Management Accounting Quarterly
Fall 2003

Strategic Budgeting: A Case Study and Proposed Framework

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This reduction method allows costs to be cut where the cuts will not negatively impact performance of the service departments. At the same time, it identifies areas of bloat where cost reduction can be significant.

In 1999, a manager at one of the "Big 3" automotive companies in the Detroit area implemented a new budgeting process called strategic budgeting (SB) that reduced costs in his area by 37.6% without compromising the delivery of services or causing the layoff of personnel.

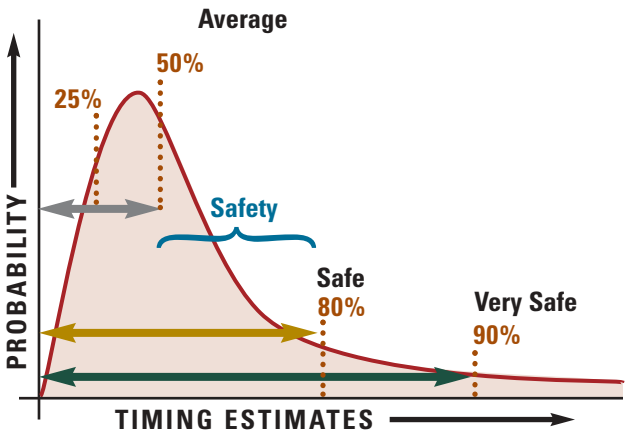
The budgeting method was based on the assumptions behind a project management technique developed by Eliyahu Goldratt in his 1997 book, *Critical Chain*. The technique was applied to a service department where the linkages between the "optimal level" of inputs for the outputs provided were unknown. As a project, by definition, embodies the development of a new product or process, the time needed for each task in the project is unknown. To deal with the uncertainty of each step within a project, estimates are made to ensure that milestones can be met. In a similar fashion, budgets are developed to ensure that targets can be met without going over the planned budget.

Traditionally, companies trying to reduce costs use "the lawnmower method" for cost reduction. In the lawnmower method, cost cutting does not discriminate on the basis of need or capacity. All departments are simply required to reduce costs by a given percentage. The assumption of many managers is that all budgets contain slack.[1] In his study of budgetary slack, Mohammed Onsi documented that 80% of the managers he interviewed admitted that they "bargain for slack."[2] Onsi also discovered that slack is created to ensure managers meet budget targets and to protect them from uncertainty. The problem for the upper-level manager is to identify how much slack exists in the budgets for the departments under his or her control and to remove it without jeopardizing the amount or the quality of the services provided.

In *Critical Chain*, Goldratt introduced a technique for removing unnecessary padding from time estimates for tasks in a project. Goldratt built his model on several observations. First, he recognized that forecasts for the timing of tasks or for cost estimation are relatively accurate in the aggregate but are much less accurate when used to estimate tasks and costs of subunits. Second, Goldratt states that managers tend to overestimate the time needed for individual tasks by a minimum of 100% (see Figure 1).

Overestimation protects managers from missing

Figure 1: Developing Time Estimates for Project Completion



Eliyahu Goldratt's theory of the inflation of the estimates for the time it takes to perform a task for new projects. According to the theory, managers overestimate the time needed for any task by a minimum of 100%.

"milestones" in projects. Finally, Goldratt states that procrastination, labeled the Student Syndrome, causes estimates to be overrun and due dates to be missed.

In order to counteract the unnecessary padding of steps in a project, Goldratt recommended cutting time estimates for each project task in half and then grouping all of the time saved from individual tasks into one "project buffer" placed at the end of the project's estimated time sequence. The "project buffer" was then reduced by one half in order to reduce the overall project time allowed by one third of its original estimate (Figure 2).

By following these simple steps, many companies experienced dramatic reductions in the time necessary to complete projects. Among those using the Critical Chain technique are DaimlerChrysler, Lucent Technologies, Israel Aircraft Industries, and Harris Semiconductor.

