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Case Study

Responsibility Budgeting at the Air Force Materiel Command

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The case study reported here challenges conventional wisdom about the feasibility of implementing responsibility budgeting and accounting practices in U.S. government. A variant of this practice took root and operated effectively in a large federal agency—the Air Force Materiel Command—during the period of study. Contrary to conventional wisdom, implementing a meaningful form of responsibility budgeting and accounting does not require changes in public management policies or systemic institutional reform. However, the evidence shows that instituting practices of responsibility budgeting and accounting may require considerable administrative ingenuity in adapting the generic practice to the situation at hand.

Responsibility budgeting and accounting is a well-known generic practice for managing organizations that produce goods or deliver services, whether for sale or not. Systemic features of responsibility budgeting and accounting include delegated and focused responsibility for resource utilization and results. Usually, budgets are performance targets, whereas accounts measure their degree of accomplishment with some accuracy. Responsibility budgeting and accounting is theoretically appealing—and widely practiced in the private sector—because it solves problems of organizational coordination and control that arise in pursuing such goals as routinely cost-effective operations.

The public management policies and organizational routines of government agencies in New Zealand (Norman 2003; Schick 1996), Australia (Wanna, Kelly, and Forster 2001), the United Kingdom (Likerman 2003), and Sweden (Arwidi and Samuelson 1993) provide concrete examples of this generic practice. Similar examples in the U.S. federal government are rare. Students of performance-management systems typically attribute this difference to high-level institutional factors. Don Kettl, for example, comments that responsibility budgeting depends on “the separation of policy and administrative responsibilities embodied in a parliamentary system” (2000, 36–37).

The conventional argument goes something like this: First, the labyrinthine U.S. lawmaking process requires large provisional coalitions. The durability of these coalitions often depends on the ambiguity of their aims. The aims of the programs enacted by way of this process tend to be equally woolly, which militates against the use of clear-cut performance targets. Second, rivalry among the branches of the U.S. government often leads Congress to specify programmatic means in excruciating detail. The chief mechanisms through which Congress enforces administrative compliance are the specification of budgetary allowances by office and expenditure category, which militates against broad delegations of fiscal authority, and the system of obligational accounting, which militates against expressing performance in financial terms because it requires matching services delivered to resources consumed.

Consequently, the U.S. federal government's public management policies—government-wide institutional rules and organizational routines in such areas as expenditure planning and financial management (Barzelay 2001, 2003)—are unlikely to provide an encouraging environment for responsibility budgeting and accounting. The question remains, however, whether genuine variants of responsibility budgeting and accounting, pursued by individual government agencies, could pass the tests of workability and practicality in this broader institutional and public management policy context.¹

We answer that question with a qualified yes. The evidence and argument come from a case study of the Air Force Materiel Command (AFMC). The AFMC is a major command of the U.S. Air Force—a sprawling, horizontally integrated support organization.² It is responsible for executing budget authority of about \$40 billion each year, a significant fraction of the federal budget. Headquartered at Wright-Patterson Air Force Base near Dayton, Ohio, AFMC employs nearly 90,000 people (military and civilian) and operates a \$45 billion physical plant located at 22 field

installations or centers in 10 states. The AFMC mainly serves the combat air forces, the Air Mobility Command, Air Force Space Command, and the Air Education and Training Command. For these end users, the organization overhauls jet engines, tests prototypes of weapon systems, conducts laboratory research, writes software, operates a supply system for spare parts, and works with defense contractors on developing new systems.

The case study focuses on a recent experience, during which Commanders George T. Babbitt, Jr., and Lester Lyles dramatically transformed management practices at AFMC along lines broadly consistent with the generic practice of responsibility budgeting and accounting. Babbitt divided the command into more than a half-dozen businesses. Each business was treated as an accounting entity, whereas AFMC as a whole was represented internally and externally as analogous to a multibusiness, divisionalized corporation. Cost-oriented performance targets were established on a business-by-business basis. Accounting measures were developed and routinely used as indicators of organizational performance. Resources were linked to performance targets. A senior officer or official situated at AFMC headquarters was responsible for each business.

Why Manage Costs?

When George Babbitt readied himself to assume command in May 1997, AFMC was at risk. To fund ambitious modernization programs, the air force had decided to pursue a long-term strategy of winnowing so-called infrastructure costs, and it categorized most of AFMC's activities as infrastructure; Babbitt could easily foresee a future of budget reductions. This trend would be difficult to resist given AFMC's troubled relationship with the rest of the air force. Troubled relations with air force headquarters regularly became acute. When it came time to execute the air force's budget, top officials were repeatedly confronted with the unwelcome news that they would first have to cover hundreds of millions of dollars of deficits run up the previous year in AFMC's working capital funds. Every year in recent memory, the annual spending plans of the rest of the air force had to accommodate these losses. Babbitt supposed that it was only a matter of time before AFMC faced dramatic budget cuts. Inevitably, such reductions would decrease AFMC's operational performance unless the command immediately became more efficient. A more likely scenario, he thought, was that a vicious circle of budget cuts and performance shortfalls would ensue.

