

Efficiency Counts: Developing the Capacity to Manage Costs at Air Force Materiel Command



Michael Barzelay
Reader in Public Management
Interdisciplinary Institute of Management
London School of Economics and Political Science

Fred Thompson
Grace and Elmer Goudy Professor of Public
Management and Policy Analysis
Atkinson Graduate School of Management
Willamette University

IBM Center for
**The Business
of Government**

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F O R E W O R D

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On behalf of the IBM Center for The Business of Government, we are pleased to present this report, “Efficiency Counts: Developing the Capacity to Manage Costs at Air Force Materiel Command,” by Michael Barzelay and Fred Thompson.

This study of executive leadership focuses on General George T. Babbitt’s transformation of the Air Force Materiel Command (AFMC) from an organization driven by “budget management” to one focused on “cost management.” General Babbitt created a culture at AFMC that focuses on accomplishment (rather than on inputs) and productivity (not just bigger budgets).

The reform initiatives by General Babbitt were not just aimed at cutting costs or improving productivity in the short run. According to Professors Barzelay and Thompson, the goal of General Babbitt was to achieve an increase in “the institution’s *capacity to manage* costs, with potential benefit felt indefinitely if reinforced by his successors.” The report describes the steps taken by General Babbitt to create a cost-conscious environment, and how his successor, General Lester Lyles, reinforced it.

We trust that this report will be helpful and useful to two groups of readers. The first consists of all government executives interested in transforming their own organization. There are many lessons to be learned by change in government and how a leader can transform his or her organization to one with a new emphasis. The second group of executives consists of those with financial management responsibility who wish to emulate General Babbitt’s emphasis on cost management. We trust that this report will be informative to both groups.

Paul Lawrence
Partner-in-Charge
IBM Center for The
Business of Government
paul.lawrence@us.ibm.com

Glen Gram
Partner
IBM Business Consulting Services
glen.c.gram@us.ibm.com

C. Morgan Kinghorn
Partner
IBM Business Consulting Services
mkinghorn@us.ibm.com

EXECUTIVE SUMMARY

This study of executive leadership focuses on the two broad types of intellectual performance needed to provide leadership for organizations:

- Diagnosing situations, and
- Designing and improvising organizational interventions.

Situation diagnosis includes the identification of latent opportunities to create value and the factors limiting realization of those opportunities. Diagnostic quality is important because it provides an agenda for intervention—an account of the outcomes needed to overcome constraints limiting the flow of organizational achievement. An intervention is the process by which the agenda is realized. This process involves ongoing interactive relationships among the actors in a situation, with peak-level authority figures typically playing significant roles. This study proceeds from the view that executive efforts to design and improvise interventions can benefit from systematic learning about the experiences of resourceful organizational leaders.

The experience studied in this report is an effort by General George Babbitt to achieve a step increase in the capacity of the Air Force Materiel Command (AFMC) to perform in a more efficient manner. Babbitt's aim as commander was not simply to cut costs or increase productivity in the short run. He chose to pursue the more abstract objective of increasing the institution's *capacity to manage costs*, with potential benefit felt indefinitely if reinforced by his successors.

By the end of Babbitt's three-year tour of duty as commander, AFMC managers had accumulated substantial experience with the cost management approach. Many had come to value the benefits of the approach, including the expanded scope of AFMC's influence over the allocation of resources within a financial performance framework acceptable to the Air Force. The direction that Babbitt pursued with devotion and skill was viewed positively outside the command, as well. This context favored the outcome later observed, namely the reinforcement of the approach under Babbitt's successor, General Lester Lyles.

Under General Lyles, the command's sophistication with cost measurement and analysis continued to grow. The proximate result was to change AFMC's managerial practices for performing two key organizational functions: first, medium-term performance planning and resource acquisition, and, second, delivery of programmatic accomplishments. The development of these practices contributed, in turn, to a lowering of AFMC's unit costs, increased predictability of financial results, and greater compliance with the Air Force's strategic direction of reducing spending on so-called infrastructure to fund increased spending on modernization.

The analysis of this case is relevant to executives attempting to craft an appropriate and effective response in a variety of situations. The situation at AFMC when Babbitt assumed command included the external perception that its functions were essential but the organization was not affordable. This perception of governmental organizations is

widespread. Moreover, AFMC was in many ways a fairly typical government organization (Barzelay 1992). AFMC personnel had accommodated themselves to the apparent realities of public sector budgeting, emphasizing the acquisition and execution of budget authority rather than the systematic improvement of the costs of its services. They believed that their job was effective program delivery within an organizational construct where the budget-related staff functions exercised restraint over resource provision and consumption. A spirit of checks and balances—rather than joint problem solving and shared responsibility for efficient operations—pervaded line-staff working relationships.

The analysis of AFMC experience is thus generally relevant to situations where increased cost consciousness is called for. The approach to cost management Babbitt adopted is called *responsibility budgeting and accounting* in the professional literature. This approach points to the importance of formal resource allocation processes, selective vertical decentralization, goals that exert pressure for performance improvement, and systematic upward performance reporting as ingredients of efficient delivery of services by organizations.

Nonetheless, the professional literature provides little guidance about how to implement responsibility budgeting and accounting, let alone when the starting point is the public budgeting style prevalent in the U.S. federal government. This case study illuminates the challenge and possibilities of designing an effective intervention in such a situation.

Finally, the case analysis offers a perspective of relevance to all public managers concerned with transforming organizations. First, it provides a further example of how major transformations require responses from outside as well as inside an organization. In the AFMC case, the budget-related staff offices at Air Force Headquarters in Washington responded to the external dimension of Babbitt's intervention by revamping the mode of scrutiny it applied to the command's budget proposals. Second, the AFMC case provides evidence of the importance of the leadership process within an organization. In this case, Babbitt pursued a highly abstract goal that was difficult for many to grasp, especially at the outset. He sought to assemble an internal guiding coalition by enlisting his headquarters

Babbitt's Transformation

Situation Diagnosis

- Replace budget management culture with counterculture of cost management

Design of Organizational Intervention

- Quasi-reorganization along mission/product/business-unit lines;
- Unit-cost estimation and use of unit-cost measures in budget formulation and execution;
- Reengineering the process by which the organization's medium-term expenditure plan was formulated at the command level and considered at the Air Force level; and
- Establishment of a rigorous process of quarterly review of business plan execution for purposes of understanding unit costs, taking timely corrective action, and strengthening performance accountability.

staff as chief operating officers of AFMC's diverse business areas. As part and parcel of the leadership process, Babbitt launched and participated in a tightly staged series of exercises that induced his organization's executives to progressively gain experience with cost management. These exercises built a platform for further work that matured the practice of managing costs.

Several specific functions must be performed with some success for an organization to achieve a step increase in its capacity to manage.

- Organizing participation in the intervention—mobilizing and channeling group resources so that substantive functions, such as making sense of costs, can be performed.
- Making sense of the focus of the intervention—spreading understanding throughout the organization so that managers have tenable ideas about what they can do, such as managing costs, to improve things.
- Reordering relations with authorizing constituencies—changing preferences so that rules and routines, such as those concerned with expenditure planning and financial management, can be modified to permit better management.

- Practicing performance planning—bringing an understanding of the intervention’s focus to bear in forming an organization’s aspirations for achievement over time so that management practices can be strengthened by experience and, in time, perceived weaknesses corrected.
- Practicing execution control—learning how to perceive and act upon the need to undertake corrective action as part of the service delivery process so that a serious management practice can develop through experience.
- Stabilizing the practice—providing a secure footing, involving ideas, people, and organizational arrangements, for the management practice so that it does not collapse when leadership passes from one figure to the next.

General Babbitt’s intervention satisfied all six of these functional requirements, in part because its design was carefully tailored to his organization’s constitution and the wider institutional and policy environment. Consequently, the AFMC experience suggests that, depending on process context, some configurations of organizing devices, guiding ideas, and structured events have considerable potential to satisfy the functional requirements of a successful intervention. These patterns serve as food for thought in the intervention design process.

In this spirit, we suggest the following summary observations and lessons for ratcheting up an organization’s capacity, based on the causal texture of the AFMC experience.

- Executives intending to achieve a step increase in an organization’s performance—here, the ability to manage costs—should prepare themselves by studying codified practice—here, responsibility budgeting and accounting. In conducting the intervention, they should also maintain some symmetry between practical theory, especially its main lines of argument, and the guiding ideas of the intervention. These guiding ideas should remain broadly stable throughout the intervention, thereby providing a degree of structure to the intervention.
- At the same time, it is advisable for knowledge developed in the process of applying codified ideas to be acknowledged as providing insight

into what is practical and workable in the context of application. For example, AFMC’s initial structural design was not a divisionalized one; Babbitt relied on a virtual M-form structure to practice responsibility budgeting and accounting “on the cheap.” The multi-product, or M-form, organizational structure is one in which each major operating division serves a distinct market segment, retains considerable autonomy, keeps its own books, and is evaluated according to the DuPont system of financial measurement.

- Serious attention must be given to the time needed to develop management capacity throughout an organization. Top executives must seek ways to economize on this effort. The concept of rapid evolutionary development is applicable to the administrative innovation process, especially when process context factors include the “rotation” of peak-level officials. This practical theory of innovation management can help executives to think rigorously and creatively about such design features as their own participation in the process and the sequencing of structured events.
- Much of the standard guidance for managing upward and outward in public management applies forcefully to efforts to build management capacity.

Introduction

A recurring item on the agendas of public sector executives in the United States is how to improve organizational rules and routines involving planning, budgeting, financial management, audit, and evaluation. In the federal government, this item remains high on the agendas of public-sector executives, thanks in part to congressional and presidential interest. The interest in these political power centers is reflected in the persistent momentum behind implementation of the Government Performance and Results Act and the Bush administration's challenges to better integrate the managerial processes of program planning, budgeting, and evaluation. For these reasons, among others, the issue of how to improve rules and routines involving expenditure planning, financial management, audit, and evaluation is likely to draw high-level executive attention within federal agencies for some time to come.

In managing this issue, public-sector executives do not benefit sufficiently from research that analyzes experiences in which organizational leaders have concentrated on transforming such rules and routines. The analysis of change experiences has focused elsewhere—for instance, on changes in both program design and the organizational routines linked closely with service delivery, as well as the management of change within central coordinating and oversight agencies (such as the Office of Management and Budget and the General Accounting Office). The analysis of change efforts related to planning, budgeting, financial management, audit, and evaluation within bureaus, agencies, or military major commands is scarce.

This state of affairs means that public-sector executives' thinking is not strongly informed by analysis of recent bureau-level attempts to achieve organizational improvement through changes within the realm of planning, budgeting, financial management, audit, and evaluation. Many public-sector executives compensate for this dearth of research by relying heavily on discussions that make broad claims about what management systems would be good to have in place. These discussions are inadequate: They emphasize end states rather than transformative strategies, and they are insufficiently attentive to the realities of management in a regime where authority over relevant decision sets is shared by separated institutions and where a single major organizational unit is typically embedded in multiple policy subsystems.