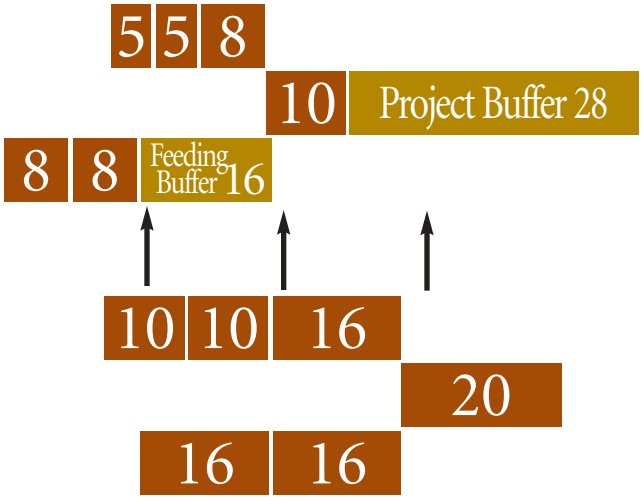
What is the Strategic Budgeting Model?

Strategic budgeting bases cost reduction on the same assumptions and on the same techniques used in the Critical Chain method of reducing project time. The first assumption of SB is that service department budgets contain a great deal of slack. The slack multiplies exponentially over time.

In the example in Table 1, the amount of slack buildup after just four years in a budget with 10% slack added at each level is over 100% of the original budget. By year 10 the slack has increased to almost five times the original amount. With so much potential for slack in even a modest increase of 10% over estimated needs, there is probably room to reduce most budgets in most service departments by significant amounts.

Even though, on average, budgets have large levels of slack, we cannot say that *every* budget has tremendous amounts of slack built into it. Therefore, SB allows departments to receive more funds when neces-

Figure 2: Step 1 (Identify), Step 2 (Halve Time), and Step 3 (Create the Project Buffer)



Step 4 (Halve the Buffers)

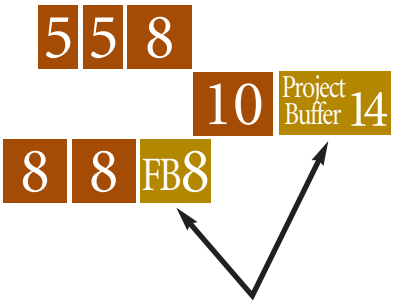


Table 1a: Budget Year 1 without Slack

Department	Lowest Tier	Second Tier	Department Total + $200,000 for Administration of Department	Division Total + $200,000 for Administration of Division	Slack as a Percent of Original Budget
RESEARCH AND DEVELOPMENT				$5,600,000	0%
Design			$1,700,000		
Feature Engineering		$500,000			
Overall Manufacturing Engineering		$500,000			
Prototype Build		$500,000			
Testing			$3,700,000		
Prototype Testing		$500,000			
Advanced Prototype Testing		$500,000			
Individual Labs		$500,000			
Lab 1	$200,000				
Lab 2	$200,000				
Lab 3	$200,000				
Lab 4	$200,000				
Lab 5	$200,000				
Lab 6	$200,000				
Lab 7	$200,000				
Lab 8	$200,000				
Lab 9	$200,000				
Lab 10	$200,000				

Table 1b: Budget Year 1 with 10% Slack

Department	Lowest Tier	Second Tier	Department Total + $200,000 for Administration of Department	Division Total + $200,000 for Administration of Division	Slack as a Percent of Original Budget
RESEARCH AND DEVELOPMENT				$7,359,000	31%
Design			$2,035,000		
Feature Engineering		$550,000			
Overall Manufacturing Engineering		$550,000			
Prototype Build		$550,000			
Testing			$4,455,000		
Prototype Testing		$550,000			
Advanced Prototype Testing		$550,000			
Individual Labs		$550,000			
Lab 1	$220,000				
Lab 2	$220,000				
Lab 3	$220,000				
Lab 4	$220,000				
Lab 5	$220,000				
Lab 6	$220,000				
Lab 7	$220,000				
Lab 8	$220,000				
Lab 9	$220,000				
Lab 10	$220,000				