While waiting for the Senate to confirm his nomination as AFMC commander, Babbitt began to work out a strategy for dealing with this predicament. Drawing primarily on his experience in military logistics organizations, including the Defense Logistics

Agency, Babbitt decided to pursue a businesslike management approach with the aim of dramatically increasing AFMC's capacity to manage costs. His concept of managing costs was an expansive one: It included achieving financial discipline in the working capital funds as well as implementing technical or administrative process innovations on a continuous basis to bring down the unit costs of the goods and services AFMC delivered. Babbitt's intention was to make managing costs an organizational competence. "My aim was to get people to understand costs. My experiences showed that you cannot become more efficient if you do not understand your costs. I figured that if AFMC personnel understood what caused costs, they could explain them. If they could explain them, they could manage them." This thought made Babbitt sympathetic to employing management-accounting tools to develop the organizational competence to manage costs.

Introducing Responsibility Budgeting and Accounting

On assuming command, Babbitt announced that AFMC's mission was to be efficient as well as effective. To his audience, this statement was heretical. The mission had been to support the air force by effectively meeting the requirements for centrally provided services in the broad areas of logistics and acquisition. To accomplish the mission, managers acquired and used resources. AFMC managers treated resource levels as a constraint on mission accomplishment. In this context, the idea that *efficiency was part of the mission*, on par with effectiveness, was more than a little odd.

At the same time, Babbitt announced that the command's mission areas would now be called businesses. In the past, committees of headquarters officials supervised mission areas, such as testing and evaluation. Deviating from this practice, Babbitt named a chief operating officer for each of the seven newly demarcated businesses: supply, maintenance, scientific and technological research, testing and evaluation, product support, software development, and installations and support. The chief operating officers continued to perform their normal responsibilities on the AFMC headquarters staff—for example, as the director of logistics or the chief engineer. In announcing this organizational adjustment at headquarters, Babbitt stated that the chief operating officers were accountable to him, as chief executive officer, for the efficiency and effectiveness of their respective businesses.³

Addressing the chief operating officers at an early session of a standing committee that he called the "executive team," Babbitt introduced the language of cost management: "You are cost managers, not budget managers—your job is to deliver products and services

that meet performance standards and lower unit cost targets, through continuous process improvement... your job is not to acquire bigger budgets and spend it all.” He explained that this meant that “for products and services that meet performance [quality] standards, your job is to drive down unit cost; for products and services that do not meet performance standards, your job is to improve performance [quality], without increasing unit cost.”

At the time, AFMC did not possess the skills or routines to define, measure, and interpret unit costs, let alone manage them. AFMC’s fiscal information was organized by administrative unit and expenditure category, with a crosswalk to the air force’s program structure. Although financial systems were a problem, Babbitt was equally sure that installing cost-accounting systems would not necessarily help AFMC personnel to *understand* costs—a condition he believed was required for making efficiency-enhancing process improvements. Therefore, he wanted his chief operating officers to work through the potentially painful experience of defining and then quantifying unit costs.

Defining Products and Establishing Baseline Costs

The initial assignment handed to each chief operating officer was to develop a “work breakdown structure” for his or her business area and to present it to the executive team within six weeks. This concept—a tool of project management—was part of the active vocabulary of parts of the command. Applied to modeling a business area, a work breakdown structure provides a hierarchically ordered taxonomy of products and services. As the presentations took place, vast disparities in such constructs became apparent. Some chief operating officers were beginning to work out taxonomies that lent themselves to quantifying the volumes and unit costs of their businesses’ products or services. Just as many did not. In nearly every instance, Babbitt asked the chief operating officer to bring an improved construct back to the same forum for discussion within a few weeks.

In many of the business areas, the identification of work product was ultimately successful. The most elaborate instance was the installations and support business area, led by Brigadier General Todd Stewart, who concurrently served as the command’s chief engineer. Stewart identified 65 distinct products and services, most of which were produced at all 22 centers.

The next step for the chief operating officers was to quantify unit costs. How they performed this task depended on how their businesses were funded. For businesses funded by appropriations, they quantified unit costs by allocating the amounts in the command’s

diverse budgetary spending (outlay) categories to businesses and then reallocated them to (output) categories of products and services. This process was somewhat untidy. However, the commander was not seeking perfectly accurate measures of unit costs. Their intended function was to serve as baseline performance standards. Bringing down unit costs relative to the baseline was the desired achievement (in directional terms). For this limited purpose, it was sufficient for chief operating officers and others to accept the figures as the best available measure of historical unit costs; building a new system for collecting accounting data was not immediately required.

Within six months of assuming command, many of the elements of George Babbitt’s intervention were in place. Around command headquarters at Wright-Patterson, the whole vocabulary of businesses, chief operating officers, outputs, and costs was becoming more familiar. The discourse of cost management was increasingly being accepted, providing a way to describe what the command needed to do to accomplish its mission of efficiency and effectiveness—namely, to possess the capacity to manage costs. Field commanders were exposed to the new lexicon and its associated practices at quarterly commanders conferences. Meanwhile, Babbitt considered his next move.

Turning the Programming Process Inside-Out

On the horizon was a major cycle of medium-range planning and budgeting activity that involved building an AFMC program for submission to air force headquarters. The air force would then submit its program to the Office of the Secretary of Defense. In the upcoming cycle, AFMC was to revise its spending plans for the five years beginning with the 2000 fiscal year. In addition, it would outline spending for the distant fiscal years of 2005–06 for the first time.