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This report presents research on a federal government experience in which a significant, if partial, transformation of expenditure planning and financial management rules and routines occurred within a period of fewer than three years. This experience was centered in a military major command.

The Air Force Materiel Command (AFMC) is a sprawling, horizontally integrated support organization within the U.S. Air Force. It is annually responsible for executing budget authority on the order of \$35 billion, a significant fraction of the federal budget. Headquartered at Wright-Patterson Air Force Base near Dayton, Ohio, it employs nearly 90,000 people (military and civilian) and operates a \$45 billion physical plant at 22 major installations in 10 states. AFMC mainly serves internal customers, including the combat air forces, Air Mobility Command, Air Force Space Command, and Air Education and Training Command. For these customers, the organization overhauls jet engines, tests prototypes of weapons systems, conducts laboratory research, writes software, operates a supply system for spare parts, and works with defense contractors on developing new air and space systems.

During the period of study, AFMC engaged in a sustained effort to apply the logic of responsibility budgeting and accounting (see Appendix) in an environment that was in many ways inimical to implementing this practice. General George T. Babbitt instigated the effort immediately following his assumption of command in May 1997, astutely tailoring textbook principles taken from the functional discipline of management accounting and control to the institutional and cultural milieu of the AFMC. Throughout his three years of service as commander before retiring from the Air Force in 2000, Babbitt remained faithful to his goal of leaving AFMC much more capable of understanding and managing costs than was the case upon his arrival. This goal reflected his own values at the end of a long career as a military logistician as well as the fact that AFMC was widely perceived by the Air Force's senior leadership as excessively costly and a significant impediment to funding ambitious modernization programs.

Note on Sources

The data collection methods for this report include direct observation, review of archival materials, and semi-structured interviews. Direct observation occurred during the period between September 1997 and August 1998, when the authors served as paid advisers to the AFMC commander and participated regularly in executive council meetings, commanders' conferences, and private meetings with General Babbitt and other AFMC officials. All of the quotations reported in the text were taken from the following transcriptions and PowerPoint briefings:

General George T. Babbitt, ret., Gig Harbor, WA, interview August 2001 (revised and updated Salem, OR, March 2002).

_____, Commander, Air Force Materiel Command, *Managing Weapons Systems*, Wright-Patterson AFB, March 1998.

_____, Commander, Air Force Materiel Command, *Commander's Guidance*, Wright-Patterson AFB, October 1998.

Colonel Mark Borkowski, interview Arlington, VA, July 2002.

_____, interview El Segundo, CA, March 2003.

_____, Chief, Programs Division HQ AFMC/XPP, Air Force Materiel Command, *Business Management in the United States Air Force Materiel Command*, Wright-Patterson AFB, August 1999.

General Lester L. Lyles, Wright-Patterson AFB, January 2002.

Colonel Thomas Mahler, ret., e-mail archive, March 1998-June 2001.

Major General Todd Stewart, interview Salem, OR, February 2002.

_____, Chief Operating Officer (Installations and Support), Air Force Materiel Command, *Increasing Cost Consciousness in the Air Force Materiel Command*, Wright-Patterson AFB, October 1999.

Under his successor, General Lester Lyles, the command's sophistication with cost measurement and analysis continued to grow incrementally. The proximate result was to change AFMC's managerial practices for performing two key organizational functions: first, medium-term performance planning and resource acquisition, and, second, delivery of programmatic accomplishments. The improvement in these practices contributed, in turn, to a lowering of AFMC's unit costs, increased predictability of financial results, and greater compliance with the Air Force's strategic direction of reducing spending on so-called infrastructure to fund increased spending on modernization.

The AFMC case study brings to light ingenious efforts to make cost management substantially workable within a U.S. governmental context. These efforts compensated for the difficulty of operating the practice in the absence of some features that are present in full-fledged versions of responsibility budgeting and accounting. This report provides specific lessons about how to overcome the difficulties presented by such givens as spending budgets, organizational structures based on checks and balances, and government-wide obligational accounting practices. These specific lessons, drawn from a causal explanation of the improvement in AFMC's performance, reflect the literature on craftsmanship and leadership in government as well as the technical literature on governmental budgeting and accounting.

Babbitt at AFMC: Efficiency as a Mission

Upon assuming command in May 1997, Babbitt announced that AFMC's mission was to be efficient as well as effective. To his audience, this statement was surprising, even audacious, for the culture was to consider acquiring resources as a *constraint* on accomplishing *the mission*. Their new commander, however, was convinced that he needed to include the concept of efficiency in the mission if the organization was to respond appropriately to the strategic issues it faced at the time and long term. These issues included the sentiment, felt most strongly in the operational Air Force, that AFMC worked fairly well—but cost way too much.

This perception had a number of sources. One was the tension between the Air Force's desire to increase funding of modernization in the face of two constraints: the sideways or downward trend in defense spending and unrelenting operational duties, often involving missions in distant places. This situation made finding savings in the broad area of "infrastructure" a theme in the politics surrounding AFMC. General Babbitt, in an interview we conducted, summarized AFMC's predicament as follows:

After the Clinton administration's bottom-up defense review, the military were told that we could have more modernization or more readiness or more infrastructure, but we had to make the trades among them. If that is the question, the answer is easy. Nobody likes infrastructure. So the answer was, "Let's go kill the infrastructure." Well, a lot of AFMC is infrastructure.¹

The second main source was more internal to the Air Force. When it came time to execute the Air Force's budget, top officials were repeatedly confronted with the unwelcome news that in the previous year AFMC had spent hundreds of millions of dollars more to operate its centralized supply and maintenance activities than had been planned upon. Such overspending was legally permitted, because supply and maintenance operated as working capital funds; they were not directly funded by appropriations. Still, from the Pentagon perspective, each year of execution routinely started off badly because the previous year's losses in AFMC's working capital funds had become "must pay bills" in the present one. According to Babbitt:

There were significant financial losses in the two major working capital funds—supply and maintenance. In my earlier tour at the Pentagon, I had seen the chief and the secretary anguish over these huge financial losses. They were especially frustrated because nobody could explain them. It was a terrible situation and clearly an indication that nobody was really managing financial performance.

Babbitt took the view that AFMC faced not only an acute problem of gaining control over the working capital funds, but also a long-term crisis. He foresaw the command increasingly losing control of its destiny as its overseers sought ways to reduce AFMC's resources in the name of paring infrastructure. His experience told him that the command had not developed the orientation, motivation, and tools to become more efficient, leaving AFMC extremely vulnerable to arbitrary budget cutting and mission failure over the medium and long run. He committed himself to work on both the longer-term and acute problems. "I had to stop losing money in the two working capital funds. If I couldn't fix that problem, the rest was just talk."

Sources of Babbitt's Commitment to Efficiency

The idea that AFMC should place priority on efficiency was consistent with Babbitt's deeper values and background. At college, he studied engineering. "As far back as I can remember, I was interested in trying to understand cost because it is an important part of value. Cost is at least half of what you are trying to figure out. If you don't understand cost, you don't understand value. And, an engineering solution that ignores value is really a pretty poor engineering solution." As Babbitt moved up through the maintenance career field in the Air Force, this same orientation came to color his understanding of managerial work and responsibility. Babbitt came across situation after situation where he felt managers could have made efficient process improvements but did not seem motivated to do so. "Sometimes in the Air Force we have trained ourselves not to be responsible for the resources; that becomes somebody else's problem. You didn't have to look very far to see things that could be done just as well or better in terms of performance and for a lot less money if we took certain steps to change people's attitudes and motivate them differently."

As a general officer, Babbitt became intimately familiar with an organization that provided operating managers with the orientation and tools to reduce costs and improve quality. This organization was the Defense Logistics Agency (DLA), where he served as a deputy director in the early 1990s and as director just before taking over at AFMC in 1997. "At DLA, I saw that when you established

both what was expected and how many resources were going to be consumed in the process, people understood what their responsibility was, and it was good for a year. I saw some pretty good management in DLA by people who felt empowered by that kind of business relationship. I was encouraged to believe that that would work at AFMC, too."²

During several months while Babbitt waited for the Senate to confirm his nomination as AFMC commander, he began to formulate a conception and plan for using his time and authority to remedy the command's long-term problem. "My aim was to get people to understand costs. You can't make progress if you don't understand what it costs. I figured that if they understood what caused costs, they could explain them. If they could explain them, they could manage them."

Creating an Organization That Could Manage Costs

When Babbitt arrived in Dayton, AFMC's budget information was organized by field activity and by type of congressional appropriation. The command did not possess what an accounting professional or business executive would recognize as a management control structure, even though the command surely had a military command structure and budget system. At the time, AFMC's middle line (Mintzberg 1983) was composed of officeholders responsible for all of AFMC's activities pursued at a given field location, referred to as "centers" and scattered throughout the country. Because many activities, such as engine overhaul, were conducted at multiple locations, the command lacked general managers—i.e., an echelon of officeholders with line authority for all of the command's activities of a single type.³

General Babbitt considered that AFMC's command-wide organization structure and lack of relevant accounting information would make it very difficult to pursue the goal of increasing efficiency. However, Babbitt ruled out a major command-wide reorganization. This approach reflected his belief that "reorganizing was not the best way to solve or make significant improvement. We could make progress by simply focusing on the issues of program management—how we do it and how we can make that process better." Besides, as he later noted, "If I had tried to do away with the centers, I would have spent my whole three years fighting battles that that action had generated instead of doing other things."

Creating a Virtual Divisionalized Organization

Instead of reorganizing, Babbitt expanded the roles of senior officeholders within his headquarters. In doing so, he described these officeholders as having responsibility for specific business areas.⁴ The business areas included supply, maintenance, scientific and technological research, testing and evaluation, product support, and installations and support (see "AFMC's Business Management Approach" on p. 12). Babbitt called the individuals given responsibility for specific business areas "chief operating officers." These officials did not enjoy line authority over the organizations that performed their businesses' delivery functions, because the command as a whole was not reorganized. Nonetheless, Babbitt consistently asserted that the chief operating officers were responsible and accountable for their respective business areas.

The way Babbitt talked about the role of chief operating officers seemed contrary to the established relationship between the headquarters and field. The official role of headquarters' staff, in line with Air Force and military practice generally, was to advise the commander and to issue policy and guidance to the field. Center commanders reported directly to the AFMC commander (see Figure 1). Many center commanders felt that Babbitt was seeking to insert a new layer of management between Babbitt and themselves. This perception was especially problematic because no chief oper-

AFMC's Business Management Approach—Components

AFMC's structure focused on eight "business areas," each with specific customers, products, activities, assets and competencies, performance measures, and cost measures, and a responsible, accountable chief operating officer. Six of AFMC's business areas are mission centers (They provide goods and services to customers outside the boundaries of AFMC). These six business areas are:

- Product (System) Support
- Science and Technology
- Test and Evaluation
- Information Services
- Depot Maintenance
- Supply Management

The two remaining business areas, *Installations and Support* and *Information Management*, are support centers. Their customers are inside AFMC.

