplied by the number of hours it took to perform the repairs. This hourly rate encompasses primarily the labor costs of the mechanic, but the rate likely includes an allowance to cover some of the auto shop's overhead costs. NASA service pools operate in a similar manner.

Consider the IT service pool for computing. A program customer tells the IT service pool manager that he needs 20 additional laptop computers. The pool manager purchases these computers based on the specifications provided by the program, and directly

Table 7: NASA's Service Pools and Bases of Consumption

Service Pool	Basis of Consumption
1. Facilities and Related Services	Square footage
2. Information Technology (IT) Services	
Desktop	Seats
Computing	Central processing units
Telecommunications	Lines
Other IT services	Direct labor hours
3. Science and Engineering Services	Direct labor hours
4. Fabrication Services	Direct labor hours
5. Test Services	Direct labor hours
6. Wind Tunnel Services	Operating shifts
7. Independent Technical Authority/Safety and Mission Assurance Office	Direct labor hours

Source: *NASA Financial Management Requirements, Volume 7.*

posts the direct costs to the program budget account. The IT service pool manager then assesses a charge to the program equal to the pre-determined pool rate for that year multiplied by the number of computers it ordered (the basis of consumption). This assessment covers setup, maintenance, and a share of the overhead costs of providing and maintaining properly configured computers. Total IT service pool costs, then, are computed using the two-part formula in Equation 9.

EQUATION 9: SERVICE POOL CHARGE

Service pool charge =
Direct itemized costs
+
(Pool rate x Number of units of pool service)

The difference here from the auto shop example is that the auto shop does not have access to your checking account to extract the two-part payment. The realigned budget and accounting structures at NASA allow the service pool manager to access program accounts for posting costs against the program's unobligated budget. Thus, in the parlance of FASAB Statement #4, itemized charges in a NASA service pool are directly traced, while the pool's overhead costs are assigned on a cause-and-effect basis.

The service pool rate is established during budget formulation, after the pool manager compiles all required annual Service Level Agreements (SLA) with the program managers. The SLA defines the amount of service to be provided in advance to allow the pool manager to plan and establish a fair and competitive rate. As mentioned above, where itemized charges can be directly billed to the program, the pool will do so, and this is determined in the SLA. Where this direct charging is not feasible, the costs are embedded into the rate, which for all pools cover the associated civil service employee salaries and travel (analogous to the auto shop mechanics). Also embedded in the pool rate are those costs unique to the work of the service pool. For the IT service pool for telecommunications, this might include use of network services, voice and messaging services, and other items not directly charged. For the test and fabrication service pools, the pool rate would include equipment and fluids used in their unique services. For some pools, contract labor costs might be embedded in the rate, but these are typically provided by contractors based on billable hours, so often are directly attributable to the program.

The bases of consumption shown in Table 7 are essentially cost drivers for the service pool rate. If the managerial incentives work as they should, the cause-and-effect relationships inherent in the pool rate would be scrutinized by the program managers that ultimately bear the associated service pool costs. Thus, the managerial incentives provide an added mechanism for continued improvement on the choice of such pool-based cost drivers.

Clearly, NASA has made a substantial effort to assign direct costs where possible, and this will expand as it implements other planned modules within its integrated financial management system. However, this case study of NASA's full cost policy shows that when costs cannot be directly traced, they can be allocated by establishing cause-and-effect relationships, as with the service pools, and, in the last instance, by the prorated allocation method, as NASA does with Corporate and Center G&A costs.

Case Study of SBA: How Activity-Based Costing Improves Performance Budgeting

The Small Business Administration (SBA) is another federal agency charged with a mission that seems to exceed its resource base. 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 families and businesses recover from national disasters." The genesis of this mission began largely in response to the Great Depression, when President Herbert Hoover created the Reconstruction Finance Corporation (RFC) in 1932 to address the attendant financial crisis by lending money to businesses hurt by the Depression. Another agency, the Office of Small Business (OSB) within the Department of Commerce, provided services that were primarily educational, providing counseling to entrepreneurs, and other small agencies still provided unique services in response largely to the economic challenges of war. In 1952, President Dwight D. Eisenhower proposed to merge these disparate functions within a single independent agency, and in 1953, Congress passed the Small Business Act, which created the SBA.

The SBA has over 3,000 civil service employees, but also coordinates with a large number of lenders and grantees to deliver its services. SBA has undergone many changes in its history, largely due to the changing way it delivers its services and the controversial nature of its minority business assistance programs that are a major component of the affirmative action policy regime of the federal government.[28] According to GAO (2001b), the largest change to SBA's service delivery occurred in its lending programs, where the agency went from making loans directly to guaranteeing loans made by commercial lenders. This change occurred in 1995, likely because of incentives created by the Federal Credit Reform Act of 1990, which changed the budgetary accounting for government-guaranteed lending programs from requiring appropriations for the total amount of lending to requiring appropriations only for the expected defaults on guaranteed loans.

While lending tends to dominate the services identified with the SBA, the agency also delivers technical assistance and government contracting services, along with the advocacy function discussed above. To coordinate the delivery of its programs, the agency has 70 district offices organized within 10 regions throughout the nation. The SBA organizes its disaster response function separately within four area offices in New York, Georgia, Texas, and California. Table 8 on page 30 summarizes the major program offices and programs of the SBA, which share a recently dwindling base of budgetary resources that have gone from $798 million in FY 1995, up to a peak of $1 billion in FY 2001, and down to $786 million in FY 2004, a fall from the peak of 27 percent.[29] Despite the swings in budget authority, which largely reflects the design of its credit programs, SBA's annual credit activity has almost doubled from $14.0 billion in loan guarantee commitments in FY 2001 to $21 billion in FY 2005.[30] Clearly, SBA has been forced to become more creative and efficient in the provision of its programs, and this is indicative in its PMA BPI success and being a pioneer in developing and implementing its ABC model, discussed next in greater detail.