Under Babbitt’s recent predecessors, AFMC headquarters had played a relatively passive role in the programming process. The field commands’ submissions were consolidated and then sent off to the Pentagon as the AFMC submission. This time, the chief operating officers, interacting with other headquarters staff and field organizations, prepared the program submission on a business-by-business basis. The executive team, chaired by Babbitt, served as the main commandwide forum for discussing successive versions of the draft program. In effect, this centralized the AFMC’s programming process at the headquarters level.

In the run-up to the programming cycle, Babbitt let it be widely known that AFMC would be “giving money back to the air force.” Less colloquially, he meant that AFMC would submit a program that requested less total obligational authority than had

previously been programmed. AFMC would, in effect, volunteer to reduce its spending authority compared to what had been agreed upon as an outcome of the previous programming cycles. This message was communicated internally and externally, and it amounted to an open pledge given to Babbitt's four-star colleagues, including the chief of staff and the heads of the other major commands.

Second, Babbitt told his own headquarters and field units that the AFMC program would not be built as before. Within the command, the process would no longer revolve around justifying adjustments to the baseline spending figures. These figures, from Babbitt's standpoint, were of no relevance to the programming process, which he considered an exercise in performance planning. For purposes of performance planning, the main question was how much unit cost could be progressively reduced relative to the historical baseline without degrading effectiveness in meeting user requirements. Consequently, the chief operating officers were required to present a program that specified a time path of unit costs at the business and product levels over a six-year period, beginning two years ahead. In doing so, they were expected to consult with the field commands. Yet it was evident to all concerned that their common superior would be displeased if the program did not incorporate steadily decreasing unit costs.

Building a program bottom-up by unit cost and surrendering previously agreed future spending levels violated a deeply ingrained script in air force programming practices. One field commander was known to have told his own staff, "I thought I had been invited to the Mad Hatter's tea party." But the design was coherent with making cost management an organizational competence and with remedying the troubled relationship between AFMC and the rest of the air force regarding resourcing.

A responsibility of the programming and financial management staff at headquarters was to make sure that planned reductions in unit cost would generate, overall, a significant net reduction in planned spending relative to the baseline established by previous rounds of programming. A huge technical and presentational problem was that the accounting structure underlying the air force's programming and budgeting systems had nothing to do with AFMC's businesses, outputs, or unit costs. The command's program obviously had to make sense to the Pentagon. Translating from one account structure to the other was a nightmarish task for the programming staff at AFMC headquarters.

In the end, they succeeded. The program submitted to air force headquarters proposed trimming spending

relative to the baseline by \$2.7 billion. This reduction went significantly beyond expectations couched in programming guidance that air force headquarters had sent off to Wright-Patterson before AFMC's program was put together. The programming guidance called on AFMC to reduce planned spending by \$1.1 billion over the course of 2000–04. AFMC offered to give more money back to the air force than the headquarters had asked for—by more than a factor of two.

Keeping the Program from Unraveling Up the Line

Before the programming cycle began in earnest at air force headquarters, Babbitt traveled back to the Pentagon to brief his submission. The senior generals in the room warmly welcomed the surprising news that the AFMC would be coming in with a decrease in requested budget authority, not least because all the other major commands were coming in with programs that substantially exceeded their fiscal guidance.

Although Babbitt's approach was a godsend for the most senior officials at air force headquarters, everyone knew that final programming decisions were substantially based on recommendations made by less senior officials participating in the process. In many situations, these working-level programmers would be blind to the effects of their actions on AFMC's plans to lower unit costs. In one envisioned scenario, a proposed increase in spending in one budget account would be evident to one group of programmers while the savings in another account would be evident to a different group. The first group could reject the proposed increase in spending while the second group would naturally accept the proposed decrease. In that event, business plans for decreasing unit costs would be undone, and AFMC would be stuck with an unsustainable budget cut.

Anticipating this palpable risk, the colonel in charge of programming at AFMC, Mark Borkowski, headed to the Pentagon: "We had to go to the air force and say, 'We built our program bottom-up, based on products and unit cost, and then we loaded money into budget accounts. You need to understand that our program is all interweaved and interlocked.' That's where we got in trouble. The mid-level programmers working in the air staff thought we were gaming them." However, Borkowski relied on Babbitt's authority to press the case with them and their superiors.

In time, word came down that the air staff programmers needed to check with Dayton before making changes. According to Borkowski, "This message was interpreted as saying, 'You can't mess with the AFMC program.'" As Babbitt recalls the episode, "The air staff tended to say, 'OK, even though we don't

Responsibility Budgeting

Responsibility budgeting is the stock answer given by students of management accounting and control when asked how to empower managers to manage and, at the same time, motivate them to use their collective intelligence to make service delivery more efficient (Anthony and Young 1994; Jones and Thompson 2000; Lapsley 1994; Simons 1995; Zimmerman 1995). Consequently, perceptive observers often put it at the paradigmatic core of New Public Management (Kettl 2000).

Responsibility budgeting became a codified practice beginning with Peter Drucker's exposition in the *Concept of the Corporation* in the 1940s. Over the past half-century, the practice has been elaborated in the expansive accounting literature on managerial control and in the literature on strategic management.