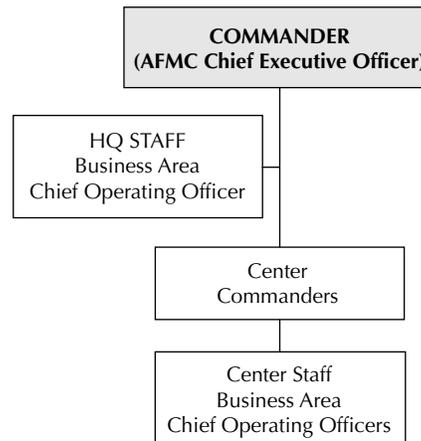
ating officer outranked a center commander; indeed, some center commanders were three-star generals and some chief operating officers were one-star generals.

To keep the tension from escalating, Babbitt carefully distinguished between phases of the planning, programming, budgeting, and execution process. He vigorously emphasized that the center commanders retained their settled prerogatives in the execution phase. Meanwhile, he simply proceeded to use his rhetoric of business areas and chief operating officers.⁵ It soon became apparent that business areas would also be "accounting entities." Under Babbitt's predecessors, mission areas were not accounting entities. Applying the business metaphor meant amending this state of affairs.

Inventing a Culture of Cost Management

General Babbitt told the newly appointed chief operating officers, who continued to perform their other assigned responsibilities on the AFMC headquarters staff, that they were accountable to him, as chief executive officer, for the efficiency and effectiveness of their respective business areas. Speaking first to the executive council of AFMC—composed

Figure 1: AFMC's Organizational Structure



of the chief operating officers and other top-level headquarters staff—and then to others throughout the organization, he reiterated: "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 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."

Recalling his early statements about cost management, Babbitt remarked, "I initially felt that this approach was easy to understand, but hard to implement. Later I realized that I had underestimated the difficulty of getting people to focus on managing costs. It is an emotional issue. They just know in their heart that it is not the right thing for a military person to do, and they resist it much more than I do."

After spending much of the summer of 1997 talking to his headquarters staff and traveling around the country to visit the numerous AFMC centers, Babbitt brought this cultural issue out into the open. He wrote up his own briefing charts in preparing for a conference of officials in the Air Force's acquisition community that had invited him to speak. The charts' headlines set up a stark contrast between

the established “culture of budget management”⁶ and the desired “culture of cost management” (see Table 1). Babbitt’s presentation went on to declare the goal of creating a culture of cost management in AFMC. This goal, the charts stated, “required a commitment to improving performance and reducing the cost of outputs at the same time.” The presentation was warmly received. From that point forward, the budget versus cost management rhetoric became a staple of Babbitt’s internal and external public communications.

As he later recalled, “I felt like I had to say it over and over again in order to build a critical mass of people who were pointed in the right direction. And for the first six months, I used the same briefing charts over and over again to try to make people believe that cost management would be my focus and that I would stick with it.” Persistence was an important aspect of Babbitt’s efforts to bring about a culture of cost management not only because AFMC was a huge organization, but also because the command’s routines were so deeply imbued with the culture of budget management. At the outset, for instance, the concept of cost of outputs had no operational meaning, except in the working capital fund operations of supply and maintenance. In the rest of the command, financial information included the level of budget authority, the programmatic category, and the organizational unit executing the budget. Babbitt decided that the first order of business was to lead a process whereby the chief operating officers would define their business areas’ outputs as a step toward calculating current unit costs. Once such quantities were known, he planned to build on this platform to redirect attention toward understanding and managing costs.

Conceptualizing Unit Costs

As an accounting concept, unit cost was not entirely familiar to the AFMC headquarters staff. To acclimate the staff to the concept, Babbitt handed out copies of a quick-study primer on the subject entitled *Accounting for Dummies*. At the same time, he used a concept from a more familiar domain—the systems engineering field—to label the first step in the process of calculating unit costs. The concept was a work breakdown structure. This construct successively divides the work involved in accomplishing a desired end state into component activities, each leading to a result that contributes to the overall outcome (see “Criteria for the Identification of Work Product” on p. 14). Applied to modeling a business area, a work breakdown structure becomes a hierarchically ordered taxonomy. Each taxonomic category within this functional hierarchy would be described in terms of the output that the effort was meant to produce. Thus, the first phase of the process for knowing unit costs was to represent business areas as functional hierarchies of work effort and associated products.

The initial assignment handed to chief operating officers was to develop a work breakdown structure for their business area and to present it to General Babbitt and their peers at weekly sessions of the executive council. The timeframe for accomplishing this assignment was about six weeks.

As the presentations took place, vast disparities in such constructs became apparent. Some chief operating officers were beginning to work out hierarchical taxonomies whose categories lent themselves to quantifying delivered products or services. Others,

Table 1: Budget vs. Cost Management Culture

Budget Management	Cost Management
Focus on inputs	Focus on accomplishments
Secure bigger budgets and more spending authority	Cut budgets/maximize productivity
Spend everything, i.e., execute full obligational authority by the end of the fiscal year	Understand costs, take responsibility for them—avoid expenses where possible
Centralize budget decisions	Decentralize decisions to those best situated to maximize productivity

Criteria for the Identification of Work Product

- All activities/processes should be defined in operational terms, e.g., handling or flow costs or storage and capacity costs. Coupled with output information, this terminology is intended to help managers orient themselves to managing costs and facilitate the use of activity accounting techniques.
- The design of work packages—the number of activity and results measures used—should be sensitive to issues of information cost and feasibility. This means using whatever is available at a reasonable cost, even where conceptually less than ideal.
- Efforts and accomplishments measures should reflect quality performance as well as the financial performance of a business area.
- Output/results measures should reflect external demands where possible rather than workload/activities internal to the organization. This means measuring actual service delivery to a business area's customers.
- Activity/process measures should reflect all of the value-adding activities performed within a business area.

Note: See Harr and Godfrey 1991 and Kaplan and Cooper 1998.

however, initially presented work breakdown structures with only two tiers. The elements comprising the lowest tier of these hierarchies were conceptually distant from a quantifiable product or service. In nearly every instance, the chief operating officer was asked 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 then Brigadier General Todd Stewart, who concurrently served as the command's chief engineer. Stewart identified 65 distinct products/services, most of which were produced at all 22 of AFMC's facilities.

Work product measurement was equally successful in the depot maintenance and supply management areas, which had once formed the core of the logis-

tics command. Depot maintenance and supply management are single-product, sequential-activity service operations that are carried out at multiple sites. Consequently, the same metrics are apposite to an entire area (see Table 2).

After a few iterations of the work breakdown structures, General Babbitt faced a dilemma. As the division chief responsible for programming, Colonel Mark Borkowski recalled, "He was comfortable with some of the work breakdown structures, but not others. The ones that were not proper did not measure products. It was difficult to take what looks like a level of effort activity—for example, program or acquisition management—and turn that into discrete end products. The question was whether these work breakdown structures were good enough." Babbitt decided that while one particular business area—product support—had yet to develop a decent work breakdown structure, the others were adequate for his immediate purposes of developing baseline estimates of unit costs, so he pressed on to the next stage of his intervention.

The Activity-Based-Costing General?

Meanwhile, the most prominent field unit within the command—the Aeronautical Systems Center,⁷ considered the mother church of the Air Force's systems development community—initiated a large, multiyear, contractor-supported effort to develop an activity-based costing system. Those who were involved in initiating this effort, as well as onlookers, expected Babbitt to be favorably impressed. Activity-based costing (ABC) had established its credentials in the private sector as superior to traditional cost accounting, and many government agencies, assisted by contractors, were getting on the bandwagon (Harr and Godfrey 1991; Granoff, Platt, and Vaysman 2000). Around AFMC, many officers and officials had surmised that Babbitt was in favor of ABC. In fact, an edition of the command's magazine had said as much.

To the surprise of many, however, Babbitt displayed an agnostic attitude toward ABC. Colonel Borkowski recalled: "My predecessor told me that I should read a whole bunch of things on activity-based costing because that's the way General Babbitt wants to run the command. But as I listened to

Table 2: Illustrative Work Breakdown Structure for Supply Management

Service Efforts		Service Accomplishments	
Inputs	Processes	Outputs	Results
Labor	Order processing	Materiel shipped or delivered	Orders met
Material	Receipt and stow of material		
Equipment	Issuance of material		
Shipping and handling	Shipping or delivery of material		
Other resources	Recording & filing updates Equipment & facilities utilization and maintenance		

[Babbitt], I realized pretty quickly that he was pursuing a kind of visionary construct, something synthesized at a level of abstraction higher than activity-based costing.” Many of those working in close range of the front office were sufficiently involved with such processes as formulating work breakdown structures to be confident that they were contributing to building a cost management culture. But others in the headquarters and the field were not sure what was expected of them. Many of them wanted to implement some kind of specific action plan that would remove any doubt that they were endeavoring to comply with the commander’s wishes. Whatever the merits of ABC costing, commissioning a study or pilot project certainly seemed to fit that bill. The commander’s unwillingness to mandate or even strongly affirm any specific accounting or management technique, however, left them ill at ease.

Babbitt’s handling of this issue reflected his own previous encounter with activity-based costing at the Defense Logistics Agency in the early 1990s:

It was clear that other people were very enthusiastic about ABC. We were trying to figure out which activities drove costs and whether they were value adding or not. We would pass out forms that essentially said, “Tell us which one of you guys is doing non-value-added activities? Fill in the blanks.” And when the forms came back, nobody was doing non-value activities, and we acted surprised. In that

instance, ABC was a total failure. Afterwards, I tried to imagine the circumstances you would have to create for ABC to be a useful, successful tool. I decided that first you would have to create a mind-set where people know and feel that they are responsible for the inputs and the outputs. Once you are in that box, then ABC becomes a useful way to organize your thoughts and begin to zero in on where you might make progress.

The commander’s neutrality about activity-based costing was not just based on the difficulties of implementing ABC, but also upon the belief that his own authority was best used to create the mind-set described above. If subordinates wished to pursue a specific cost management system like ABC, they could do so on their own authority. Babbitt would remain identified with the abstract task of instituting the cost management culture across the command.

Reengineering Medium-Term Expenditure Planning

Within six months of assuming command, many of the elements of General Babbitt's intervention were in place.⁸ 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 becoming fine-tuned, 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, as the chief operating officers were struggling to define outputs and measure costs, Babbitt considered his next move.

Building the 2000–2006 Program

On the horizon was a major cycle of medium-range planning and budgeting activity involving building an AFMC program for submission to the Air Force headquarters. The Air Force program would later be submitted to the Office of the Secretary of Defense. In the upcoming cycle, spending plans for five years beginning with the 2000 fiscal year would be revised. In addition, spending for the distant fiscal years of 2005–2006 would be outlined for the first time. Babbitt came to view the upcoming programming cycle—called building the FY '00 program—as a major opportunity to carry forward the process of instituting a cost management culture.

The commander told his headquarters staff and the centers that the AFMC program would not be built as before. Under Babbitt's recent predecessors, AFMC

headquarters had played a relatively passive role in the programming process. The units within AFMC submitted their requests, and the headquarters tended to bundle them together and send them off to the Pentagon. In this case, the programming process was directed by AFMC headquarters, with Babbitt's personal involvement and with a prodigious role played by the chief operating officers, backed up by the staffs of the plans and programs and financial management directorates.