Activity-Based Costing Illuminates True Program Costs

In 1997, SBA began using an Activity-Based Costing, or ABC, model to determine the full cost of its program outputs, as required by GPRA, and to produce unit-cost reports for internal operations and

Table 8: SBA's Major Program Offices and Programs

Major Program Offices	Programs
Office of Capital Access	• 7(a), 504, and Microloan programs • Investment programs • International trade programs • Surety and technical assistance programs
Office of Entrepreneurial Development	• Small Business Development Centers • Women's Business Ownership programs • SCORE (volunteer counseling) • Native American outreach • Small Business Training Network • Other business and entrepreneurial development programs
Office of Government Contracting and Business Development	• 8(a) and 7(j) business development programs • Prime contract program • HUBZones • Small Disadvantaged Business program • Procurement Matchmaking • Subcontracting and BusinessLINC programs
Office of Disaster Assistance	• Loan making • Loan servicing
Office of Advocacy	• Research and regulatory policy
Other advocacy programs	• National Women's Business Council • Ombudsman/Regulatory Fairness Board • Veterans Business Development Program

improvement. The agency continues to use this information in its annual Statement of Net Costs and in the congressional budget justifications. In FY 2002, this package was enhanced to include a user-friendly, web-based Cost Allocation Survey (Survey) designed for SBA employees to log the allocation of their time to specific activities identified by the Office of the Chief Financial Officer, which manages the model. Compiled by interviews, reports, and the known details of the functional operations within the agency, the ABC model breaks the agency's functions down into three categories: agency level, field operations level, and program level. Most personnel costs, which constitute the vast majority of SBA's costs, are directly traced via the ABC model to one of the activity groups shown in Table 9. The reader will notice that these activities are grouped largely by the program office itself. Other agency-wide activities include eight agency management activities, seven activities related to the PMA, three field management activities, and five field programmatic activities. The five field programmatic activities are the counseling and training performed in the field on behalf of the major program offices.

Three types of indirect costs are allocated down to the district office level—field operations costs at headquarters, field-based management and administrative costs (including those at the regional offices), and field-based legal costs. The personnel and non-personnel costs of the Office of Field Operations (at headquarters) are allocated first to the 10 regional offices equally. These costs, together with the same at the regional offices, are allocated to the district offices based on the district's share of that region's sum of district budgets. Thus, field operations costs are allocated to district offices, a final cost object, by the prorated allocation method, and the agency-

Table 9: SBA's Organization of Program Activities

Activity Group or Activity	Number of Activities
Capital Access	45
Government Contracting and Business Development (GCBD)	28
Entrepreneurial Development	11
Disaster Loan Making and Servicing	5
Advocacy Programs	
Office of Advocacy	1
National Women's Business Council	1
Ombudsman/Regulatory Fairness Board	1
Veterans Business Development Program	1
Regional & District Offices and Office of Field Operations	
Office of Field Operations	1
Field Offices—Management and Administration	1
Field Offices—Legal Services	1
Field Offices—Counseling and Training	5
Agency Management	8
President's Management Agenda	7
Total official agency activities	**116**

Source: *Office of the Chief Financial Officer.*

wide costs (agency management and the PMA) are similarly allocated to the headquarters-based program offices based on the share of total program budgets.

Before examining the process in detail, let's review some real examples of how the Survey and ABC model results can influence decision making. One of SBA's entrepreneurial development grant programs, the Business Information Centers (BICs), with an FY 2004 appropriation of $396 million, provides what amount to libraries in each of the 70 district offices. These BICs contain books, computers, and "how-to guides" for a wide range of small business opportunities. When entrepreneurs or prospective small business owners walk into one of these district offices, they are often directed to this resource as a starting point for targeting the customer's needs. The time spent by the SBA employee using or showing how to use this resource then gets allocated to the BIC program (the activity has not yet become a counseling and training activity). In the best case, without the ABC model, we would consider the costs of this program to be $396 million plus some estimated fixed percentage of overhead costs. However, with the ABC model, the SBA was able to learn that this program consumed a large, disproportionate share of the field personnel's time. The FY 2004 Survey allocated $9.5 million in field costs to the BIC program, bringing the program's full cost to nearly $10 million.

In contrast, the Small Business Development Centers (SBDCs) comprise over 1,000 centers located at colleges and universities around the nation that provide technical assistance and regularized training and counseling to small business owners. The largest grant program within the SBA by far, these centers were funded by direct grants totaling $89.1 million in FY 2004. The FY 2004 Survey reports that $14.4 million of agency indirect costs were added to this

direct grant amount, bringing the total cost of this program to $103.5 million. If we compare the administrative overhead rate for these two grant programs, defined here as all non-direct grant costs divided by total costs (administrative costs plus the grant amounts), we would find that the SBDC administrative overhead rate was 13.8 percent, while this rate for the BIC program was 96.3 percent! It is likely for this reason that the BIC program was not proposed in the FY 2005 and FY 2006 budgets.

Comparisons of this kind would not be possible without something like the ABC model. A prorated allocation method that used FTE as the main cost driver may come closest to replicating this result, but it is the Survey that allows employees to allocate their time to the various program activities, thereby gaining a clearer picture of how the agency's main resource, its personnel, are being deployed. Some might argue that the comparison of grant programs may reflect differences in costs covered by the grants (i.e., some grants cover more administrative costs than others), but this should not matter, as all costs—grant-based or not—are considered in the ABC model calculation of full program costs. Nevertheless, let's apply a similar analysis to the loan programs.

Before comparing SBA loan programs, one must address the fact that loan costs come in two forms: loan subsidy costs and administrative costs. Loan subsidy costs are the estimated costs of future defaults on loans made in a given fiscal year, which is required by the Federal Credit Reform Act. Administrative costs are the costs we have been addressing in this report, constituting all other costs of delivering program services. In costing loan program budgets for performance, one must consider the various and separable stages of the loan process and in which stage the activity belongs. For example, the cost of liquidating a loan that has defaulted has nothing to do with the costs of originating new loans. SBA is careful to make these distinctions when it develops unit cost measures. For our purposes here, it will suffice to demonstrate the uses of the information in aggregate form.

In FY 2004, the SBA's main loan program, Section 7(a) Loan Guarantee, provided $12.7 billion in lending at a total cost of $189 million, a total overhead rate of 1.5 percent. The subsidy costs were $100.6 million (or a .79 percent subsidy rate) and the administrative costs were $88.4 million (an administrative overhead rate of .7 percent). Compare this program with SBA's Section 7(m) Microloan program, which provides short-term loans of up to $35,000 to small businesses and not-for-profit child-care centers. In FY 2004, it provided $22.8 million in lending at a total cost of $24.9 million, a total overhead rate of 109 percent. The subsidy costs for the 7(m) program were $2.2 million (a subsidy rate of 9.55 percent) and the administrative costs were a staggering $22.7 million (an administrative overhead rate of 99.5 percent)!