Within the accounting literature, agency theorists (Zimmerman 1995) tend to interpret responsibility budgeting as a practice for structuring the contractual relationship between providers of economic resources (principals) and those who apply those resources in economic activity (agents). The broad outline of this relationship is one in which substantial decision-making authority is decentralized to agents within the context of well-specified rules that determine how agents will be rewarded for their efforts. Rewards are based on economic quantities of interest to principals, such as returns on capital employed. According to this perspective, the management process mainly involves acquiring and deploying assets; to influence this process, principals must establish a consistent set of delegated decisions, performance measures, and rewards.

Types of Responsibility Centers

Agency theory lends itself to a description of responsibility centers in terms of the authority of managers to acquire assets and the kinds of financial targets that align responsibility with authority:

- Discretionary expense center managers are accountable for compliance with an asset-acquisition plan (expense budget). They have no independent authority to acquire assets. Their superiors must authorize each acquisition. Managerial accountants generally believe that a unit should be set up as a discretionary expense center only where there is no satisfactory way to match its expenses to final cost objects. Most governmental organizations are discretionary cost centers.
- Cost center managers are responsible for producing a stated quantity or quality of output at the lowest feasible cost. Someone else within the organization determines the output of a cost center, usually

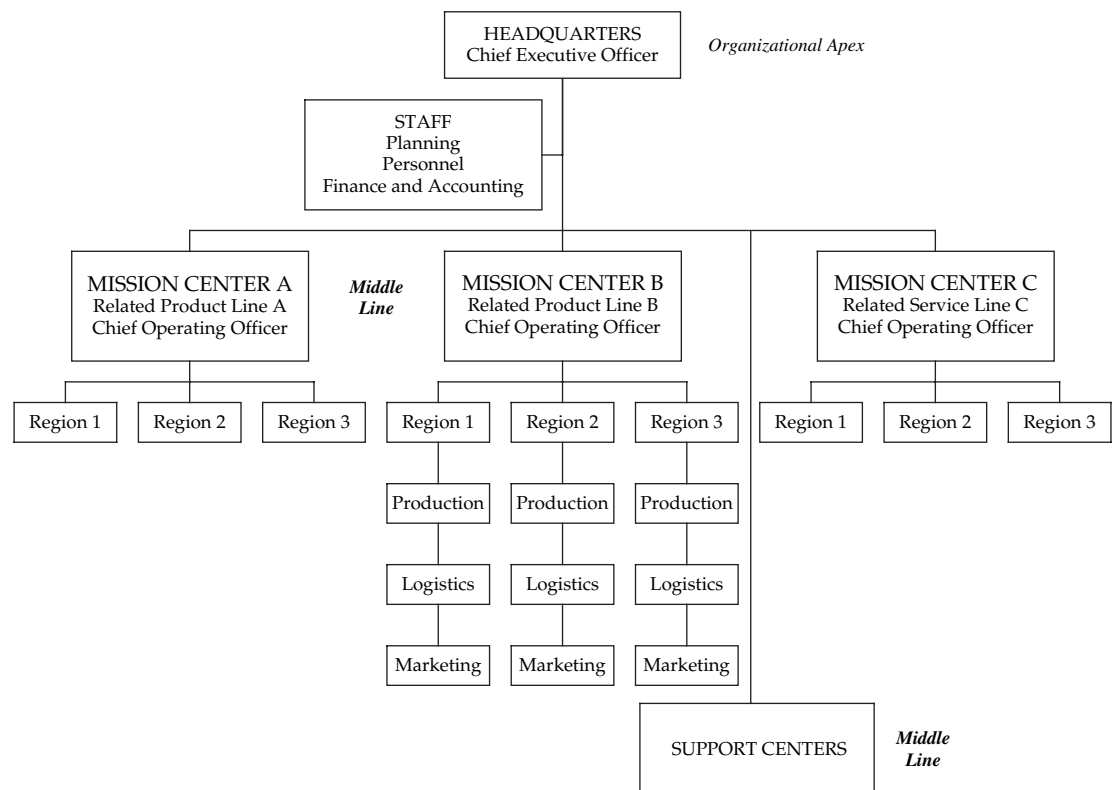


Figure 1 Divisonalized or M-Form Organizational Design

including various quality attributes, especially delivery schedules. Cost center managers are free to acquire short-term assets (those that are wholly consumed within a performance-measurement cycle), hire temporary or contract personnel, and manage inventories.

- In a standard cost center, output levels are determined by requests from other responsibility centers, and the manager's budget for each performance-measurement cycle is determined by multiplying actual output by standard cost per unit. Performance is measured against this figure—the difference between actual costs and the standard.
- In a quasi-profit center, performance is measured by the difference between the notational revenue earned by the center and its costs. For example, let's say that a hospital's department of radiology performed 500 chest x-rays and 200 skull x-rays for the department of pediatrics. The notational revenue earned was \$25 per chest x-ray (500) = \$12,500 and \$50 per skull x-ray (200) = \$10,000, or \$22,500 total. If the radiology department's costs were \$18,000, it would earn a quasi profit of \$4,500 (\$22,500 – \$18,000).
- Profit center managers are responsible for both revenues and costs. Profit is the difference between revenue and cost. Thus, profit center managers are evaluated in terms of both the revenues their centers earn and the costs they incur. In addition to the authority to acquire short-term assets, hire temporary or contract personnel, and manage inventories, profit center managers are usually given the authority to make long-term hires, set salary and promotion schedules (subject to organization-wide standards), organize their units, and acquire long-lived assets costing less than some specified amount.
- Investment center managers are responsible for both profit and the assets used in generating profit. Thus, an investment center adds more to a manager's scope of responsibility than does a profit center, just as a profit center involves more than a cost center. Investment center managers are typically evaluated in terms of return on assets, which is the ratio of profit to assets employed, where the former is expressed as a percentage of the latter. In recent years, many have turned to economic value added, net operating "profit" less an appropriate capital charge, which is a dollar amount rather than a ratio.