Babbitt's conception of the programming process was more radical still. Three aspects of the program were unprecedented. First, Babbitt let it be known inside and outside the command—including the Corona meeting, an annual conference attended by all four-star generals in the Air Force—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 the baseline figures set in previous programming cycles.

Second, the commander indicated that the baseline figures in budget accounts were irrelevant to building the program. Internally, the programming process would no longer revolve around calculating and justifying adjustments in the various spending accounts that comprised the Air Force's programming and budgeting system. From Babbitt's standpoint, the baseline amounts in spending accounts were financial quantities of no genuine relevance to performance planning. The quantities of relevance,

in his view, were baseline unit costs. Babbitt ruled that spending plans would be derived by multiplying two quantities: targets for unit costs and the volume of quality outputs that AFMC would need to produce for its customers.

Third, the commander required that unit costs for FY '00 be lower than the baseline level of unit costs. In other words, AFMC would commit to becoming more efficient. The combined effect of these three radical departures from past practice was a certain amount of initial disbelief. One center commander, who later participated energetically, was known to have told his own staff, "I thought I had been invited to the Mad Hatter's tea party."⁹

The cycle started with unit-cost estimates—the result of the work packages and unit-costing exercises described earlier (the first identified products, the second identified their costs). The cycle continued with these measures being used to assess the performance of the working capital funds (along with relevant operating information like on-time deliveries, etc.) and budget execution in the rest of the organization. The immediate effect of this step was an end to the working capital funds' losses in 1999 and 2000. Next, unit costs were used to prepare AFMC's future-year program proposal for 2000–2005, the first year of which constituted its budget request for fiscal 2000. The program was put together for the command by multiplying unit costs in each of the business areas by their planned output levels (target costs were used for out-years).

When it was done, however, AFMC had produced a spending program for 2000–2005 that was consistent with the Air Force's budget guidelines. This implied planned cuts of \$1.1 billion. Moreover, AFMC promised to return an additional \$1.4 billion in savings to the Air Force, thereby reducing its request \$2.7 billion. The 2000 program also proposed to reinvest \$0.3 billion to achieve future savings/performance improvements.

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, and unit costs. The command's Program Objective

Memorandum (POM) submission obviously had to make sense to the Pentagon. Translating from one accounting structure to the other was a nightmarish task for the programming staff at AFMC headquarters.¹⁰

Bringing the Air Staff on Board

Before the programming cycle began in earnest at Air Force headquarters, General Babbitt traveled back to the Pentagon to brief his submission. The surprising news that AFMC would be coming in with a decrease in requested budget authority was warmly welcomed by the senior general officers in the room, not least because all the other major commands were coming in with programs that substantially exceeded their fiscal guidance. While 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 the 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 end up with an unsustainable program.

Anticipating this palpable risk, the colonel in charge of programming at AFMC headed to the Pentagon:

We had to go to the Air Force and say, "We've done our program based on products and unit cost. We built our program bottom up, and then we loaded money into budget accounts. So, don't muck with our program, because you need to understand that it is all interweaved and interlocked." That's where we got in trouble. The corporate Air Force saw this as Air Force Material Command trying to pull the wool over their eyes. They thought we were gaming them.¹¹

The programmers on the Air Staff in Washington were not entirely sure what to do with AFMC's program submission. In time, word came down that programmers working on AFMC accounts needed to check with Dayton before making changes. According to Colonel Borkowski, "That got translated to, 'you can't mess with the AMFC program,' which was just fine with us." As Babbitt recalls the episode:

The Air Staff tended to say, "OK, even though we don't understand completely why you 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 you submitted it. And we'll spend our time working with these other commands that asked for billions of dollars more than was in their fiscal guidance." This response got us over that hump.

The programming process, which was completed by the time Babbitt marked his first year in office, represented a key milestone in the process of instituting the cost management culture at Air Force Materiel Command.¹²

Installing an Interactive Control Process

Making organizations more efficient is not simply or even primarily a matter of overhauling expenditure planning and financial management systems. While it may be axiomatic that one cannot manage what isn't measured, cost measurement does not guarantee cost management. Neither will changes in budget design or administrative structure. One must change an organization's culture, which needs a cognitive transformation.

Amending the Quarterly Execution Review

Babbitt's second 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 the quarterly execution review on unit costs, timely corrective action, and accountability for performance. He required AFMC's operating managers to play the leading role in the quarterly review and actively participated himself. This was a sharp break with past practice. AFMC's division of authority and responsibility had traditionally distinguished between fiscal functions, which were the duty of financial managers, and service delivery functions, which were the duty of operating managers. The job of the operating manager, to the extent that it had a fiscal aspect, had been defined in terms of getting and spending money.

Because Babbitt presumed that there was a lot of muddle and waste to be found in AFMC, he

expected operating managers to ask for less money and where possible to use less than they got. Perhaps even more meaningfully, he imposed a substantial argumentative burden upon them: He wanted them to defend their spending proposals—their economies as well as their requirements. Since comprehension reflects experience, Babbitt's operating managers could not at first understand what Babbitt wanted. When he said, "You are a cost manager; tell me your unit costs and what drives those costs. Then tell me what you are going to do to bring them down," 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?"¹³

Babbitt strongly believed that telling his subordinates how to manage costs or even how much to cut costs was contrary to the logic of decentralized management and constituted a violation of the cultural norms he sought to instill throughout AFMC. Fortunately, however, it didn't violate Babbitt's self-imposed constraints for members of his staff to offer advice on request about what Babbitt was looking for. Moreover, it didn't hurt that a few of Babbitt's most visible operating managers were eager to bear the burden of argumentation expected of them or that they used the power Babbitt delegated to them to good advantage. They provided the examples that others eventually emulated.

In February of 2002, shortly before he retired from the Air Force, Major General Todd Stewart attributed much of AFMC's success, both in controlling working capital fund losses in 1998 and 1999 and in executing the 2000 and 2001 budgets as pro-

grammed, to the quarterly execution review 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.

Stewart also described Babbitt's role in the process:

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. If the individual reporting couldn't justify his area's spending or unit costs, that person had to decide what to do about it.

The result could be an agreement to present revisions at the next meeting, identification of specific action items to be addressed, or personal feedback to General Babbitt.... However, as long as the chief operating officer was satisfied with the answers provided by the centers, the result was never to go back to them for more money.

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." 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.¹⁴

Interactive Controls in a Decentralized Organization

Most discussions of responsibility budgeting and accounting imply that top management controls entirely by the numbers from a small corporate headquarters, using financial targets that it sets for the operating divisions (see Types of Responsibility Centers in the Appendix). In many well-managed, highly decentralized businesses, target setting is a bottom-up process. Indeed, in many instances, far less emphasis is given to financial targets per se than to the ability of subordinate managers to understand and explain their businesses in terms of costs, trends, operating efficiency, marketing strategy, competitive position, action plans, and programs.

In this respect, Babbitt's Socratic approach to budget control was closer to contemporary practice than are many textbook treatments of responsibility budgeting and accounting.¹⁵ Like most Socratic processes, Babbitt's approach also provided a noteworthy opportunity for teaching and learning, and, thereby, for infusing the culture of cost management throughout the organization, establishing a basis for sustained improvement (Sugarman 2000).

What Happened Following Babbitt's Intervention

The practices initiated during Babbitt's first year as AFMC commander—virtual divisionalization, work-product cost measurement, unit-cost-driven expenditure planning, quarterly execution reviews—have subsequently been retained and, in at least one instance, substantially refined.

Cost Measurement and Analysis

At the end of Babbitt's first year, AFMC's cost analysts could allocate about 80 percent of AFMC's 1996 outlays to products. Nevertheless, these unit-cost estimates were highly unsatisfactory for several important purposes. To improve the quality and utility of unit-cost estimates, AFMC's financial management community embarked on a crash program to extend AFMC's legacy job-order cost accounting system 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 their old job-order costing systems with the Navy's more flexible and sophisticated Defense Industrial Financial Management System. Once they 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 Advisory Board, to their unit-cost estimates. As a consequence, by 2001 AFMC's unit-cost estimates were significantly improved, with 95 percent of its 2000 outlays assigned to final products.

The success with which operating managers used this information varied from area to area, of course.

Two apparent determinants of success were the degree to which cost information facilitated cost analysis of work-process and the degree to which managers viewed their area's activities in terms of supplying discrete services to identifiable customers at specific dates. With multiple sites performing identical services, installations and support personnel fairly easily combined cost information with process measurement to identify best practices in their area. Cost analysis of work process was equally enlightening in the depot maintenance and supply management areas and in both instances it implied substantial redefinition of unit costs. Depot maintenance personnel found that their costs were strongly influenced by the number of inspections, machine setups, and change orders, and not just work volume. Supply management personnel found that their cost drivers included the number of unique items held in inventory and types of items issued, as well as physical volume and weight processed or distance shipped. In fact, many of supply management's cost drivers reflected the number of types of its customers' operating systems better than they did gross activity levels. This suggests that, if supply management's customers wanted to reduce their support bills, they ought to think about reducing the number of systems in their active inventories, especially where they own fewer than one hundred aircraft of a particular type.

In contrast, personnel in the supply management area had trouble thinking about their activities in terms of units delivered to customers. Most saw no utility in such an approach. For example, Colonel Tom Mahler, then senior financial manager at Hanscomb Air Force Base, viewed Babbitt's efforts

as a significant distraction from the work of implementing changes that were part of his own commander's longer-running intervention, the aims of which were to allow the systems centers to achieve significant improvements in the management of acquisition programs of great import for the Air Force's overall strategic direction. As he saw it, efforts to find costs where there was no agreement as to the proper cost objective were inherently arbitrary and drew resources from efforts that might have led to achieving the more abstract goal of learning to manage costs. Accordingly, from his standpoint, Babbitt's intervention was inherently flawed even in its own terms.

Because many of product support's activities aren't performed for identifiable customers or delivered in discrete packages at specified times, its officers had a far more difficult job of conceptualizing their unit costs than did those from AFMC's other business areas. Consequently, they took longer to take up the burden of argumentation expected of them and never really embraced it. As it happened, the systems centers couldn't cause serious fiscal problems for AFMC. AFMC's headquarters was responsible for programming a very small proportion of the total budget authority executed within the systems centers. Furthermore, the systems centers weren't working capital funds so they couldn't overspend. Hence, their failure to participate fully in the practices initiated during Babbitt's first year as AFMC commander was viewed as a hindrance rather than a breakdown of the intervention. Unfortunately, the reasons for the malfunction were never fully explored or understood at AFMC's headquarters and, perhaps, not at the systems centers either.¹⁶

Expenditure Planning and Execution

In 2000, unit costs were again used to prepare AFMC's future-year program proposal for 2002–2007. And, again, AFMC presented a proposal substantially under its fiscal guidance, returning an additional \$1.3 billion to the Air Force. This process was repeated in 2002 under Babbitt's successor, General Lester Lyles. General Lyles has 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." As Lyles explained:

There should not be a conflict between business approaches, smart business practices, business benchmarks, etc., and the needs of the war fighter. In the job I had before coming to this particular organization, I had an opportunity to see that some of our customers did not really understand what General Babbitt was trying to do, and they were turned off by business terminology. So I wanted to keep his practices, keep his processes, keep his objectives, but change the terminology a little bit, and that is what I tried to do.