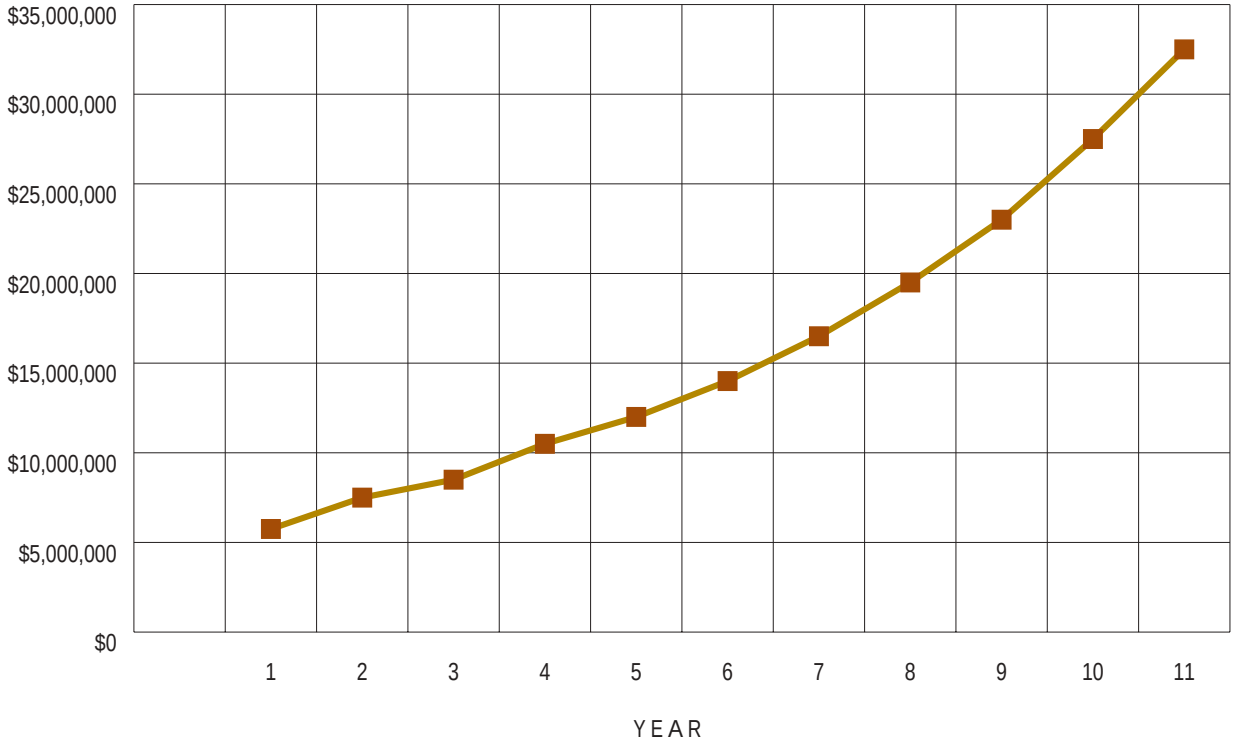
Table 1c: Budget Year 4 with 10% Slack

Department	Lowest Tier	Second Tier	Department Total + $200,000 for Administration of Department	Division Total + $200,000 for Administration of Division	Slack as a Percent of Original Budget
RESEARCH AND DEVELOPMENT				$11,880,978	112%
Design			$2,708,585		
Feature Engineering		$732,050			
Overall Manufacturing Engineering		$732,050			
Prototype Build		$732,050			
Testing			$5,929,605		
Prototype Testing		$732,050			
Advanced Prototype Testing		$732,050			
Individual Labs		$732,050			
Lab 1	$292,820				
Lab 2	$292,820				
Lab 3	$292,820				
Lab 4	$292,820				
Lab 5	$292,820				
Lab 6	$292,820				
Lab 7	$292,820				
Lab 8	$292,820				
Lab 9	$292,820				
Lab 10	$292,820				