A Strategic Management Perspective

The practice has also been described in terms of organizational design and strategic management. In these terms, responsibility budgeting and accounting takes place within an organizational configuration known as an *M form*, in which decision-making authority over strategy formulation is reserved for top management, whereas decision-making authority over strategy implementation is decentralized to business units headed by general managers (Mintzberg 1983).

From the management-strategy perspective, a responsibility budget is merely an artifact of the management process conducted within such a structural setup. Specifically, the responsibility budget formalizes a performance target for a given business unit over a specified time scale. In the typical case, goals are expressed in terms of economic quantities that reflect the utilization of resources and the financial results obtained, as well as other scorecard measures. Because business strategies are usually conceived along product-market lines (single product, differentiated products, multiple products), and because the *M form* structures provide a general manager for each product line (rather than for regions or functions), in the management-control and strategic management literatures, responsibility budgeting and accounting is broadly endorsed as the mode of organizing and managing large, multiproduct firms whose outputs are, by definition, heterogeneous.

understand completely why they asked for money in these areas, we are going to bless AFMC's program and allow it to go up to Department of Defense the way they submitted it. And we'll spend our time working with the other commands that asked for billions of dollars more than was in their fiscal guidance.' This response got us over an important hump." Apart from demonstrating external support for Babbitt's approach, this event instituted, at least temporarily, a form of top-line budgeting for AFMC. What it achieved for AFMC and its managers was considerable fiscal flexibility.⁴

The Process Dynamics of Corrective Action and Accountability

Babbitt's second major process adjustment was to the command's quarterly execution review. Under his predecessors, the quarterly execution review was primarily concerned with unused obligational authority and performed by the command's financial officers. Babbitt refocused it on unit costs, timely corrective action, and accountability for performance. Moreover, he required AFMC's chief operating officers to play a leading role in the review process and actively participated himself. In February 2002, Todd Stewart attributed much of AFMC's success in controlling

working capital fund losses in 1998 and 1999 and executing the 2000 and 2001 budgets as programmed to this process. As he explained, “The quarterly execution review provided real benefits under Babbitt. It allowed us to find problems and run our businesses. This was true not only for us at headquarters but also at the centers. Every three months, operating officers were forced to review the status of ‘their’ business areas, especially with respect to variances from planned activity, spending and unit costs. You have to force busy people to do this. Otherwise, they will be totally caught up in day-to-day activities.”

This was also a sharp break with past practice. AFMC’s division of authority and responsibility had traditionally distinguished fiscal functions, which were the duty of financial managers, from service-delivery functions, which were the duty of operating managers. The job of operating managers, to the extent that it had a fiscal aspect, had been defined in terms of getting and spending money. In contrast, Babbitt now expected operating managers to ask for less and, whenever possible, to use even less than they got. At the same time, he refused to tell his subordinates how to manage costs or even how much to cut them. He believed that to do so would be contrary to the cultural norms he sought to instill throughout the AFMC. Instead, Babbitt imposed a substantial argumentative burden on his operating managers. He said, “Tell me your unit costs and what drives those costs. Then tell me what you are going to do to manage them.”

Stewart described Babbitt’s role in the quarterly execution process as follows: “Babbitt rarely if ever dictated or changed proposals. He challenged ideas. And, at each iteration of the process the challenges got harder. The discussions could be very frank and sometimes acrimonious.... A successful chief operating officer had to be able to stand up to General Babbitt’s questions. He needed to be able to say, ‘I have spent hours and hours on that analysis and, for the long-term health of the command, we have to spend the budget.’ If the individual reporting couldn’t justify his area’s spending or unit costs, that person had to decide what to do about it.” According to Stewart, Babbitt’s participation both directed and motivated learning about costs: “Of course, no one wanted to look unprepared or incompetent. That provided a lot of incentive to get up to speed on these issues as quickly as possible. But the [quarterly execution] review process wasn’t used to punish, it was used to try and find and correct problems and to cascade the process [of finding and correcting problems] down the command.”

Many of Babbitt’s operating managers, especially the field unit commanders, at first could not understand

what Babbitt wanted of them when invited to debate and dialogue about their costs—or why. Consequently, they grumbled: “Why won’t he just tell us how much he wants to cut our budget? Why is he wasting our time with this stuff?”⁵ Babbitt persevered, however. He believed the quarterly execution review was the best chance he had to teach cost management, promote managerial learning, and infuse the cost-management culture throughout the organization, thereby establishing a basis for sustained performance improvement.