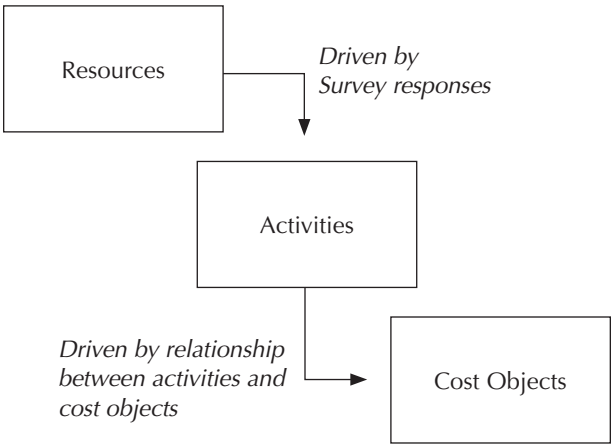
The former loan program relies heavily on traditional banks to make the loans the government guarantees, and the latter also guarantees loans but relies on lending "intermediaries," which are community-based nonprofit lenders, to make loans with an average amount of $10,500. These intermediaries also may be required to provide technical assistance to the borrowers. Nevertheless, the Microloan program has a subsidy cost 12 times that of SBA's main loan program, due to the higher expected defaults, but the administrative costs are 143 times the main loan program's costs. The information provided by the ABC model revealed these cost differences, providing agency senior managers with the kind of operational information they need to make improved trade-offs in resource allocation. Let's turn to how the model works.

How Does the ABC Model Work?

Two initial tasks must be accomplished before the ABC model performs its work. First, the activities of the agency must be defined and associated with a program. Table 9 lists the activity groups in which 116 defined activities fall. These activities include those supporting the PMA (5 government-wide initiatives plus erroneous payments and SBA's unique component of e-government—the Business Gateway), and eight activities that make up the Agency Management group. These eight include activities such as general planning and management; information technology management (with six subcomponents); and procurement, contracting services, and other Office of Administration Services. Second, the Survey must be implemented using the activities defined to obtain the data that is then fed into the ABC model. Prior to implementing the Survey over a two-week window in April covering the first three quarters of the fiscal year, the CFO office obtains a payroll list from the human capital office and uses this as the basis for implementing the

Survey. The FY 2004 Survey was completed by 96 percent of the agency's employees. SBA's resource base is dominated by personnel costs, which amount to 81 percent of the total operating costs of the agency. Figure 1 depicts graphically how the ABC model works, which consists of three modules, one each for resources, activities, and cost objects.

Figure 1: SBA's ABC Model and Flow of Costs



Resources Module

Expenditure and obligation data for the resources module are derived from the general ledger accounts, which are organized by organization (major program office), program, and budget object class. These cost data fall into two categories: direct costs and agency-wide (indirect) costs. Direct costs include the compensation, benefits, training, supplies, equipment, contracted services, interest, penalties, and grant costs associated with a specific organizational unit. Within ABC, these costs are accounted for at the budget object class level separately for expenditures and obligations. Agency-wide costs include rent, telecommunications, worker's and unemployment compensation, postage, and other indirect costs that are allocated within the ABC resources module based on the associated cost drivers listed in Table 10 on page 34.

For its large field operations, SBA distinguishes these costs by the core programmatic activity of field employees (Field Offices—Counseling and Training) from those related to management and administration (Regional & District Offices and Office of Field Operations). There are two layers of indirect costs that must be allocated down to the district office level—field operations costs at headquarters and field-based administrative costs (at district and regional offices). At this point, district-level costs are fully loaded in the ABC resources module and ready to be linked to specific activities.

Activities Module

Within the resource module, cost drivers control the allocation of costs from agency-wide resource accounts to direct program accounts. This is where the ABC model relies on the prorated allocation method identified in the section "A Framework for Integrating Costs and Performance," and illustrated with the NASA case study. The activities module simply organizes the Survey responses on activities into the relevant organizational unit. In completing the Survey, employees determine the percentage of their time dedicated to various activities listed in the Survey. It is within these organizational units that cost objectives are found.

Once the activities have been defined and the Survey completed, the CFO office allocates the costs of each employee's salaries and benefits based on how that employee allocated his or her time to the activities. This is depicted in Figure 1 by the arrow from the Resources module to the Activities module. At this point, all costs have been linked to all activities, including headquarters overhead costs that are assigned to one of the PMA activities or agency management activities.

Cost Objects Module

Now the activities need to be linked to the cost objects (the arrow from Activities to Cost Objects in Figure 1). The cost objects are the programs across which all costs are divided and presented in SBA's congressional budget submission. Since SBA's activities are defined often no lower than the program organizational level, it is rather straightforward to directly link activity costs to the cost objects that are the program outputs. It is in this module that the final step is taken to allow SBA to link cost figures with the program's output, producing the integrated budget called for by the PMA. This cost-based performance information appears in the congressional budget justification and the Statement of Net Costs.

Table 10: SBA's Allocation Bases of Agency-Wide Costs

Allocated to HQ offices based on FTE
• Centralized training • Overnight shipping • Headquarters postage • Headquarters telecommunications • Printing
Allocated to all organizational units based on FTE
• FECA (Federal Employees' Compensation Act) liability • Performance awards • Reasonable accommodations • Unemployment compensation • Worker's compensation
Allocated to HQ offices based on square feet
• Rent
Included in overhead
• Credit cards • Interest charges • Database system
Allocated to loan-making activities based on dollars
• Credit reports
Charged back to cost source based on usage
• Relocation • Transit subsidy

Note: *Expenditure items allocated by cost driver in bold.*

Source: *Office of the Chief Financial Officer.*

For example, from the FY 2006 congressional budget justification, we learn that in FY 2004, $189 million for the 7(a) loan program is related to SBA guaranteeing 20,631 loans, bringing the total unit cost to $9,161 per loan. However, these costs include loan making, servicing, liquidation, and other services related to the activities of the program office. So it is important to ensure that the unit costs are tied to the relevant activities in the Cost Objects module, and, in this case, the cost of guaranteeing new loans in a given fiscal year. Thus, we subtract from the $189 million program cost those costs related to loan servicing (because these relate to existing, not new loans), liquidations (these are the high costs of recovering assets on defaulted loans), and lender oversight (focused on lenders, not loans). The adjusted cost is reported as being $62.2 million, bringing us to a more accurate reflection of SBA's costs of guaranteeing a new 7(a) loan—$3,014 per loan.

The same is true for the grant programs. In FY 2006 congressional budget justification, SBA reports that the SBDCs trained 271,995 persons in 1,166,595 hours (or 4.29 hours per trainee) and counseled 170,742 in 898,174 hours (or 5.26 hours per person counseled). While the costs would have to be broken down by training versus counseling in the Cost Objects module to give a more accurate cost picture of each, in lieu of this SBA combines the trained and counseled into 442,737 "clients served," which translates into the average cost of $234 per client served. This number could serve as an efficiency benchmark against which to compare the costs of other entrepreneurial training programs. Another way to benchmark these services would be by hours, which totaled 2,064,769 hours (or 993 SBDC employees training and counseling every working day of the year) for an average cost of $50.15 per hour.

The ABC model provides SBA's senior managers with a powerful tool to better understand the costs of its operations and programs. It also provides the agency with the ability to measure a program's full and marginal costs, as well as efficiency, the costing requirements that led SBA to reach the highest standard in PMA BPI. While SBA's ABC model deploys both direct tracing and prorated allocation methods, it performs the key functions required in costing performance budgets. The following and final section offers recommendations based on the experiences and challenges found in the NASA and SBA experiences.