Table 1d: Budget Year 10 with 10% Slack

Department	Lowest Tier	Second Tier	Department Total + $200,000 for Administration of Department	Division Total + $200,000 for Administration of Division	Slack as a Percent of Original Budget
RESEARCH AND DEVELOPMENT				$32,744,641	485%
Design			$4,798,424		
Feature Engineering		$1,296,871			
Overall Manufacturing Engineering		$1,296,871			
Prototype Build		$1,296,871			
Testing			$10,504,657		
Prototype Testing		$1,296,871			
Advanced Prototype Testing		$1,296,871			
Individual Labs		$1,296,871			
Lab 1	$518,748				
Lab 2	$518,748				
Lab 3	$518,748				
Lab 4	$518,748				
Lab 5	$518,748				
Lab 6	$518,748				
Lab 7	$518,748				
Lab 8	$518,748				
Lab 9	$518,748				
Lab 10	$518,748				

Table 1e: Budget Increases Using 10% Slack Compounded Annually



sary. Kenton Walker and Eric Johnson discovered in their study of budgetary slack building in a sales division that lower-level managers built slack into their budgets in order to secure bonuses.[3] The authors also noted, however, that upper-level managers eliminated slack due to their knowledge of historical patterns of sales. It is worth mentioning that building slack is more difficult in areas with defined relationships between inputs and outputs. The department studied in this case is not a production or sales department and does not have a well-defined relationship between given inputs for a specific level of outputs.

SB also recognizes that forecasting in the aggregate is much more accurate than forecasting at the task level, an observation documented by David Otley in 1985.[4] SB allows for slack in one place only—the group budget buffer. Any department may draw funds from the group budget buffer if those funds are needed during the year. Providing the safety net of extra funds allows budgets to be drastically slashed at the lower levels without compromising performance of needed services.

A Specific Implementation of Strategic Budgeting

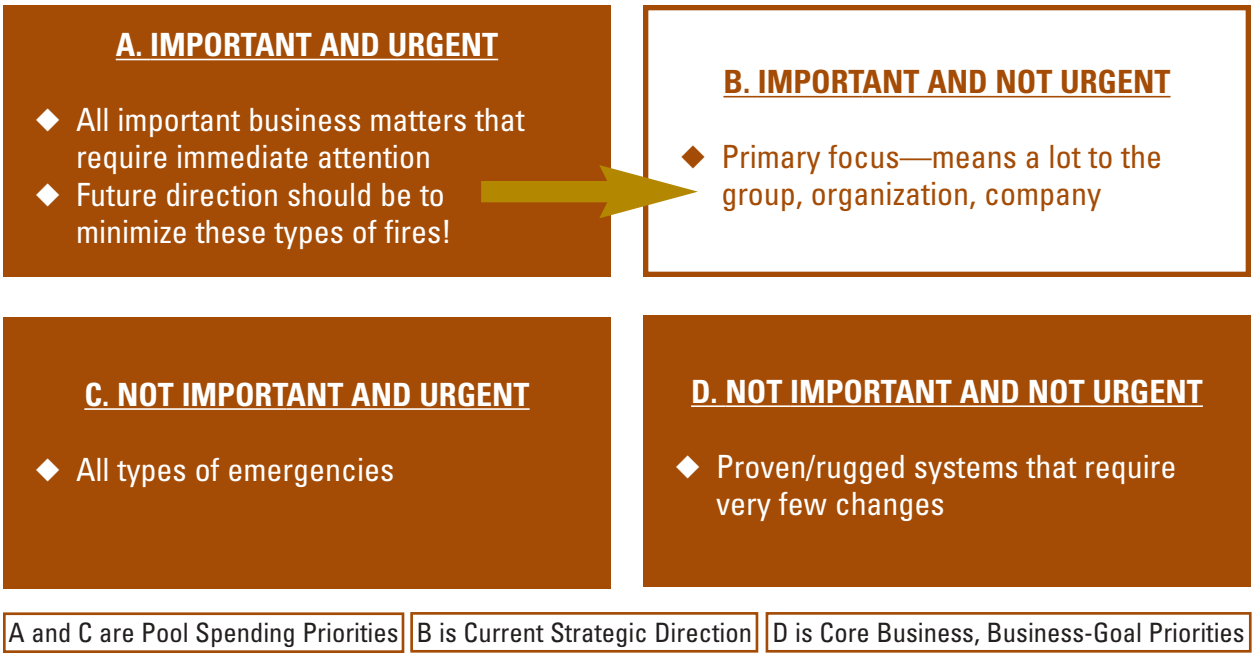
In this case study, SB was implemented at a major manufacturing firm using the following process:

1. Gathered budget estimates from department heads.
2. Reduced all department budgets by 50%.
3. Grouped all "savings" from department budgets in a Group Budget Buffer.
4. Told each department head that if he or she needed further funds, the funds would be available but the request would be discussed openly with other department heads.

The Implementation Process

In 1999, shortly after a new manager took over the Testing Department of 42 employees in three functional divisions (Service, Application Development, and System Integration), the edict came to reduce operating expenses by 10%. The operating expenses under review involved the cost of purchasing services for equipment repair and calibration, hardware and soft-

Figure 3: Priorities Guideline: Project and Activities



ware for testing services, overtime payments, and miscellaneous supplies. Each manager adamantly fought against any reductions, stating that all of the funds were needed.

In order to achieve the required reduction, another approach was taken. The first step was to develop a holistic goal for the entire department. The consensus goal was, *"To offer superior-quality products and services to our customer with a focus on speed and flexibility."* The process of using the team to develop the goal follows Joshua Ronen and J.L. Livingstone's premise that intrinsic rewards are achieved through the process of participation in goal setting.[5] Once the goal was agreed upon, the measurements for the department had to be changed to align with the new goal of working as one unit rather than as three functions. Employees were now measured on their ability to find synergies between the three functions and cross-functional team-based ideas for improvement opportunities.

Next, training started on the new Critical Chain method of reducing cost by grouping the cost reductions taken from each department together in one departmental buffer while reducing each function's budget by one half. The departmental buffer functioned to reduce the risk of the group having insufficient funds for vital tasks. Any funds needed over the approved amount had to be explained to the other function managers and to the departmental manager. Justification for extra funds from the buffer was presented in a business case using the Theory of Constraints Thinking Process Tools, including the Current Reality Tree, CRT, and the Evaporating Cloud.[6] The CRT documented current ripple effects from current processes including, especially, any negative effects of the loss of funds on other departments' products or services.

The manager and the supervisors created a priority spending matrix (Figure 3), which was used by the entire organization to evaluate the importance of the extra spending. The spending matrix was inspired by Steven R. Covey's book, *The Seven Habits of Highly Effective People: Restoring the Character Ethic*.

Once a month, at a departmental meeting called the Town Hall Meeting, all 42 departmental employees were briefed on the state of the departmental buffer. Any collaborative cross-functional accomplishments and any customer compliments for the department's services and products were highlighted.

During one meeting of the function managers, the Service Department manager requested buffer funds to purchase the services of an outside company to track the expenses of the Service Department. Fortunately, the Application Group's manager volunteered to develop the database for the Services Department at no charge. Through this synergy, the company avoided dipping into the departmental buffer and fostered collaboration. The event was described in an article circulated to all of the 42 departmental employees and reviewed in a Town Hall Meeting.

The Results

1. Budget Depletion for Important Tasks

After the first year, almost the entire departmental pool was intact. Of the original $6,250,000 buffer, $1,550,000 was reallocated to the System Integration function, reducing the buffer to $4,700,000. System Integration requested the extra funds for the purchase of data acquisition equipment to be used to solve warranty-related problems. The managers of the other two functions agreed that the purchase of the equipment served a compelling function and furthered the goals of the department as a whole. Due to the added funds from the budget buffer, the System Integration Department ended up with almost twice the level of its original funding prior to the reductions at the start of the SB process (see Figure 4).