Management Control: Getting Costs Right

At the end of Babbitt’s first year, AFMC’s cost analysts could allocate about 80 percent of AFMC’s 1996 outlays to products. To improve the quality and utility of unit-cost estimates, AFMC’s financial management community embarked on a crash program to extend its legacy job-order cost-accounting system, used in depot maintenance and supply management, to business areas that lacked direct-cost systems. In depot maintenance and supply management, the two areas with the greatest experience with product costing, they went further, replacing AFMC’s old job-order cost system with a modern, flexible cost-measurement system.⁶ Once AFMC’s financial management personnel had repaired direct costing, they turned their attention to the problem of allocating overheads, depreciation, and capital charges, as mandated by the Chief Financial Officers Act and the pronouncements of the Federal Accounting Standards Board, into their unit-cost estimates. Consequently, by 2001, AFMC had significantly upgraded its unit-cost estimates, with 95 percent of its 2000 outlays assigned to final products.

After Babbitt: Greater Technical Sophistication, Reduced Executive Involvement

Under Babbitt’s successor, General Lester Lyles, the command’s sophistication with cost accounting and analysis continued to grow. General Lyles also endorsed his predecessor’s virtual divisionalization. His only formal modification of this practice was to substitute the older label of “mission areas” for Babbitt’s label of “business areas.” Lyles also continued to require the participation of the AFMC’s operating managers in the medium-term expenditure-planning process:

I demand that our commanders in the field understand the budget. It is no longer the way it used to be in the past where the [chief financial officer] would request inputs from the field and he would build a budget that nobody really understood or could explain. It now behooves everybody to understand what goes into their budgets and to justify them.

Lyles took considerable pride in the fact that the air force subsequently required all of its senior commanders to participate in a similar process. Starting in 2001 and continuing in 2002 and 2003, the air force's four-star generals were required to explain their command's medium-term expenditure plans to each other and to the chief of the air staff and the air force secretary. "We never did that in the past. Everybody's budget went to the Pentagon, it got synthesized, and later you would find out what you got. Now, we have a much more collegial process, where each of us has an opportunity to brief, explain or justify our needs and our budgets to each other and to hear the needs and budgets of our counterparts. This is a better process. It leads to greater self-discipline but it has also given us a better understanding of where the dollars go and where they are most needed." Another difference is that "we present our budgets, not the CFO." This means, "we must understand everything in our budget; we have to explain it and justify it to our counterparts."

According to Lyles, the air force has rewarded compliance with its budget top line with greater fiscal flexibility. This made the executives in charge of the major commands more willing to comply with the air force's fiscal guidance, more interested in the content of their colleagues' expenditure plans, and more appreciative of the need for trade-offs. Consequently, the fiscal concerns of the four-star generals have been transmitted down into their commands.

One noteworthy change in practice took place under Lyles. Babbitt had played a direct role in the quarterly execution review. Lyles initially assigned that function to his deputy commander and, after his retirement, to a subordinate. Lyles felt he was less qualified to perform this role than Babbitt and was frankly less interested in the details of managing costs. Another change that occurred following the transition from Babbitt to Lyles was less overt but noticeable. Babbitt had consistently avoided the use of traditional budget language, perhaps because he associated its use with the budget-management mind-set he sought to replace. Babbitt had talked about costs and program planning; Lyles quite unselfconsciously used traditional budget language.

Was It Really Responsibility Budgeting and Accounting?

During the period of study, the Air Force Materiel Command under the leadership of Generals George Babbitt and Lester Lyles engaged in a sustained effort to apply responsibility budgeting and accounting. They divided the command into businesses and named chief operating officers for each one. Each business became an accounting entity for the purposes of medium-term expenditure planning, budgeting, and execution. The accounting system quantified the

cost per unit of output. Performance targets were expressed in financial terms, mainly improvements in unit cost levels on a product-by-product and business-by-business basis. Proposed budgets reflected plans to improve cost-effective performance. Air force treatment of the AFMC program submissions amounted to top-line budgeting, giving the command greater automatic discretion in the allocation of obligational authority among budget accounts. A process was put in place to hold line executives accountable for meeting performance targets.

In combination, these shifts in organizational and accounting arrangements translated into changes in AFMC's practices for performing two major organizational functions: medium-term performance planning and management control. Beforehand, medium-term performance planning practices had focused on making adjustments in approved expenditure plans; this practice changed in favor of developing targets for a stream of unit-cost improvements, with planned expenditures deriving from such targets and anticipated changes in throughput. The command's management-control practices had focused on the liquidation of budget authority according to plan; this practice changed in favor of exerting pressure to meet or exceed unit-cost targets while continuing to meet customer requirements for quality. The proximate effect was to build up a base of organizational skills, routines, and roles patterned on the generic practice of responsibility budgeting and accounting.

Four distinct mechanisms influenced organizational performance. First, medium-term expenditure planning (i.e., programming) and management control (i.e., budgeting and execution review) practices created pressure on field organizations to innovate their production practices so that they would become progressively more cost-effective. This pressure arose because unit-cost targets established in the medium-term expenditure-planning process were translated into unit-cost targets for years of execution. Given stable routines for budgeting, the level of resources made available in future years reflected unit-cost targets, along with projected activity levels. These expectations for resourcing generated pressure to search for more cost-effective routines.