Recommendations

In the NASA and SBA case studies, the reader likely noticed some deviation from the conceptual approach presented in the section "A Framework for Integrating Costs and Performance." Deviations are expected as organizations must design cost accounting systems that fit their needs, organizational complexity, and budgets. This often requires using a variety or hybrid of techniques to trace costs to program outputs. This report showed how NASA incorporated elements of all three approaches suggested in FASAB Statement #4, and how SBA integrated the direct tracing and prorated allocation method. OMB will accept reasonable, practical approaches tailored to the agency's particular situation, but the conditions and capacities of the agency in question should be important considerations in which approach should be selected to accomplish these goals.

This report argues that the prorated allocation method is a low-cost way to meet the full costing requirements of FASAB Statement #4 and the PMA BPI initiative. While it is not the most accurate method of estimating costs, its accuracy is based on the agency's ability to select the most relevant cost drivers on which to base cost allocations. A disadvantage to using the prorated allocation method is that the accuracy may rely on assumptions that do not withstand scrutiny. For example, NASA allocates headquarters-based G&A costs to programs based on relative program share of the total agency budget. A relatively capital-intensive program, like the space shuttle program, would be allocated more indirect costs than a direct tracing or cause-and-effect approach would allocate. If G&A costs are driven more by the program share of agency employees than the budget share, then a more accurate allocation basis (i.e., cost driver) of G&A costs would be FTEs, as NASA does with its field-center-based G&A costs.

On the other hand, direct tracing often requires more employee involvement in the cost assignment function, and this could present problems that could do more harm than the potential bias in using weak cost drivers in a prorated allocation procedure. For example, SBA's Survey relies on self-reporting by employees across the agency about the allocation of their time to various activities. Even honest reporting might result in data irregularities that do not reflect accurately the allocation of personnel resources. An employee assigned to multiple program tasks could easily assess his time allocation erroneously, and the accumulation of this effect across employees could alter agency allocations in ways not considered or planned. Nevertheless, simple steps can be taken to validate employee responses, and, as one example, SBA has supervisors check the allocation of their employees' time. The point here is that direct tracing systems need to have the proper controls to ensure the validity of account access and postings, or using it can cause more harm than a less accurate prorated allocation.

The framework for integrating costs and performance presented here is an attempt to clarify the performance and cost components that constitute an "integrated" performance budget, and to show how to use such a framework when the performance measures are not quantifiable. To the extent that outcome-based performance measures are available, they can be used in this framework, and cost-performance integration is ideal. Reasonable people can disagree on the performance and cost distinctions made in this report, but they emanate directly from the FASAB Statement #4 definitions. This report should not be taken as the definitive treatment for the concepts raised, but taken as a guide on how to carefully construct usable (i.e., interpretable), cost-integrated performance measures called for in the PMA BPI initiative.

The recommendations listed below point to specific steps that agencies can take to improve their cost accounting policies and procedures. The hope is that they can help agencies successfully continue the long and persistent effort to manage government programs using cost and performance results as guides.

Recommendation 1: Align performance, costs, and accounts. Agencies should ensure alliance of program performance and goals with the guiding mission and overall agency strategy. To accomplish this, agencies must go through an exercise that carefully aligns, or maps, all program activities to one or more of the strategic goals of the agency. NASA accomplished this by organizing their programs into programmatic themes in their strategic plan, as well as aligning these more clearly within the mission directorates. SBA's strategic plan aligns agency activities with five strategic goals, one of which is specific to the PMA itself.

First, program performance measures must be synchronized with the mission and strategic goals. If these measures do not capture what is explicitly called for in the mission or strategic plan, then a logical narrative should be provided in the latter and annual performance plans to show the link between the two.

Next, program costs must be synchronized with the program performance measures above. Continuous or categorical measures can be used to develop this connection, but without this step, an agency will not be able to use the benefits of cost accounting.

Finally, agencies should follow examples from NASA and SBA in negotiating with their appropriations committees to better align the appropriation account structures to an agency budgetary structure that supports cost accounting and the efficiencies to be gained. Other agencies that have negotiated such changes include the Environmental Protection Agency, and the Departments of Justice, Labor, Transportation, and Veterans Affairs.

Recommendation 2: Build outcome-based measures for ideal cost-performance integration. Agencies should strive to develop the effectiveness, cost, and efficiency measures discussed above, because they are what allow senior and program managers to understand more precisely the relationship between budget costs and performance. To the extent that outcome measures can be quantified, the preferred measures of service effectiveness and service efficiency can be developed. These offer the best reflection of program performance, and the service efficiency measure, which is the full cost of producing a given outcome, can be used to evaluate the "bang for the buck" of various programs. Moreover, the computation of marginal costs, which is the cost associated with an increase in service impact, and the public sector price analogue, will allow the agency to scale its operation to an efficient level and understand the value of the services provided, and not just the budgeted amount.

Recommendations

1. Align performance, costs, and accounts.
2. Build outcome-based measures for ideal cost-performance integration.
3. Develop a cost allocation method that fits the organizational design.
4. Supplement existing systems to support performance costing.
5. Create incentives to improve effectiveness and efficiency.

If quantifiable outcome measures are not available, the agency could develop categorical outcome measures, as discussed above and shown in Table 3 (see page 19), or quantify reasonable output measures. When using output measures as proxies for outcomes, one should provide a logical narrative to clarify the relationship between the output being used and the service outcome desired, and that should be used but for lack of data. A logical narrative that holds up to scrutiny is a good indication that the output measure is a reasonable proxy. However, data on outcomes should still be pursued.

Recommendation 3: Develop a cost allocation method that fits the organizational design. Agencies should develop a cost allocation method that models the downward cost flow shown in Figure A.1 (see page 38), but consistent with the organizational structure and how programs are situated within that structure. Even though NASA and SBA each have a substantial field presence, NASA's centers provide unique capabilities and operate programs and projects that in some cases cut across themes managed by mission directorates. Its Full Cost initiative recognized this complexity by focusing on directly

attributing as much costs as feasible to the program home through its new integrated financial management system, regardless of center location, and then racked up indirect costs in terms of G&A costs (Corporate and Center) and service pool costs.

SBA's organizational structure is rather straightforward, and its programs are labor-intensive and delivered by district offices and other network partners that essentially do the same thing at each location across the nation. With just 3,500 employees and a small budget, SBA implemented a low-cost survey-based tool to collect information vital to understanding how the agency's resources are being used.