2. Utilizing Synergies to Maintain the Budget Buffer

In order to maintain the buffer, the service manager reviewed his purchases of thermocouples. He observed that, in the past, the department had stockpiled the wire without regard for the utilization patterns. After researching the historical usage patterns, he discovered that the thermocouples were only heavily used in the summer months during "In-Vehicle Testing." In addition, management discovered that several times the inventoried thermocouples were not needed because the vehicle department requesting the testing had already purchased the parts. Eventually, the purchase of thermocouples was eliminated.

Probably the largest savings came from the change in the buying patterns for data acquisition equipment. The Testing Department would traditionally purchase this equipment for customer departments requesting specific tests. The equipment was then transferred to the customer department and maintained there. The equipment generally was used only once for specific testing needs. The customer department also would calibrate the equipment, but the calibration frequently was not accurate, so testing results were suspect.

To reduce the waste of a one-time equipment purchase, the departmental manager created a library of data acquisition equipment. As a result, the equipment now is used repetitively instead of just once. Another major benefit of the library was that the Testing Department also maintained the equipment, so the calibrations were more accurate. This step not only saved costs but also improved overall quality of the services provided.

3. Removing Redundancies

In the process of reviewing spending patterns, managers discovered that one costly function performed by the department also was being handled by another department. Once the double tasking was identified, the work was returned to the department originally assigned the task and was no longer also performed by the Testing Department.

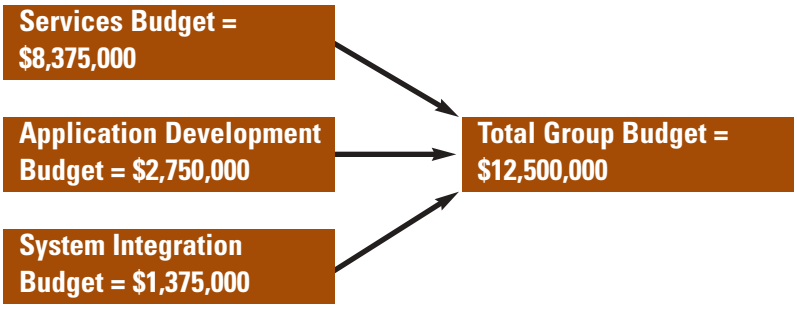
Over the next two years, the department was thrice asked to reduce expenditures by 10%. The cuts were made from the departmental buffer without any loss of headcount or product or with any project termination. During this period, employee morale was very high.

4. An Unforeseen Negative Consequence of Success

Unfortunately, the divisional manager retired at the end of the first year's implementation. The new divisional manager immediately requested another 10% reduction. Due to the projected $6,250,000 in the budget buffer, the Testing Department manager was able to immediately comply with the request. Every other departmental manager fought the reduction.

Later on in the same year, the divisional manager again requested another 10% reduction in the budgets of all departments in the division. Again, the Testing manager easily complied. Due to the alacrity of the response, the divisional manager assumed that there must be high levels of excess capacity in Testing.

Figure 4:
Original Group Budget — Year 1



Group Budget Using Strategic Budgeting — Year 1

Group Budget Using Strategic Budgeting After Group Budget Buffer Was Partially Depleted — Year 1

Group Budget Using Strategic Budgeting — Year 2 After Merger

Therefore, she dramatically downsized the department, eliminating personnel and reassigning them to other areas within the corporation. The successful team was split up, their success rewarded with dismissal from the project.

Although the initial response of upper management was devastating to the employees of the Testing Department, eventually, after seeing the innovation of the manager in this one department, the company asked the manager to spread the Theory of Constraints innovations corporate-wide.