Another change in terminology that occurred as a result of the transition from Babbitt to Lyles was less overt but noticeable. Babbitt avoided the use of traditional budget language, perhaps because he associated its use with the budget management mind-set he sought to replace. Babbitt talked about costs and program planning. Lyles quite unselfconsciously uses traditional budget language.

Lyles continued to require the participation of AFMC's operating managers in the medium-term expenditure planning process. He explained that when he was vice chief of the Air Staff:

AFMC was the only command that stayed within their fiscal guidance and prepared a budget that showed trades in how they would do certain things within that budget. Every other command came in with huge bills for the corporate Air Force—literally tens of billions of dollars. The fiscal discipline established by George Babbitt was very much appreciated by the Air Force leadership. My participation in [the AFMC's budget process] is very much in tune with what George Babbitt started. I sit down with the center commanders—our CEOs, if you will—and our cost managers from each of our mission areas to understand exactly what their needs are and what things are bothering them as we build a budget together. Then we try to reconcile those needs and make trade-offs between the needs of the centers and mission areas and the corporate needs of the command and of the Air Force. There has been very strong

participation from the centers and the mission areas, because I demand and George demanded 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 went on to note that the Air Force now requires 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, 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." Compliance with the Air Force's budget top line has also been rewarded with greater fiscal flexibility. This has 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 concerns of the four-star generals have tended to be transmitted down into their commands. Certainly, this process has tended to reinforce AFMC's unit-cost-driven, medium-term expenditure planning process.

Interestingly, the current deputy chief of the Air Staff for plans and programs, Lt. Gen. Joseph

Wehrle, claims that the AFMC experience under General Babbitt was a source of this significant corporate-level change. The secretary of the Air Force proposed the initiative, but the most persuasive argument for its workability was Babbitt's success with a similar set of arrangements at AFMC.

One other noteworthy change in practice took place under Lyles. Babbitt played a direct role in the quarterly execution review. Lyles assigned that function to his deputy commander for plans and programs. It might be surmised that neither Lyles nor his deputy wholly shared Babbitt's passionate commitment to decentralization of responsibility and authority.

Organizational Achievements Due to Babbitt's Intervention

Under Babbitt's leadership, AFMC began to operate with a semblance of the generic practice of cost management. Indeed, a number of organizational components—including the Air Force labs and the command's own support operations—were using a sophisticated version of this generic practice by the time Babbitt departed the scene. Importantly, under his successor, General Lyles, the command's sophistication with cost accounting and analysis continued to grow incrementally. For this reason, we are able to report on the outcome of an effort to manage costs that stretches beyond the scope of the instigating leader's time in office.

It can be argued that Babbitt's intervention was a success, not just in terms of changing how the command performs such organizational functions as medium-term expenditure planning and management control of delivery, but also in terms of organizational achievement. Prior to Babbitt's intervention, AFMC's budget requests consistently exceeded targets set by the Air Force, its working capital funds lost money every year, and the command as a whole frequently presented the Air Force with substantial bills in the year of execution. During Babbitt's tenure, AFMC's budgets were brought into 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. As noted, AFMC's program budget proposals remain in compliance with the Air Force's budget guidelines. But, in 2001, the working capital funds once again lost money,¹⁷ and in 2002 AFMC found it necessary to request a supplemental appropriation of nearly \$300 million. Of course, these were years in which air operations were significantly more intense than contemplated in its program budget.

The generally affirmative tone of the narrative as well as of the direct commentary is also consistent with two additional indicators of the intervention's success. First, the current AFMC commander, General Lyles, largely endorsed his predecessor's approach. Second, the experience led to a significant change in the Air Force-level resource allocation process. However, the logic of Babbitt's position is that his intervention could only be counted a success if it led to a sustainable increase in the ability of AFMC operating managers to understand and manage their costs. Has this occurred?

Our answer has to be somewhat open-ended. Clearly, the answer is in the affirmative where Babbitt's intervention led to increased attention on the part of operating managers to managing cost. Both Babbitt's unit-cost-driven expenditure planning and his Socratic quarterly execution reviews appear to have contributed to that outcome. Moreover, the success of AFMC's units in winning public-private competitions can in part be attributed to this factor.¹⁸

Conclusions and Lessons Learned

The capacity to manage costs does not arise effortlessly in any organization, not least governmental ones. In the United States, managerial attention tends to focus on matters other than cost, including the acquisition and execution of budget authority. Budget-related staff officers, as guardians of the public purse, tend to focus on controlling spending rather than on managing costs. Line managers, for their part, tend to operate under an ethic of excellence in achieving substantive program goals through the application of professional expertise, rather than tending to honor a wider definition of operational excellence that includes eliminating all kinds of wastefulness in the delivery process. This aspect of the bureaucratic paradigm has a profound history in both civilian administration and the military departments. Seemingly structural properties of the governmental system serve to reproduce this aspect of the bureaucratic paradigm. These structural properties include government-wide expenditure planning and financial management rules and routines that focus on budget authority, not costs.

In considering these context factors, one is tempted to infer that managing costs is not actually relevant to public management as we know it. Stated differently, the inference is that institutional resourcefulness is not a practical aim, however desirable such a quality is from a normative standpoint. This inference is not unreasonable. After all, it is a response learned from much experience in public management.

Against this background, the AFMC case is a parable in which a seasoned executive challenges the seemingly wise view that resourcefulness is an impractical normative standard for public management practice. General Babbitt's efforts to strengthen AFMC's capacity to manage costs garnered success despite inhibiting context factors, including the culture of budget management, the grouping of line activities by territory rather than by economic relatedness, and the initial paucity of cost-related accounting information. If Babbitt's efforts were successful, a strong capacity to manage costs may actually be a practical standard of organizational excellence in government.

This reading of the case opens the door to subtler analysis. One issue is what circumstances surrounding AFMC in the late 1990s made the agenda of cost management especially appropriate to pursue. Another empirical issue is why the cost management agenda was pursued successfully. The relevant explanatory questions are, first, why did Babbitt pursue an agenda of increasing AFMC's capacity to manage costs and, second, why were his efforts successful. The AFMC experience can help practitioners think about whether the cost management agenda is an appropriate one for them to pursue, given the circumstances; it can also help them to think through the practical design issues of effective intervention.

What Circumstances Made the Intervention Appropriate?

The agenda of increasing AFMC's capacity to manage costs was appropriate in large part due to the circumstances facing the command when Babbitt became its leader. At the time, AFMC was viewed as unaffordable by its authorizing constituencies, including Air Force headquarters and the service's other major commands. This negative perception was repeatedly affirmed—on an annual basis—by the lack of financial discipline in AFMC's supply and maintenance activities, which operated under a regime of working capital funds rather than direct appropriations. The perception of unaffordability was further bolstered by endorsement of the idea that infrastructure should be trimmed in order to fund modernization programs; this defense policy theme had been codified in the Air Force long-range plan. Meanwhile, views held by some outside the Air Force became stridently negative, with members of Congress opining that the nation did not need "an Army of shoppers." In these circumstances, AFMC's authorizing constituencies tended to view matters involving the command through the lens of affordability.

These signals were relevant to judgments about what Babbitt, as commander, should have focused upon. In the absence of an effective response, AFMC's authorizing constituencies would predictably curtail the command's allocated budget authority in politically viable ways. The substantive risk was that these actions would not be based on a rich understanding of how to generate the greatest return from the resources applied within AFMC. The command's ability to satisfy its customer requirements would be predictably impaired as a result. If the authorizing constituencies took matters into their own hands, AFMC faced the risk of becoming neither effective nor efficient. Babbitt appropriately judged that this risk was severe—and unacceptable.

Against this background, the agenda of making AFMC more efficient by developing a capacity to manage costs seems well founded. The agenda encompassed an effort designed to make the institution—at all levels—more resourceful in the application of whatever resources were acquired; it was also intended to forestall a vicious cycle of budget

reductions and performance shortfalls by powerfully demonstrating AFMC's responsiveness to the affordability issue.

One should *not* draw the inference from this discussion that the *only* circumstances under which the "managing costs" agenda is appropriately pursued is when such vicious cycles are foreseeable. The argument that such an agenda is appropriate would seem to apply equally, for instance, when an institution is suffering shortfalls in its program delivery at a time of fiscal stringency. The conclusion we reach is that pursuing an agenda of increasing the capacity to manage costs is *especially* appropriate when the organization is labeled as unaffordable by its authorizing constituencies.

Other relevant circumstances in this case included AFMC's stable internal characteristics, including the command's sprawling organization. While its diverse activities involved some synergies, the technologies used in the delivery processes of maintenance, supply, testing and evaluation, research and development, and product support differed substantially from one another. In circumstances like these, people at the headquarters level are rarely sufficiently knowledgeable about delivery processes and their contexts to make informed, detailed judgments about how to operate more resourcefully in every line of activity. Presumably, the understandings needed to make these judgments are incomparably richer within the groups of people that actually operate the delivery processes. In these circumstances, which characterized AFMC, the justification for pursuing a specific variant of cost management patterned on the practice of responsibility budgeting and accounting in decentralized organizations is especially strong.

Lessons about Government

From this perspective, the lessons of this case study are as follows. First, arguments that U.S. government organizations cannot manage costs are, at the very least, overstated. Second, the case for making cost management a serious practice within an organization rests on a mix of public management doctrine *and* circumstances. As for doctrine, the case rests on the view that managerial responsibilities include creating public value, generally, and improving the resourcefulness of delivery processes,

more specifically. As for circumstances, this principled argument becomes particularly relevant to executive leadership when an organization's authorizing constituencies come to believe that it is unaffordable. Finally, the agenda of managing costs, patterned on the practice of responsibility budgeting and accounting, is especially appropriate when the organization's delivery processes are heterogeneous.

Why Did the Intervention Work?

When the managing costs agenda is appropriate, executives should feel pressure to apply their craft to imagining how to pursue it effectively. The case of AFMC provides some lessons on this score, as well. The specific lessons one would intelligently draw from this experience should be informed by a causal understanding of General Babbitt's intervention as commander.

Our broad interpretation of this experience is that the intervention led to two conceptually distinct but intertwined outcomes. The first was a step increase in the capacity to manage costs in several of the command's principal business areas—namely, supply, maintenance, science and technology, and installations and support. The intervention provided an impetus to develop an embryonic practice of cost management in the product support business area. In the test and evaluation business area, cost management was a substantially mature practice even before the intervention. Simplifying slightly, then, the intervention transformed the command's mature practice of budget management into a serious, but not mature, practice of cost management. The second outcome was to increase the actual efficiency and perceived affordability of some of AFMC's principal lines of activity. For purposes of the present discussion, the establishment of a serious practice of cost management is the principal outcome of interest. The question is why this outcome occurred.