The structure of the cost allocation model should be dependent on the organizational structure. That is, take the organization chart for the agency, identify the programs that make up the agencies' service menu, and organize non-program activities into indirect cost categories that share the same cost drivers. G&A costs will exist at different levels in the organization chart, but unless they can be directly attributed to program activities, they should be lumped together in a helpful way. Human capital, procurement, and facilities management are the main examples of such indirect costs, and would likely make up separate categories given different likely cost drivers. The programs' share of these cost drivers agency-wide (for example, budget, personnel, and/or square feet) will then determine how these indirect costs will be allocated.

Recommendation 4: Supplement existing systems to support performance costing. Agencies should start modestly and improve budget-performance integration capacity over time. The biggest reason for such an approach is the cost of implementing new cost accounting systems to handle the tasks required for good cost management. Too many agencies have tried and failed to implement financial management systems, as the requirements for such systems are still developing for federal government use. The agency can, however, build modest subsidiary systems that are FFMIA compliant for the purpose of allocating indirect costs to direct cost centers. NASA and SBA took the two extremes. NASA is still implementing its state-of-the-art integrated financial management system, and the SBA only tweaks its very modest survey tool every year. Consult the JFMIP requirements for managerial cost accounting before signing on the dotted line.

Recommendation 5: Create incentives to improve effectiveness and efficiency. Agencies should create incentives for support and program managers to become more efficient on their own. Full cost at NASA now gives program managers authority over the use of a key resource: personnel. By making direct personnel costs the program's responsibility, and not a separate budgetary line item, NASA created an incentive for program managers to reveal their true need for personnel resources. By "taxing" the programs for the agency's indirect costs, NASA created an incentive for program managers to question support managers about the G&A and other costs being attributed to programs, but not controlled by the programs. In general, full cost at NASA creates the incentives for program and support managers to behave more as market-based producers, revealing their true need for certain resources, and paying for what used to be "free" from a budgetary standpoint.

A competitive marketplace works so efficiently because Adam Smith's "invisible hand" guides and sorts market transactions such that the price a consumer pays for a good or service is equal not only to the benefit gained from consuming it, but also to the marginal cost of producing the last unit. At SBA, full cost measures revealed an allocation of key personnel resources that could not be justified on mission-based or policy grounds. Developing them and using them in this simple way alone can help agencies better understand how resources are being used. Publishing the full costs of programs in the congressional submission and financial statements ensures that congressional and taxpayer choices are better informed, and this creates incentives for efficiency gains within the political process.

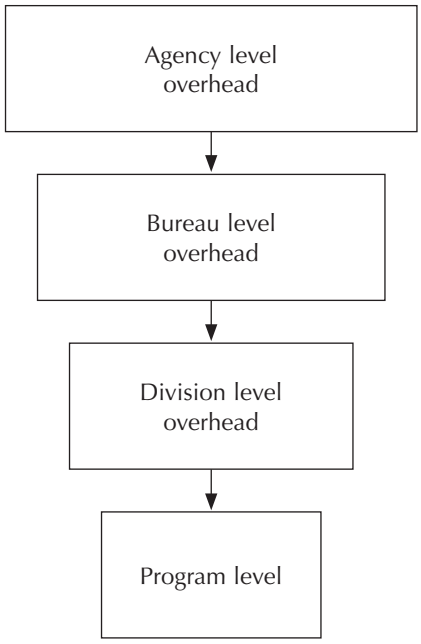
Development of the key effectiveness, cost, and efficiency measures will help manifest these incentives by providing the information needed to make better allocation decisions. In other words, these measures provide the best analogue to market prices available in the public sector. They allow senior managers, members of Congress, and taxpayers to effectively "value shop" the menu of government services. This report does not suggest that costing performance budgets will replace powerful political forces in the budget process. But with integrated cost-effectiveness measures in place, agencies will be in a better position to defend their budget submissions, to satisfy the PMA BPI criteria and "get to green," and to create the incentives for program and support managers to act more efficiently on their own.

Appendix: The Basics of Cost Allocation

The cost allocation method an organization should use depends on the structure of the organization itself. In general, costs at the highest levels within the organization should be assigned to the next lowest level, and these costs assigned the levels below it. Figure A.1 illustrates the flow of costs from higher to lower levels. It allocates costs first from agency to bureau level, then from bureau to division level, and finally from division to program level. This leaves the agency with two basic questions to address:

1. At which organizational levels should distinctions be made for cost allocation purposes?
2. On what basis should the cost allocations be made?

Figure A.1: Cost Allocation Flow of Costs



The answer to these questions can be considered simultaneously, as the basis of cost allocations will be determined by the activities of the organizational level at which costs are being allocated. Taking from Figure A.1, if a given service output dominates the activities at the agency level, then agency level costs should be allocated to the bureau level based on the extent to which bureaus benefit from this output. For example, if human resource administrative costs dominate G&A costs, then it makes sense to allocate costs based on the primary factor driving these costs—the number of personnel. If, on the other hand, procurement activities drive such G&A costs, then procurement actions or dollars would be the basis on which to allocate agency level costs. Procurement actions would be a more accurate basis if the amount of time and effort that goes into each action is somewhat equal. However, if the dollar amount of the procurement action largely determines the costs associated with these actions, then allocating on a dollar basis is the more accurate approach.

Clearly, agency level activities comprise a wide range of G&A services, but this is likely to be less true lower down the organization one goes. In other words, bureau level activities may include a number of G&A activities, but, hopefully, not all those performed at the agency level, and so on. So while the allocation bases might narrow as one goes down the organizational levels, it may be more appropriate to use multiple bases of allocation at each, if not only at higher levels. For example, let's say that an agency's G&A costs are derived, somewhat equally, from its human resources, procurement, and facilities operations. Then it would make sense to allocate the human resources costs by the relative number of employees at each bureau, under the assumption that these administrative costs are more closely tied

to the number of employee files to administer. The procurement shop costs should be allocated based on the number of actions or dollars as discussed above, and the facilities shop might allocate its costs based on the relative square feet of facilities being managed and maintained on behalf of the bureaus.

As the examples from NASA and SBA illustrate (see Tables A.2 and A.3 on pages 42–43), some agencies choose to allocate indirect costs (at whatever level) based on the relative program share of the agency's budget, under the assumption that all administrative activities are performed roughly in proportion to the program's budget amount. This assumption would be reasonable in an organizational setting where programs are roughly of equal size in terms of the budget. However, this budget-share approach may skew the allocation of costs inappropriately when programs are vastly different in budget amounts but not in, say, employees, which may be the predominant driving cost factor. These skewed distributions may be compensated through the implicit inclusion of procurement and facilities activities in this allocation method, but one would not know whether this was true without going through the allocation exercise itself, identifying the impact of the various bases on cost allocations versus a simple budget-share approach. Let's walk through a hypothetical example of cost allocation.