The Strengths of Strategic Budgeting

1. Ease of Implementation

In contrast to zero based budgeting (ZBB), strategic budgeting does not require managers to rank tasks or to justify current expenditures in order to ferret out the slack within the budget.[7] Instead, strategic budgeting assumes that most budgets contain significant amounts of slack and can be cut in half without jeopardizing the output of any department. For those few departments with little or no slack, the safety provided is in the budget buffer for the entire company. Departments requiring extra expenditures can draw from the budget buffer once they have shared the need with the other affected departments.

In addition, SB can be implemented relatively quickly once the manager is determined to make the change. ZBB, on the other hand, takes a great deal of time to implement.[8] With SB, estimates of the amount of slack in each budget are not needed because all budgets are simply cut in half.

2. Increased Communication Between Departments

According to the findings of Joseph Fisher, James Frederickson, and Sean Peffer, managers are more willing to accommodate the needs of other departments when information is readily available about the other departments.[9] Requiring department heads to share their needs for buffer spending with the other department heads ensures cooperation. In addition, this practice transmits a subtle message that any buffer expenditures must be valid.

3. Lower Overall Spending Levels

In many corporations, managers are held responsible for overspending the budget. Therefore, managers tend to overstate their needs[10] and to spend the entire budgeted amount, even if excesses are available to refund to the company at year-end.[11] Budgetary slack is also difficult if not impossible to detect. In strategic budgeting, however, managers are encouraged to spend half of their original budget and to spend more only if the expenditure is valid and can stand up to the scrutiny of the managers competing for the same buffer of dollars. Through the use of this technique, true slack is identified without penalizing those areas with minimum or no slack. In fact, in this case, one department ended up with almost twice the amount of its original allotment of funds before the 50% reduction.

4. Assurance of Output Integrity

The danger of many cost-cutting initiatives is the loss of quality and quantity in the pursuit of reduced expenditures. What SB seems capable of delivering is reduced expenditures only in areas of increased slack while providing sufficient resources for those areas needing additional dollars in order to meet the corporation's stated goals. Because any expenditure of the budget buffer requires communication with other department heads, managers are reminded of the overall goal of any subunit when requesting extra funding. Those seeking unnecessary funds should be reluctant to ask for them, given the scrutiny of the other department heads. Those needing funds for legitimate corporate purposes, however, should feel totally justified in appealing for the extra funding. In fact, after using SB, some departments may end up with extra funding while others end up with significantly less.

5. Intrinsic Rewards through Goal Achievement

By eliminating significant amounts of slack, the upper-level manager has created a situation where achieving the budget is something that can be valued by the lower-level manager.[13] It is difficult to meet previous output levels with half of the original funds. Therefore, the achievement of the target-spending levels is something of which to be proud. In addition, the agreement on a departmental goal and the continual realignment of departmental actions in light of the goal provide the structure and motivation mentioned by Ronen and Livingstone.[14]

Concerns and Cautions

Budget reductions of 50% in the first year of implementing strategic budgeting are relatively straightforward, but trying to continue such dramatic reductions in budgets year after year should be avoided. Once SB is implemented in the first year, managers will "know the game" and adjust their projections for needed funding accordingly. In addition, reductions beyond the original 50% would most likely be excessive and harmful to the delivery of the final product or service.

Implementation in just one lower-level area without coordinating with upper-level managers and "educating" the upper-level managers on the new technique could be suicidal. Upper-level managers who see large unspent budget amounts at year-end could assume many harmful things about the performance of the department and/or of the departmental manager. It is critical, therefore, to win the approval of the upper-level managers for the "experiment" with SB before its implementation. This case study should help in soliciting and winning such approval.

Current performance measurements reward spending the entire amount of budgeted funds and penalize underspending the budgeted amounts. Any unspent funding is likely to be lost to the department in the next budgeting cycle. Unless the performance measurement system rewards managers for spending less, they will continue to spend as much as is allowed. Therefore, the performance measurement system must be modified to encourage the creation and maintenance of a budget buffer for the protection of the overall performance of the firm. Rather than focusing on a detailed budget, employees should be focusing on the overall strategy of the corporation. To foster this team effort, management should consider rewards or bonuses that encourage team behavior and high levels of cooperation among departments. ■

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