Second, the medium-term expenditure-planning practices included a variant of top-line budgeting (i.e., relative freedom to allocate funds among established program accounts). This prerogative amounted to decentralization from the air force to AFMC in the first instance. Such selective decentralization eliminated a host of constraints (specifically, the need to negotiate a phenomenally large number of linked change requests) in the course of implementing innovations in production practices.

Third, AFMC was organized along business lines for the purposes of performing the functions of medium-term expenditure planning and management control. Each business area was constituted as an accounting entity in terms of which budgets were constructed and costs (and other performance information) were reported. Responsibility for each business area was nominally assigned to a single individual, called the business's chief operating officer. These roles were given particular responsibility for performing the functions of medium-term expenditure planning and management control.

Fourth, AFMC developed a management-control practice of monitoring business performance in the year of execution. This practice provided a role for the AFMC commander to exert pressure on his subordinates, including business chief operating officers and field commanders, to undertake any necessary corrective actions to achieve the desired (and usually planned) level of performance.

AFMC's practices, however, diverged from the generic practice of responsibility budgeting and accounting in one major organizational respect. The generic practice involves a type of organizational design known as the *divisionalized structure* (Mintzberg 1983). In this scheme, authority and responsibility for business planning, operations, and financial accomplishments are delegated to positions comprising the organization's "middle line." In Mintzberg's terms, AFMC's organizational design was an "adocracy" rather than a divisionalized structure. AFMC's headquarters was organized by business area, whereas the field was organized geographically, as it had always been. Both chief operating officers and field commanders reported to the AFMC commander. From a structural standpoint, aside from the head of the science and technology labs (Duffner 2000), the only literal general manager at AFMC was the commander himself, a situation Babbitt tolerated because reorganizing the line organizations would have consumed undue time and attention.

Babbitt sought to compensate for the difficulties of this second-best structural design by participating directly and intensely in such processes as programming and quarterly execution reviews. He also used his institutional power to make the most of the ad hoc structure. Babbitt consistently described the chief executives as responsible and accountable for the performance of the command's businesses. At one notable meeting well into the intervention, a clarifying question posed by a field commander was anonymously put to Babbitt: "If a chief operating officer and a field commander cannot come to agreement, who wins?" Babbitt's response was, "If a chief operating officer and field commander have to come

to me to decide a matter that they have not managed to resolve, then they both lose." In this way, the commander reinforced the ad hoc structure. At the same time, Babbitt, and later Lyles, was careful to respect conventions that provided subordinate field commanders with considerable discretion in the use of allocated resources and (other operational issues) once the budget cycle's year of execution began. The structure, though awkward in a military organization, appeared to be workable and practical for purposes of strengthening AFMC's cost-management capacity. But this departure from the generic practice placed heavy demands on the commander's time and attention. Ultimately, perhaps, these demands were not viable.

Conclusion

The generally affirmative tone of this narrative is consistent with two indicators of the intervention's success. First, it has endured and spread. Subsequent AFMC commanders have largely endorsed Babbitt's approach, and the experience has promoted significant changes in the air force's resource-allocation process. Moreover, under Babbitt's successor, General Lester Lyles, the sophistication of the command's unit-cost-based budgeting and accounting system has continued to increase. The air staff largely attributes the success of AFMC's units in winning public-private competitions to this factor.

Second, the intervention was successful on its own terms: AFMC cut costs and reconciled with its parent organization. During Babbitt's tenure, the command's budgets were brought in line with its budget guidance, where they have remained ever since; the working capital funds stopped losing money; and the command executed its budget so as to produce no unwelcome surprises for the corporate air force. In 2000, it actually obligated fewer funds than authorized, returning tens of millions of dollars to the corporate air force to be reallocated to other urgent needs.

Not all of these achievements have been sustained. In 2001, the working capital funds lost money, as they have in subsequent years.⁷ In both 2002 and 2003, AFMC found it necessary to request substantial supplemental appropriations. It would not be entirely unfair to summarize this episode by saying that, under Babbitt, the performance-measurement system was crude at best, but financial outcomes improved. Under Lyles, performance measures were more sophisticated, as was the use of unit costs in the programming process, but fiscal performance worsened. Clearly, better cost-management systems do not guarantee more effective cost management.

It is, of course, possible that the fiscal achievements of the Babbitt era were unsustainable. Nevertheless, we

believe things could have turned out differently had the command's top managers continued to be involved in the quarterly execution review and if Lyles had assigned himself a substantial part in the cost-management dialogue. Ongoing participation in the process of debate about unit costs, corrective actions, and accountability for performance would have helped motivate AFMC's managers to manage costs better and to learn how to do so. At the very least, it is reasonable to conclude that effective cost management requires greater sustained attention and a shorter learning cycle than the annual budget process allows. Even General Lyles has expressed some regret that he failed to play a more active role in this process.

The AFMC story also tells us some things we had not known about responsibility budgeting as an organizational governance mechanism. For example, we knew all along that traditional budgets are spending plans—that they look like recipes—whereas responsibility budgets look like targets, usually expressed in financial terms. We also knew that responsibility budgeting assigns the process of formulating and executing budgets to general managers. One thing we had not appreciated was the degree to which empowering frontline managers to achieve their targets also would mean downgrading budget managers and financial analysts.