Explaining the Agenda

Part of the answer lies in Babbitt's diagnosis of the situation and his decision to pursue what came to be called cost management at AFMC. This aspect of the experience can be partly explained by reference to Babbitt's identity. As a member of the Air Force's top echelon of officers, as a four-star general, and as the Senate-confirmed commander of

AFMC, Babbitt had earned a license to lead. He also bore undisputed accountability for the organization's performance during the period of his command, as well as enjoyed an opportunity to leave a legacy. In addition to these position-based attributes, Babbitt's identity was constituted of interlocking beliefs, values, and attitudes. For instance, he accepted the belief that some kind of waste is always present in a productive process, and he espoused the value-based attitude that passivity in the face of waste is irresponsible. Babbitt believed that part of a manager's responsibility is to cause the organization to eliminate waste, while the responsibility of senior executives includes devising systems, inculcating cultural norms, and reworking managerial routines that would support an ongoing process of improvement—including the progressive elimination of waste.

These ideas formed part of his identity as an engineer and as an experienced military logistician familiar with what he considered best practice in the Department of Defense, including the Navy and Defense Logistics Agency. General Babbitt's intervention was a product of the interplay between this identity *and* the situation he confronted.¹⁹ The situation included responsibility for the execution of more than \$100 billion while he was to serve as commander. In addition, the configuration of culture, systems, and managerial routines within AFMC did not provide the organization with a capacity to adapt successfully to an environment where the authorizing constituencies intended to fund modernization by drawing resources out of infrastructure. Helping AFMC as a whole to develop a healthy response to this environmental pressure was an aspiration that fit Babbitt's identity and situation.

Lessons about Values

A reasonable inference from this analysis is that the identity of important officeholders, especially peak-level officials, may well be critical to whether an appropriate intervention takes place. Such identities are not malleable in the short run. But they can be influenced over the longer run—for instance, through the process of professional education and development as well as selection. An issue in this regard is whether educators should give more attention to the appropriateness and implications of the attitude/value complex that rejects passivity

in the face of presumed waste. A related issue is whether, and how, senior officials should attend to the perceptions of authorizing constituencies in deciding their agendas for action. In both respects, patterns of public management education—including continuing education provided by government—should be assessed.

A Practice-Facing Explanatory Framework

In drawing further insight from this case, it is essential to explain how AFMC developed a serious practice of cost management as a result of the efforts involved in Babbitt's intervention. The chosen explanatory framework needs to reflect an intellectual strategy for drawing lessons from the analysis of cases. The framework we choose to apply is patterned on smart practice analysis.²⁰ In applying this approach, we identify several specific functions that, arguably, must be performed with some success for an organization to achieve a step increase in its capacity to manage costs. The particular taxonomy of functions we employ reflects theories of organizational change as well as concepts drawn from the functional discipline of management accounting and control. The intellectual strategy is to gain insight into the process of enhancing the capacity to manage costs by explaining how the following interdependent functions were performed in the AFMC case:

- Organizing participation in the intervention
- Making sense of costs
- Reordering relations with authorizing constituencies
- Practicing performance planning
- Practicing execution control
- Stabilizing the practice

Together, these functions describe a generic process of building the capacity to manage costs. Any given intervention, to succeed, must somehow result in their effective performance. Let us discuss briefly the significance of each function within the generic process of building cost management capacity.

The function of *organizing participation* involves mobilizing and channeling group resources so that

substantive functions, such as making sense of costs, can be performed. Organizing participation is essential to developing broad-based commitment to building the capacity to manage costs and to the breadth of experiential learning that occurs through an intervention. This function also involves the crafting of institutional means to develop and resolve specific issues.

Making sense of costs is a crucial function, since the substantive functions of performance planning and execution control depend on committed local interpretations of such universal concepts as unit cost. The labeling of this function underscores the fact that the generation and acceptance of cost information is an interpretive process (Macintosh 1994). Making sense of costs also includes understanding them, defined as a situation where managers have tenable ideas about what can be done to improve the relation between benefits and costs.

Reordering relations with authorizing constituencies is a relevant function, because the ability to practice cost management typically depends on authorizers' preferences concerning the rules and routines of expenditure planning and financial management. In general, the rules and routines associated with budget management tend to run counter to those supportive of cost management. Such rules and routines are both cause and effect of the perceived relationship between authorizing constituencies (including overseers) and a particular organization. Any change in the technologies of planning and control is likely to be part and parcel of a marked change in the working relationship between the collective entities involved.

The function of *practicing performance planning* is important because the capacity to manage costs is developed experientially. The essence of this function is bringing an understanding of costs to bear in forming an organization's aspirations for achievement over time. The outcome of performing this function effectively is to strengthen a key aspect of the practice of cost management and to set the stage for subsequent efforts to remedy perceived weaknesses in it.

Practicing execution control is important for the same reason. The essence of this function is learning how to perceive and act upon the need to

undertake corrective action as part of the delivery or execution process. If the organization does not learn this aspect of the practice of cost management, it will not have developed a serious version of it. Moreover, without an ability to take corrective action, it is doubtful that the organization can demonstrate the credibility of its performance plans, which will put in question the whole effort to develop a practice of cost management.

Stabilizing the practice is important because a serious practice of cost management is vulnerable to collapse, especially when institutional leadership passes from one figure to another. The essence of this function is to provide a secure footing—involving ideas, people, and organizational arrangements—for an indefinitely long process of improving the practice.

From this standpoint, the AFMC case is significant because General Babbitt's intervention had the effect of satisfying six functional requirements of building the capacity to manage costs—i.e., organizing participation, making sense of costs, reordering relations with authorizing constituencies, practicing performance planning, practicing execution control, and stabilizing the practice. The empirical question, then, is why the intervention succeeded in these several respects.

The broad conceptual outline of our answer is as follows: The six functions were performed effectively due to the interplay of the intervention's process design features, on the one hand, and its process context factors, on the other. A process design feature is an element of the intervention itself, whether specified in advance or developed along the way. To a degree, it is fair to attribute the effective performance of the six functions to the intervention's process design features considered as a system. This attribution is not entirely satisfactory, however, since it would imply that any intervention with identical features would result in a serious practice of cost management in every type of situation. As context no doubt matters, this implication is implausible. Accordingly, the performance of the six functions must be attributed to process context factors, in addition to the process design features of the intervention itself.

Process Design Features

Based on theory and prior case research, we view the AFMC experience through the lens of two further category schemes, one for process design features and the other for process context factors. The process design features of the intervention mainly fall into the following groups:

- Organizing devices
- Guiding ideas
- Structured events

To illustrate these concepts with the case at hand, organizing devices included a command-level executive team comprised of chief operating officers of business areas and senior staff officeholders. A guiding idea was that AFMC should be managed as though it were a multi-business, divisionalized firm; another was that the institution needed to be able to manage costs. Structured events included formulating work breakdown structures, conducting quarterly execution reviews, and formulating the AFMC program on two main occasions. The intervention design consists of the entire configuration of organizing devices, guiding ideas, and structured events.

Process Context Factors

In our explanatory framework, the process context factors surrounding the intervention fall mainly into two groups: the organization's constitution and the surrounding policy and institutional system. To illustrate these concepts, AFMC's constitution included a significant degree of formal positional authority for the commander, as well as norms favoring significant delegation to subordinate commanders. The surrounding policy and institutional system included AFMC's functional role as a centralized support operation, the perception of AFMC as unaffordable, and the rhythms of Department of Defense and Air Force resource allocation processes, including programming and budgeting.

Bearing in mind these concepts and examples, the reader can readily draw an understanding of the causal texture of the AFMC case from Table 3. The rows of the table correspond to the six functional requirements of an effective intervention to develop a serious practice of cost management. In the cells of columns two through six, we identify the process

Table 3: Managing the Intervention: Analysis of Practice of Building Cost Management Capacity

Functions	Process Design Features			Process Context Factors	
	Organizing devices	Guiding ideas	Structured events	Organization constitution	Institutional/policy system
Organizing participation	<ul style="list-style-type: none"> Executive team COO role Babbitt as chair 	<ul style="list-style-type: none"> Business metaphor Multi-division company 	<ul style="list-style-type: none"> Clearly demarcated Successive 	<ul style="list-style-type: none"> Commander role Discretion in organizing HQ HQ resourcing role 	<ul style="list-style-type: none"> Affordability issue Rhythms of resourcing processes
Making sense of costs	<ul style="list-style-type: none"> Executive team, COOs 	<ul style="list-style-type: none"> Responsibility budgeting and accounting 	<ul style="list-style-type: none"> Work break-down structures Unit-cost baseline Programming 	<ul style="list-style-type: none"> Commander role 	<ul style="list-style-type: none"> Affordability issue Rhythms of resourcing processes
Reordering relations with authorizing constituencies	<ul style="list-style-type: none"> Commander's visibility 	<ul style="list-style-type: none"> Cost vs. Budget Management Give money back to the Air Force 	<ul style="list-style-type: none"> Corona presentation Briefing the program Surveillance of Air Force-level programming 	<ul style="list-style-type: none"> Commander role <ul style="list-style-type: none"> – Peak authority – Represents command 	<ul style="list-style-type: none"> Status order Four-star community Relation with senior Air Staff leadership Affordability issue Air Staff bureaucracy
Practicing performance planning	<ul style="list-style-type: none"> Executive team, COOs Budget-related staff offices 	<ul style="list-style-type: none"> Programs are performance plans Commit to reducing unit costs 	<ul style="list-style-type: none"> Program preparation process 	<ul style="list-style-type: none"> Role of Major Command Headquarters Established roles of financial management and plans and program directorates 	<ul style="list-style-type: none"> Rhythms of programming process Affordability issue
Practicing execution control	<ul style="list-style-type: none"> Executive team, COOs 	<ul style="list-style-type: none"> Detect variances, take timely corrective action 	<ul style="list-style-type: none"> Quarterly execution reviews 	<ul style="list-style-type: none"> Role of Major Command Headquarters 	<ul style="list-style-type: none"> Affordability issue (specifically, working capital funds)
Stabilizing the practice		<ul style="list-style-type: none"> Management succession planning 			<ul style="list-style-type: none"> Four-star role in promotions Change in Air Force-level programming approach

design features and process context factors, respectively, that explain why each particular function was effectively performed in the AFMC case.

Major Lessons

To achieve a step increase in the capacity to manage costs, executives should design interventions that organize participation, make sense of costs,

reorder relations with authorizing constituencies, practice performance planning and execution control, and stabilize the emerging practice. In satisfying these functional requirements of a successful process of building cost management capacity, executives should focus some attention on tailoring the intervention's design to the identified context. In particular, design efforts should be attentive to the organization's constitution and the wider insti-

tutional and policy environment. Even more so, an intervention should be designed to take advantage of these aspects of the process context. The AFMC experience suggests that, depending on process context, some configurations of organizing devices, guiding ideas, and structured events have considerable potential to satisfy the functional requirements of a successful intervention for ratcheting up an organization's capacity to manage costs. These patterns could advisedly serve as food for thought in the intervention design process. In this spirit, we suggest the following summary observations and lessons, based on the causal texture of the AFMC experience.