Allocating a Town's Costs

Finance expert Joseph T. Kelley developed a comprehensive example of a cost allocation budget exercise for a hypothetical city.[31] Using the basic model from this example, the author modified some of the numbers, added some numbers to represent employees and facility space, and called it a town. He then allocated the indirect (General Administration) costs to the area, the department level; the complete cost allocated budget appears in Table A.1 (see page 41). Here is a summary of the key steps:

1. To create incentives to reduce the costs of government, a town council passes an ordinance mandating that all budget requests come to them in full cost terms. The town's budget of $112.3 million pays for the costs associated with 2,140 employees, 1 million square feet of facilities and space, and a plain menu of local services whose costs fall into five service areas in the budget: general administration, public safety, community development, human services, and education.
2. Thirteen percent of the town's budget, $14.6 million, needs to be allocated to the direct cost centers, departments in this case. These costs will be allocated based on the relevant cost driver—budget share, employees, or square feet.
3. The city manager decides against allocating the whole $14.6 million on a budget-share basis, so he decides that costs of the city council, mayor, city manager, and the finance and law departments will be allocated in a budget-share basis; the costs of the general services will be allocated on a square-foot basis; and the costs of employee benefits and other services will be allocated on an employee basis.
4. This procedure means that the share of the budget, employee, and total facility space will drive the allocation of town level indirect costs. The human services area took on the largest amount on a budget share basis at $666,387. Education took on the largest amount of $3.7 million due to its share of total employees, and another $128,860 due to its largest use of facility and space.
5. Public safety administrative costs are determined to be allocated on a budget-share basis. Area administration costs of $1.5 million are added to $392,506 of similarly allocated GA costs, and these combined costs are allocated to the fire, police, courts, and other departments. In addition, $1.96 million of GA costs are allocated on an employee basis, and $32,987 are allocated on a square foot basis.
6. Community development administrative costs are determined to be allocated on a facility and space usage basis. Area administration costs of just over $2 million are added to $81,736 of similarly allocated GA costs, and these combined administrative costs are allocated to the public works, public transit, housing, water, and other departments. In addition, $575,865 of GA costs are allocated based on budget share, and $2.97 million on an employee basis.
7. Human services administrative costs are determined to be allocated on a facility and space usage basis. Area administration costs of $2.3 million are added to $3.37 million of

similarly allocated GA costs, and these combined costs are allocated to the hospitals, library and daycare, recreation, and employment services departments. Also, $666,387 of GA costs are allocated based on budget share, and $65,486 based on square feet.

8. Education administrative costs are determined to be allocated on a facility and space usage basis. Area administration costs of $2.1 million are added to $647,067 of similarly allocated GA costs, and these combined costs are allocated to the public schools throughout the town. Also, $3.7 million of GA costs are allocated on an employee basis, and $128,860 are allocated based on square feet.

A common critique of this kind of process is that it is simply cosmetic. Critics argue that adding indirect administrative costs to department costs is meaningless unless the department can control the indirect costs. This is a fair critique, although there is some use in revealing how departments draw on administrative services, if one believes that there is a connection. For example, without a full cost exercise, we would not know that G&A costs of $3.38 million (23 percent of all G&A costs) may be the result of the town's hospitals employing 325 people (15 percent of the town's workforce). One way to create an incentive for the hospitals to be held accountable for their direct and associated indirect costs is to negotiate a performance target, and give them greater budget discretion over their personnel expenditures and some portion of the $3.38 million (protecting all GA costs except general and other services).

Table A.1: A Hypothetical Town with a Full Cost Budget

	Traditional Budget	Employees	Square feet	Allocation by budget	Allocation by employees	Allocation by square feet	Fully Costed Budget
City Budget	**$112,358,759**	**2,140**	**1,000,000**				**$112,358,759**
General Administration	**14,630,872**	**180**	**49,000**	**2,281,825**	**12,039,977**	**309,070**	
City Council, Mayor, etc.	685,710	35	12,000				
Finance and Law	1,596,115	50	13,800				
General services	309,070	75	19,000				
Employee benefits	9,900,000	5	1,400				
Other services	2,139,977	15	2,800				
Public Safety	**16,810,570**	**320**	**101,500**	**392,506**	**1,965,711**	**32,987**	
Administration	1,556,755	5	1,500				
Fire	6,050,665	115	45,000	773,205	717,640	14,844	$7,556,354
Police	6,272,935	150	39,600	801,608	936,053	13,063	$8,023,659
Courts	1,113,525	25	7,800	142,296	156,009	2,573	$1,414,402
Other departments	1,816,690	25	7,600	232,152	156,009	2,507	$2,207,358
Community Development	**24,663,631**	**485**	**251,500**	**575,865**	**2,979,280**	**81,736**	
Administration	2,013,291	5	1,500				
Public Works	8,452,080	225	119,500	214,887	1,396,538	1,001,423	$11,064,927
Public Transit	4,180,875	95	50,000	106,295	589,649	419,005	$5,295,825
Housing	1,954,500	55	26,000	49,691	341,376	217,883	$2,563,450
Water	2,747,895	75	39,000	69,863	465,513	326,824	$3,610,095
Other departments	5,314,990	30	15,500	135,129	186,205	129,892	$5,766,216
Human Services	**28,540,558**	**550**	**201,500**	**666,387**	**3,378,565**	**65,486**	
Administration	2,302,343	5	1,500				
Hospitals	18,222,610	325	123,000	462,810	3,387,697	40,274	$22,113,391
Library and Daycare	1,719,015	45	16,000	43,659	469,066	5,239	$2,236,978
Recreation	1,363,590	40	14,500	34,632	416,947	4,748	$1,819,917
Employment services	4,933,000	135	46,500	125,286	1,407,197	15,226	$6,480,709
Education	**27,713,128**	**605**	**396,500**	**647,067**	**3,716,421**	**128,860**	
Administration	2,103,345	5	1,500				
Public schools	25,609,783	600	395,000	2,750,412	3,716,421	128,860	$32,205,477

Note: *Shaded administration costs are the indirect costs that are allocated.*

Table A.2: NASA's FY 2006 Full Cost Budget Request

Allocated Indirect Costs*	FY 2006 ($millions)
Total indirect costs	**3,094**
Corporate G&A	882
Total Center G&A	1,506
Total Service pools costs	706
Johnson Space Center (Texas)	735
Direct personnel, travel, and CoF	330
Center G&A	207
Service pools	198
Goddard Space Flight Center (Maryland)	557
Direct personnel, travel, and CoF	267
Center G&A	214
Service pools	76
Marshall Space Flight Center (Alabama)	521
Direct personnel, travel, and CoF	212
Center G&A	226
Service pools	83
Kennedy Space Center (Florida)	510
Direct personnel, travel, and CoF	167
Center G&A	232
Service pools	111
Langley Research Center (Virginia)	423
Direct personnel, travel, and CoF	142
Center G&A	195
Service pools	86
Glenn Research Center (Ohio)	377
Direct personnel, travel, and CoF	152
Center G&A	161
Service pools	64
Ames Research Center (California)	344
Direct personnel, travel, and CoF	116
Center G&A	191
Service pools	37
Dryden Flight Research Center (California)	107
Direct personnel, travel, and CoF	38
Center G&A	40
Service pools	29
Stennis Space Center (Mississippi)	83
Direct personnel, travel, and CoF	21
Center G&A	40
Service pools	22