Both air staff programmers and AFMC's budget analysts lost considerable influence during this episode. Neither group was entirely content with this outcome, although for the latter, the transformation from central players to back-office bean counters was consistent with professional norms. Professional accountants follow rules. They are often highly ambivalent about the influence they win by bending rules to make funds appear where needed or by using misdirection and misinformation to defend budget proposals. In any case, they seem less keen to restore the old regime than are their *déclassé* counterparts on the air staff.

We also learned that many of AFMC's managers were unprepared to participate fully in the managerial conversations expected of them. Responsibility budgeting's logic of making and letting managers manage presumes that they know how. Where cost management is concerned, that is not the case. Mission-oriented managers are used to treating budgets as constraints; they are often tyros when it comes to managing costs. Indeed, the upward-oriented skills required to get and manage budgets—the skills that have given government managers their current standing—are not especially pertinent to the tasks of cost and performance management. This fact should caution even the proponents of responsibility budgeting against easy, happy assessments of its workability. Moreover, responsibility budgeting assigns a decisive role to mid-level general managers.

There were almost no general managers at AFMC before Babbitt's intervention, at least not at the middle line. This is regularly the case in government.

Consequently, we conclude that AFMC's efforts under General Babbitt were surprisingly effective in developing the organizational competence to manage costs, given the institutional context, in which national budgets are spending plans and obligational accounting practices are the norm. We attribute this outcome more to the proficient design of the process by which AFMC came to develop its practices and capacities of cost management than to anything else.

Acknowledgments

The authors wish to acknowledge the very helpful comments made by Don Kettl, Allen Schick, L. R. Jones, Jostein Askim, and three anonymous reviewers. They made us think harder, research deeper, and write better. We would also like to acknowledge the support of the Defense Department's Emerging Issues in Acquisition Research Program and the IBM Endowment for the Business of Government for support of the research reported here. This article represents the views of the authors and not those of the U.S. Department of Defense, Air Force, or Air Force Materiel Command.

Notes

1. In general, something is *practical* when the means are available to put it into operation; it is *workable* only when it will remedy a problem or deficiency (Simons 2001, 159).
2. The data-collection methods used for this paper included direct observation, review of archival materials, and semistructured interviews. Direct observation occurred between September 1997 and August 1998, when the authors served as paid advisers to the AFMC commander and participated regularly in executive council meetings, commander conferences, and private meetings with General Babbitt and other AFMC officials.
3. Babbitt divided AFMC into business areas in much the same way that his predecessors had divided the command into mission areas, which had been overseen by committees of staff officials, although he separated supply and maintenance into different business areas because they operated different working capital funds. Francis McGilvery (1966, 1968) proposed a similar structural approach to responsibility accounting and budgeting for military organizations.
4. Of course, unprecedented as these practices seemed to many of AFMC's constituents, they were by no means original to Babbitt. Unit-cost-based budget formulation was proposed by the controller's shop in the defense secretary's office at the beginning of the 1990s (Juola 1993) and even earlier in the

performance-budget proposals of the 1950s (Roberts 1964). Trading spending authority for greater operating and fiscal flexibility is a ubiquitous and time-honored budgetary stratagem (Thompson 1993). Of course, we do not mean that AFMC was granted absolute fiscal flexibility. It still had to comply with explicit legislative guidance—but its frontline managers were generally free to decide the means to achieve their unit-cost targets.

5. See Borkowski (2003).
6. This accounting-information system was under development at the Indian Point Naval Station for the navy's stock-management and industrial activities. As an ecumenical gesture, its developers renamed what had been the Naval-Air Industrial Financial Management System the Defense Industrial Financial Management System (DIFMS) when AFMC adopted it. Babbitt had wanted a commercial product instead. However, based on considerations of feasibility, practicality, and timeliness, AFMC's financial managers insisted on a more incremental accounting-information systems strategy. They believed they had an honest shot at implementing DIFMS by 1999 and argued that getting the knowledge, resources (financial and material), and waivers required to carry out more fundamental database and information systems development and implementation efforts would delay implementation of a workable accounting-information system by three to four years at best and, if needed resources and waivers were not forthcoming, indefinitely. Babbitt swiftly weighed the alternatives and authorized AFMC's financial managers to go ahead with DIFMS, a hybrid accounting-information system with features of both older, more rigid, fixed-format and newer, more open relational databases. Compared with the existing legacy systems, DIFMS promised greater inventory control and real-time cost visibility, enhanced responsiveness to customers, and more complete direct-cost measurement.
7. Most informed observers agree that the Defense Department's working capital funds suffer from two conceptual failures. The first is pricing on an average total cost basis, which often leads customers to perform services for themselves rather than buy them from the working capital funds, which would be less costly for the department as a whole. The best solution to this problem is probably some form of multipart pricing in which the customer pays a lump sum for the right to be served and variable cost for the service itself (Keating and Gates 2002; Thompson 1991). The second problem derives from the notion that these funds are supposed to break even rather than earn a notational profit in the execution (as opposed to the expenditure planning) phase of operations. This view seems to reflect the mistaken notion

that a notational profit would be earned at the expense of the working capital fund's customers. In fact, notational profits are just like the working capital funds' notational losses: The latter become must-pay bills for the department as a whole, whereas the former represent obligational authority that could be reallocated to other high-priority purposes. Unfortunately, avoiding notational profits often results in avoidable outlays and sometimes losses (Thompson and Jones 1994).

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