Instituting a Virtual M-Form Structure

A salient feature of the AFMC case is the designation of business areas and the insertion of the chief operating officer role within the executive team. This feature helped to mobilize and channel efforts to make sense of costs, practice performance planning, and practice execution control. What is striking is that this role structure operated without actually reorganizing the command. Many of the benefits of a divisionalized structure were gained without paying the price of reorganizing. A lesson from the case is that when the initial structural design is not a divisionalized one, a virtual M-form structure may be a way to develop the practice of responsibility budgeting and accounting "on the cheap."²¹ It is therefore a candidate for the status of a smart practice. (For more information on M-form structure, see the Appendix.)

Enacting Ideas of Responsibility Budgeting and Accounting

While the intervention proceeded through numerous stages, its agenda remained stable. Such stability in ideas provided a sense of orientation for participants in the intervention as they made sense of the events they had experienced and contemplated the coming challenges. The agenda remained stable in part because Babbitt understood the dynamics of organizational change. The question is why the selected guiding ideas were able to play such a structuring role. We offer several hypotheses.

First, Babbitt introduced the concept of cost management as a contrasting term for budget management, whose characteristics were familiar to his

audiences because of extensive direct experience. Cost management meant moving away from known habits of thought and managerial behavior.

Second, cost management was an abstract, almost Platonic concept. Its essence was defined in terms of ideas, such as knowing and understanding costs. The essence of these ideas, in turn, was a set of values, such as the intelligent and responsible pursuit of efficient and effective organizational achievements.²² These Platonic forms co-existed with the evolving reality of cost management as it was actually practiced at AFMC. The Platonic nature of the concept of cost management helped Babbitt to provide a stable set of messages about the intervention's agenda, while still acknowledging that progress in the direction of the idea was being made.

Third, the cost management concept echoed institutionalized, professional accounts of good management practice—especially accounts drawn from the field of management accounting and control, including those relating to responsibility budgeting and control. This symmetry made it much easier for Babbitt to communicate his intervention agenda. In terms of substance, he could refer individuals to codified theories of cost management that overlapped with the one he espoused. Such written accounts filled in some of details of his concept of cost management, thereby economizing on his need to provide a complete account to multiple audiences on a repeated basis. In terms of persuasion, the symmetry between cost management and responsibility budgeting and accounting helped, too. Babbitt could be seen as simply asking that AFMC practice essential disciplines of business management.

The lesson to be drawn is that executives intending to achieve a step increase in an organization's ability to manage costs should prepare themselves by studying the codified practice of responsibility budgeting and accounting. In conducting the intervention, they should also maintain some symmetry between this practical theory, including its most inveterate lines of argument, and the guiding ideas of the intervention. These guiding ideas should remain broadly stable throughout the intervention, at least in their Platonic forms. Following this guideline is helpful for providing an adequate degree of structure to the intervention. At the same time, it is advisable for clinical knowledge developed in

the process of applying these ideas to be acknowledged as providing insight into what versions of cost management are practical and workable in the context of application.

Leading through Rapid Evolutionary Development

Executives in peak-level positions in governmental organizations must come to terms with a predicament: They are likely to serve in office for a few years, while the process of reaching a mature practice of managing costs could easily take five to 10 years. The AFMC case suggests that this mismatch of timeframes is not, however, an insurmountable problem. The command's cost management practice developed in an evolutionary manner, but at an extremely fast clip. The practice's rapid evolutionary development was achieved, in part, because of the following reasons. First, the intervention was designed as a series of tightly staged events, each of which pressured chief operating officers to develop a single additional layer of the competencies needed to manage costs.²³ The definition of outputs, for instance, was followed by estimation of unit costs, which was followed by performance planning. Second, rapid progress within each event was aided by giving each chief operating officer more than one opportunity to present before the executive council. As chief operating officers responded to this rich feedback environment, each business's cost management tools tended to become fit for use in a matter of several weeks or a few months. Third, this level of effort was feasible in part because the activities of practicing performance planning and formulating the AFMC program were *one and the same event*. Rapid evolutionary development was possible, in part, because Babbitt found a way to do some of it on the cheap.

The lesson is that the concept of rapid evolutionary development (Leonard-Barton 1995) is applicable to the administrative innovation process of increasing the capacity to manage costs. This practice for managing innovation may be especially appropriate when process context factors include the "rotation" of peak-level officials, as in the military services. With this practical theory of innovation management in mind, executives may be led to think rigorously and creatively about such design features as their own participation in the process

and the sequencing of structured events. Nonetheless, serious attention must be given to the immense time demands of attempting to rapidly develop the cost management practice. The top executive should seek ways to economize on effort in other ways, such as using an actual resource allocation cycle to practice performance planning.

Managing Externally as well as Internally

In the AFMC case, one of the points of the intervention was to forestall a vicious cycle of arbitrary, politically viable cutbacks and performance shortfalls. The sources of this foreseeable cycle lay in the relationship between AFMC and its authorizing constituencies. The risk that such a cycle would kick in was lessened as a consequence of the intervention. Part of the reason was that the relationship between the command and its authorizing constituencies became reordered.

The process of reordering the relationship included external management. Babbitt interacted on a face-to-face basis with his major commander peers and senior leadership on the Air Staff. He made personal commitments to achieving meaningful goals within a timeframe of relevance to his audience—in particular, the commitment to controlling the working capital funds and to give money back to the Air Force. His messages were heard for a number of reasons, some owing to his status in the institution. A key reason was that he softened up the target audience by engaging in script-violating moves, such as personally presenting his program submission, which was organized in a path-breaking format. A lesson to draw is that much of the standard guidance for managing upward and outward in public management (Bryson and Crosby 1992, Moore 1995) applies forcefully to efforts to build a capacity to manage costs.

In managing externally, Babbitt succeeded in introducing an alternative frame for the affordability issue—namely, organizational efficiency. Developing the capacity to manage costs was the solution to this second problem. This wider, even different conception of the issue received implicit support because the Air Staff proved willing to go with AFMC's program submission. The shift may have helped to sustain internal interest in developing the capacity to manage costs. Of course, the

external support would not have been forthcoming without AFMC having taken steps to soften up the authorizing constituencies and commit to outcomes that were meaningful in terms of their temporal horizons. A lesson to draw is that leaders of such interventions should seek to gain acknowledgment that the problem is more one of organizational efficiency than one of affordability.

In Conclusion

The AFMC experience provides insight into an important issue about the practice of public management in the United States. The issue is whether achieving step increases in the capacity to manage costs is possible and, if so, how. The case provides a reason to think that such step increases can be attained, provided that peak-level officials pursue this agenda by leading well-crafted and well-timed organizational interventions.

Appendix:

Responsibility Budgeting

Responsibility budgeting is the stock answer given by students of management accounting and control to the question of 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; Lapsley 1994; Zimmerman 1995; Simons 1995; Jones and Thompson 2000). 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 upon in the expansive accounting literature on managerial control and in the literature on strategic management.

Within the accounting literature, agency theorists (e.g., 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 where substantial decisional authority is decentralized to agents within the context of well-specified rules determining how agents will be rewarded for their efforts. Rewards are to be 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, princi-

pals must establish a consistent set of delegated decisions, performance measures, and rewards.

Types of Responsibility Centers

The agency theory view 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 would 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 when 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 and/or quality of output at the lowest feasible cost. Someone else within the organization determines the output of a cost center—usually 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), to hire temporary or contract personnel, and to manage inventories.

1. 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.
 2. 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 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 minus \$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, to hire temporary or contract personnel, and to 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 (ROA), 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

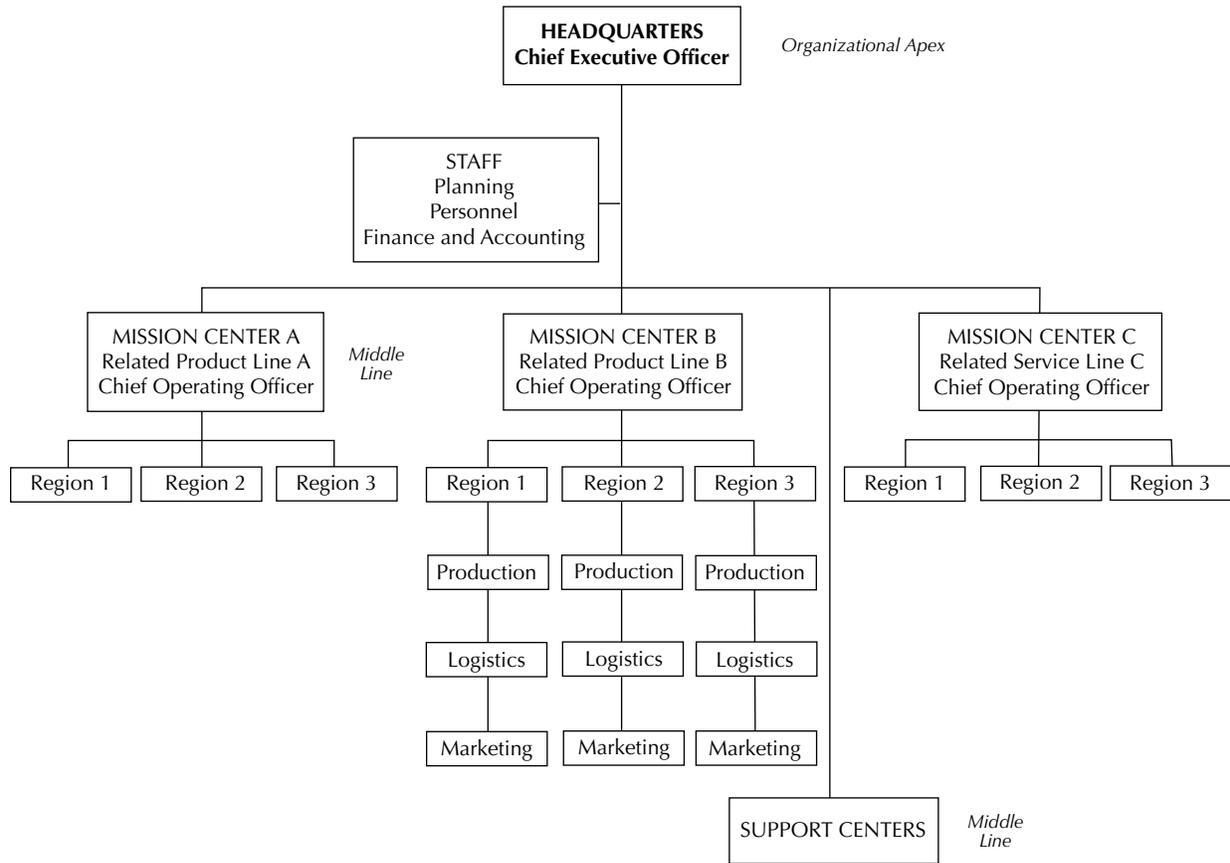
value added (EVA), net operating "profit" less an appropriate capital charge, which is a dollar amount rather than a ratio.

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, where decisional authority over strategy formulation is reserved for top management, while decisional 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 timeframe. 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.

Figure A.1: Divisionalized or M-Form Organizational Design



Endnotes

1. See the “Note on Sources” for citation information for quotations included in the text. Where the note identifies more than one possible source, the source is specified in a footnote.