Full Cost Budget	FY 2006 ($millions)
Total budget (including indirect costs)	**14,556.9**
Science	4,013.9
The Universe	1,513.2
Solar System Exploration	1,858.1
Earth-Sun Systems	2,155.8
Exploration Systems	2,684.4
Constellation Systems	526.0
Exploration Systems, Research, and Technology	722.8
Nuclear Systems and Technology	431.7
Human Systems Research and Technology	1,003.9
Aeronautics Research	906.2
Aeronautics Technology	906.2
Education	216.7
Education Programs	216.7
Space Operations	6,704.4
International Space Station	1,676.3
Space Shuttle	4,543.0
Space and Flight Support	485.1
Inspector General	31.3
Inspector General operations	31.3

** Direct costs for personnel, travel, and Construction of Facilities (CoF) are already included in program figures to right.*

Table A.3: SBA's FY 2006 Full Cost Budget Request

Allocated Indirect Costs	FY 2006 ($millions)
Total indirect budget	**$91,024**
General Planning and Management	24,768
Information Technology Management	30,969
Procurement and Administration	11,347
Improved Financial Management	8,266
Budget and Performance Integration	3,097
Competitive Sourcing	3,413
E-Government	3,067
Human Capital Management and Policy	6,097

Full Cost Budget	FY 2006 ($thousands)
Total budget	**584,836**
Capital Access Programs	**160,845**
7(a) loans	97,075
504 loans	38,342
Microloans	594
SBICs	12,866
Other programs	11,968
Government Contracting Programs	**83,058**
8(a) Business Development	37,657
Prime Contract	19,949
HUBZones	7,342
Small Disadvantaged Business	5,323
Other programs	12,787
Entrepreneurial Development	**154,163**
SBDCs	106,910
Women's Business Ownership	22,636
SCORE	19,048
Other programs	5,569
Advocacy	**14,540**
Advocacy	9,128
Veterans Business Development	3,012
Ombudsman	1,407
National Women's Business Council	993
Disaster	**137,324**
Disaster activities	137,324
Other	**34,906**
Inspector General and other programs	34,906

Acknowledgments

This report would not have been possible without the help of a number of people within the subject agencies. In particular, I am grateful to CFO Gwendolyn Sykes at NASA, and Administrator Hector V. Barreto and CFO Jennifer Main at SBA, for the access they provided me to do research for this report and for the leadership they continue to exhibit in performance budgeting reform. I especially thank Mina Sumpter for her work developing SBA's ABC model, Tim Owen for his efforts to make the concepts of full cost workable at NASA, and both of them for helping me summarize their excellent work into this report.

Endnotes

1. See the sidebar on page 8 for a full list of acronyms and abbreviations used in this report.

2. See the PART guidance at http://www.whitehouse.gov/omb/part/index.html.

3. This information can be found at the White House website: http://www.whitehouse.gov/results/agenda/getting_to_green.html.

4. For a review of the Defense Department's PPBS reform, see Jones, L. R. and Jerry L. McCaffery, "Reform of the Planning, Programming, Budgeting System, and Management Control in the U.S. Department of Defense: Insights from Budget Theory," *Public Budgeting & Finance,* Vol. 25, No. 3 (September 2005).

5. The CFO Act established the CFO position in 23 major agencies, and GMRA expanded this requirement to all federal agencies. The CFO Act is Public Law (P.L.) 101-576. GMRA is P.L. 103-356.

6. The CFO Act.

7. The FASAB was established in October of 1990, and the CFO Act was signed into law by President George H. W. Bush on November 15, 1990.

8. For a review of GPRA, see McNab, Robert M. and Francois Melese, "Implementing the GPRA: Examining the Prospects for Performance Budgeting in the Federal Government," *Public Budgeting & Finance,* Vol. 23, No. 2 (June 2003).

9. GPRA of 1993, Public Law 103-62, Section 306(a)(3) and Section 115(a)(3).

10. For financial management standards, see JFMIP's Core Financial System Requirements at http://www.jfmip.gov/jfmip/fsio_systemrequirements.shtml. For accounting standards, see the Generally Accepted Accounting Principles (GAAP) at http://www.fasab.gov/accepted.html, as well as the FASAB statements at http://www.fasab.gov/pdffiles/vol1v4.pdf. For the USSGL, see http://www.fms.treas.gov/ussgl/index.html.

11. Other legislation reviewed in GAO (1998) are, chronologically: Inspector General Act (1978), Prompt Payment Act and Federal Manager's Financial Integrity Act (1982), Computer Security Act (1987), Federal Credit Reform Act (1990), Paperwork Reduction Act (1995), and Clinger-Cohen Act and Debt Collection Improvement Act (1996).

12. See FASAB's "Overview of Federal Accounting Concepts and Standards: Report #1" at http://www.fasab.gov/reports.html.

13. Other major functions include reporting and general ledger, payment, receipt, and funds management.

14. A working capital, or revolving, fund is relevant with enterprise-like business units that collect significant amounts of reimbursables and other revenue.

15. For the relevant financial management system requirements to support performance costing, see JFMIP's guidance at http://www.jfmip.gov/jfmip/download/systemreqs/mancostsysreq.pdf.

16. For the seminal treatment of the impact of public service cost environments, see Bradford, David F., Robert A. Malt, and Wallace E. Oates (1969), "The Rising Cost of Local Public Services: Some Evidence and Reflections," *National Tax Journal,* Vol. 22, June, pp. 185–202.

17. See Public Law 85-568. For a history of the agency, see Bilstein, Roger E., *Orders of Magnitude: A History of NACA and NASA, 1915–1990,* NASA History Series, Office of Management, Scientific, and Technical Information Division, Washington, D.C., 1989. This monograph is published online at http://www.hq.nasa.gov/office/pao/History/SP-4406/contents.html. For a history of space policy, see Lambright, W. Henry, ed. *Space Policy in the 21st Century.* Baltimore: Johns Hopkins University Press, 2003.

18. This organizational structure is based on the Fiscal Year 2006 budget submission, and has been changing recently due in part to organizational changes in response to the new exploration mission and the change in administration. The 18 themes in FY05 have now been condensed into 12 themes, with the Science Directorate combining

eight themes into three; the Exploration Directorate combining five themes into four; and Space Operations, Aeronautics Research, and Education remaining the same, except that Education is no longer a directorate, and is listed as a function of the administrator's office.