2. For background on the changes that took place at Defense Logistics Agency shortly before Babbitt’s first tour there, see Barzelay 1993.

3. The only exception was the Air Force research labs, where a decision had already been made to consolidate the four geographically dispersed operations under the authority of a single officeholder reporting to the AFMC commander and based at Wright-Patterson AFB. For background, see Duffner 2002.

4. Babbitt divided AFMC into business areas in much the same way as his predecessors had divided the command into mission areas, which had been overseen by committees of staff officials. Babbitt separated supply and maintenance into different business areas since they operated different working capital funds. Francis McGilvery (1966, 1968) proposed a similar structural approach to responsibility accounting and budgeting for military organizations.

5. More than a year into his tenure, however, in a session where the commander was responding to questions that had been collected by his staff, Babbitt was asked anonymously who would win if a center commander and chief operating officer did not come to agreement. Stepping out of the frame of the question, Babbitt responded by saying that if he had to resolve the issue, then neither would win—they would both lose. In this way, Babbitt strengthened the hand of his chief operating officers, thereby making the informal organization of substantial significance. The informal organization, as we have seen, was M-form in conception.

6. In discussing the benefits of a public service career, *Washington Monthly* Editor-in-Chief Charles

Peters inadvertently illustrated the nature of budget culture—and its ubiquity (November 2000, p. 6): “[W]hen I worked on the Peace Corps staff and my job was trying to identify what we were doing right and wrong and trying to figure out how to replicate the good while avoiding the bad, I felt that all of my talents were fully utilized in a cause I believed in. I have never felt so good about my life. [At the *Washington Monthly*] my work has been equally satisfying, but I also have to devote a lot of time to the business side, where my confidence in my ability and my enjoyment is considerably less. In the government, one of the nice things is that you only have to worry about money once a year, when your agency budget is determined by your boss, the OMB, and Congress. That can be harrowing, but the process itself usually consumes only a few weeks of your time.”

7. Systems centers are field organizations that work with defense contractors to develop new air and space systems.

8. The term *intervention* to describe the story of General Babbitt’s tenure at AFMC, especially in relation to increasing the capacity to manage costs, was introduced by one of the co-authors of this study in his capacity as a consultant to the commander. The term stuck.

9. Quoted in interview with Mark Borkowski, Arlington, Virginia, July 2002.

10. It might seem that programming was merely the converse of unit costing, which was and remains a difficult undertaking for similar reasons. However, unit costing looked backward; programming forward. The undertakings were complementary, but by no means redundant.

11. Borkowski, Arlington, Virginia, July 2002.

12. Despite our use of *reengineering* to describe the changes in medium-term expenditure planning that occurred under Babbitt, we are definitely not claiming that this approach was unprecedented. Lump sum bud-

gets have been around for a long time, and central budget staffs have usually been willing to exchange greater fiscal flexibility for lower outlays (Barzelay 1993; Thompson 1993). Unit costs have been used to build (performance) budgets in the federal government since the first Hoover Commission (see Roberts 1964). Babbitt was aware of these precedents and used them to craft his intervention precisely because they had worked under similar circumstances.

13. Borkowski, El Segundo, California, February 2003.

14. General Stewart was a highly effective chief operating officer. It is not entirely irrelevant to the thrust of this narrative that, despite the fact that there were no slots for major generals in his military career field—civil engineering—he served out his last tour of duty in the Air Force as a major general.

15. Robert Simons (1995,102) refers to controlling “by the numbers” as diagnostic control; by debate and dialogue as interactive control. Simons’ contribution to this discussion is that both kinds of control are consistent with the practice of decentralization, whereas earlier treatments associated control by the numbers with devolution and interactive control with centralization. In the context of devolution, he describes interactive control as a learning process, proceeding from strategic vision through choices and their consequences to learning. Increasing the speed of this cycle increases opportunities for learning. Consequently, many firms with interactive control systems match their control cycles to their operating cycles and try to speed up both. Combining long cycles with fiscal inflexibility and limited performance information is not the recommended recipe for effective organizational learning.

16. This difference in point of view has been attributed to the fact that AFMC was a recent product of the forced merger of two different commands—systems development and logistics—with different cultures. While Babbitt can be faulted for failing to understand product support activities or for not effectively including them in the cost management dialogue, it should be understood that this conflict reflected real differences in function and mission. Unlike the rest of AFMC, the systems centers are not really support organizations. To be sure, the systems centers play a support role where they evaluate and purchase off-the-shelf items. In their role as the Air Force’s shoppers, their performance is unambiguously measurable and evidently first rate (see Besselman, Arora, and Larkey 2000). Their main job, however, is developing and deploying new technologies that materially enhance

combat effectiveness. As such, they are a major source of core competency for the Air Force.

17. Most informed observers agree that the Defense Department’s working capital funds suffer from two problems. The first is pricing on an average total cost basis, which often leads their customers to perform services for themselves rather than buying them from the working capital funds where that would be less costly for the department as a whole. The best solution to this problem is probably some form of multi-part pricing, where 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, 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 (see Thompson and Jones 1994).

18. In this context, General Lyles observed: “It’s very interesting, as you look at the various mission areas, that those areas that have been threatened in some respect, by things like base closures—depots, test ranges, and test facilities—have been the ones who are probably the most diligent in terms of cost management and cost efficiency. They are more cost effective than those who have not been threatened. Our product support [systems] centers have never been threatened with closure and so that factor, low pressure, coupled with the difficulty in trying to reconcile or correlate cost factors to how the business is run have made that the most difficult area to involve [in the process]. You would think our science labs would cause as many performance measurement problems as our product centers, but they have been very quick to take up these ideas. Unlike the product centers, they are threatened with closure all the time.”

19. This explanatory approach is based on the logic of appropriateness, as explicated by March (1994).

20. The approach used here has also been used to study practices for performing the organizational function of strategic planning and policy management. See, Michael Barzelay and Colin Campbell, *Preparing for the Future: Strategic Planning in the U.S. Air Force*

(Washington, D.C.: Brookings Institution Press, 2003), especially chapters 5, 8, and 9. The originator of smart practice analysis is Eugene Bardach. See, *Getting Agencies to Work Together* (Washington, D.C.: Brookings Institution Press, 1998).

21. Bardach (1998) maintains that smart practices are ones that accomplish a desirable outcome with remarkable cost-effectiveness. See Mintzberg (1979) for a discussion of some of the drawbacks of this class of organizational designs, which he calls adhocracies.

22. In this way, the intervention was conceived Platonically, where ideas are the essence of things and ideals the essence of ideas; see Lakoff and Johnson (1998).

23. The technique of “pacing the work” has an analogue in some process theories of leadership, such as Ronald Heifetz, *Leadership Without Easy Answers* (Cambridge, Mass.: Harvard University Press, 1993).

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A B O U T T H E A U T H O R S

Michael Barzelay is Reader in Public Management, Interdisciplinary Institute of Management, London School of Economics and Political Science (LSE). From 1985 to 1995, he was a faculty member at the John F. Kennedy School of Government, Harvard University.

Dr. Barzelay is author of *Preparing for the Future: Strategic Planning in the U.S. Air Force* (Brookings Institution, 2003), with Colin Campbell; *The New Public Management: Improving Research and Policy Dialogue* (University of California Press, 2001); *Breaking Through Bureaucracy: A New Vision for Managing in Government* (University of California Press, 1992); and *The Politicized Market Economy: Alcohol in Brazil's Energy Strategy* (University of California Press, 1986). In addition, he has written articles appearing in *Governance*, *International Public Management Journal*, *Policy Sciences*, *Journal of Policy Analysis and Management*, *Journal of Public Administration Research and Theory*, *Journal of Economic Behavior and Organization*, *Economic Development and Cultural Change*, *Journal of Policy Modeling*, and *Journal of State Government*. He has also supervised or written numerous case studies for classroom use at Harvard and LSE.



Dr. Barzelay has consulted widely in the United States and elsewhere. Within the Defense Department, he has worked for the HQ USAF (DCS/XP and DCS/IL) and for General George Babbitt of the Materiel Command (AFMC/CC). In addition, he has worked extensively with the Defense Logistics Agency at the headquarters and field levels.

A graduate of Stanford University (1980), he received his master's in public and private management (1982) and doctorate in political science (1985) at Yale University.

Fred Thompson is a specialist in government budgeting and accounting. He currently teaches at the Atkinson Graduate School of Management at Willamette University, where he is Grace and Elmer Goudy Professor of Public Management and Policy Analysis. He previously taught in Columbia University's Masters of Public Administration program and held visiting appointments at UCLA's Graduate School of Management and the University of British Columbia.



Professor Thompson has held senior staff positions with the Economic Council of Canada and the Department of Finance of the State of California. He has been a member of the Oregon Governmental Standards and Practices Commission and president of the Association for Budgeting and Financial Management, and has served as a consultant to the Office of Management Improvement and Process Reengineering, Office of the Under Secretary for Defense (Comptroller), Andersen Government Services, the New Zealand Institute of Chartered Accountants, and Consulting and Audits, Canada.

He is the co-author of *Reinventing the Pentagon, Regulatory Policy and Practice*, and *Public Management: Institutional Renewal for the 21st Century*, as well as more than 200 journal articles and book chapters. He has served on the editorial boards of *Advances in International Comparative Management*, *International Journal of Organization Theory and Behavior*, *Journal of Public Administration Research and Theory*, *Municipal Finance Journal*, *Policy Studies Journal*, *Public Budgeting & Finance*, *Public Administration Review*, *Public Administration Quarterly*, *Western Political Quarterly/Political Research Quarterly*, and as a contributing editor to *Policy Sciences*. He is the founding editor of the *International Public Management Journal*.

Professor Thompson is a recipient of the Willamette University Trustees' Award for Excellence in Teaching, 1996; the National Association of Schools of Public Affairs and Administration and the American Society for Public Administration Distinguished Research Award, 2000; the Outstanding Author Award (Gold Medal) of the American Society of Military Controllers, 1994; *Public Administration Review's* William E. Mosher and Frederick C. Mosher Award, 1994; the Outstanding Public Management Paper Award, Academy of Management Meeting, 1982; the Mayr Foundation Essay Award, 1974; and was a finalist for the Koopman Prize of the Operations Research Society of America special interest group on defense analysis, 1987.

His Ph.D. is from the Center for Politics and Economics of the Claremont Graduate University; his B.A. is from Pomona College.

KEY CONTACT INFORMATION

To contact the authors:

Michael Barzelay

Reader in Public Management
Interdisciplinary Institute of Management
London School of Economics and Political Science
(LSE)
Houghton Street 4
London WC2A 2AU UK

e-mail: M.barzelay@lse.ac.uk

Fred Thompson

Grace and Elmer Goudy Professor of Public
Management and Policy Analysis
Atkinson Graduate School of Management
Willamette University
900 State Street
Salem, OR 97301
(503) 370-6228
fax: (503) 370-3011
messages: (503) 370-6440
mobile: (503) 508-4229

e-mail: fthompso@willamette.edu

To contact General Babbitt:

General George T. Babbitt, USAF (Ret.)
822 120th Street NW
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For additional information, contact:

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