19. NASA makes the following distinction between programs and projects. A program represents one or more projects that address a common theme or higher-level priority activity. A project is an element of a program that is separately managed, separately budgeted, uniquely identified within the budgeting and accounting system, and generally the lowest level at which a center will budget and account for its costs. For simplicity, this report uses "program" to represent both.

20. Budget figures are outlays from the FY 2005 Budget of the U.S. Government, Historical Tables, Table 4.1.

21. See GAO. 2003a. "Business Modernization: NASA Challenges in Managing Its Integrated Financial Management Program," GAO-04-255 (Washington, D.C.: Nov. 2003); and GAO. 2003b. "Business Modernization: NASA's Integrated Financial Management Program Does Not Fully Address Agency's External Reporting Issues." GAO-04-151 (Washington, D.C.: Nov. 2003) for a discussion of these challenges.

22. For a more detailed discussion of the appropriation account structure changes, see Appendix V in GAO (2005).

23. This category was first given the unofficial and oxymoronic name, "unfunded FTE," which reflected their unassigned status rather than whether they were being paid.

24. Definitions for these full cost concepts are taken from NASA's Financial Management Requirements (FMR), which is the primary financial management policy document. Volume 7 of this policy document covers costs, and Chapter 3 of this volume covers cost definitions.

25. This simplified example assumes that Corporate G&A costs are incurred on an even basis throughout the fiscal year. Thus, $73.5 million is 1/12 of the $882 million figure for FY 2005.

26. The Center G&A costs for the Jet Propulsion Lab are not provided, as it is technically a Federally Funded Research and Development Center. This means that its funds are treated as a grant, and therefore are not broken out in the same terms as the other traditional centers.

27. The Independent Technical Authority/Safety & Mission Assurance service pools are like G&A costs in that they are non-negotiable. These were developed in response to recommendations made by the Columbia Accident Investigation Board. Wind Tunnel service pools exist only at three of NASA's centers (Ames, Glenn, and Langley).

28. For discussions on SBA's service delivery and management challenges, see GAO. 2001b. "Small Business Administration: Current Structure Presents Challenges for Service Delivery." GAO-02-17. (Washington, D.C.: Oct. 2001); and GAO. 2001a. "Major Management Challenges and Program Risks: Small Business Administration." GAO-01-260 (Washington, D.C.: Jan. 2001).

29. Discretionary budget authority is presented here to avoid a presentation of outlays that swing substantially and therefore would be misleading. For example, outlays were disproportionately large in FY 2004 as a result of investment program losses, and outlays were negative in other years due to the nature of SBA's loan programs and the associated permanent indefinite budget authority.

30. These increases may seem counter-intuitive given the agency's declining discretionary budget base. These are largely the result of improvements in forecasting the defaults on loan commitments and in loan program design over the last five years.

31. Kelley, Joseph T. 1984. *Costing Government Services: A Guide for Decision Making*. Washington, D.C.: Government Finance Officers Association.

Bibliography

Behn, Robert D. 2004. "Performance Leadership: 11 Better Practices That Can Ratchet Up Performance." (Washington, D.C.: IBM Center for The Business of Government, May).

Bilstein, Roger E., *Orders of Magnitude: A History of NACA and NASA, 1915–1990,* NASA History Series, Office of Management, Scientific, and Technical Information Division, Washington, D.C., 1989.

Bradford, David F., Robert A. Malt, and Wallace E. Oates (1969), "The Rising Cost of Local Public Services: Some Evidence and Reflections," *National Tax Journal,* Vol. 22, June, pp. 185–202.

The Chief Financial Officers Act of 1990, Public Law 101-576.

The Federal Financial Management Improvement Act of 1996, Public Law 104-208.

GAO. 2005. *Performance Budgeting: Efforts to Restructure Budgets to Better Align Resources with Performance.* GAO-05-117SP.

GAO. 2003a. *Business Modernization: NASA Challenges in Managing Its Integrated Financial Management Program.* GAO-04-255.

GAO. 2003b. *Business Modernization: NASA's Integrated Financial Management Program Does Not Fully Address Agency's External Reporting Issues.* GAO-04-151.

GAO. 2001a. *Major Management Challenges and Program Risks: Small Business Administration.* GAO-01-260.

GAO. 2001b. *Small Business Administration: Current Structure Presents Challenges for Service Delivery.* GAO-02-17.

GAO. 1999. *Performance Budgeting: Initial Experiences Under the Results Act in Linking Plans With Budgets.* GAO/AIMD/GGD-99-67.

GAO. 1998. *Managing for Results: The Statutory Framework for Performance-Based Management and Accountability.* GAO/GGD/AIMD-98-52.

The Government Management Reform Act of 1994, Public Law 103-356.

The Government Performance and Results Act of 1993, Public Law 103-62.

Hatry, Harry P., Elaine Morley, Shelli B. Rossman, and Joseph S. Wholey. 2004. "How Federal Programs Use Outcome Information: Opportunities for Federal Managers" (Washington, D.C.: IBM Center for The Business of Government, February, 2nd edition).

Joint Financial Management Improvement Project. 2001. *Core Financial System Requirements.* JFMIP-SR-02-01.

Joint Financial Management Improvement Project. 1998. *System Requirements for Managerial Cost Accounting.* FFMSR-8.

Jones, L. R., and Jerry L. McCaffery, "Reform of the Planning, Programming, Budgeting System, and Management Control in the U.S. Department of Defense: Insights from Budget Theory," *Public Budgeting & Finance,* Vol. 25, No. 3 (September 2005).

Joyce, Philip G. 2003. "Linking Performance and Budgeting: Opportunities in the Federal Budget Process" (Washington, D.C.: IBM Center for The Business of Government, May).

Kamensky, John M., Albert Morales, and Mark A. Abramson. 2005. "From 'Useful Measures' to 'Measures Used.' " Chapter one in *Managing for Results 2005,* John M. Kamensky and Albert Morales, eds. (Lanham, Md.: Rowman & Littlefield).

Kelley, Joseph T. 1984. *Costing Government Services: A Guide for Decision Making.* Washington D.C.: Government Finance Officers Association.

Lambright, W. Henry, ed. *Space Policy in the 21st Century.* Baltimore: Johns Hopkins University Press, 2003.

McNab, Robert M., and Francois Melese, "Implementing the GPRA: Examining the Prospects for Performance Budgeting in the Federal Government," *Public Budgeting & Finance,* Vol. 23, No. 2 (June 2003).

The National Aeronautics and Space Act, Public Law 85-568.

Risher, Howard. 2004. "Pay for Performance: A Guide for Federal Managers" (Washington, D.C.: IBM Center for the Business of Government, November).

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