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15.963 Management Accounting and Control
Spring 2007

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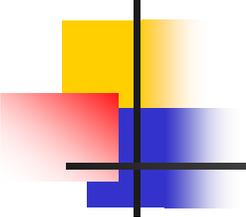
15.963 Managerial Accounting and Control

Spring 2007

Prof. Mozaffar Khan

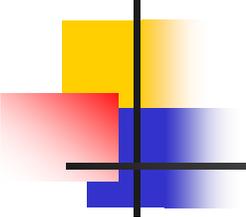
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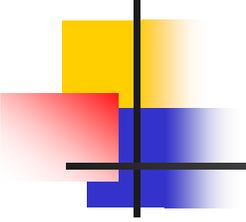
Budgeting

- Budgets are pervasive in all types of organizations – business, not-for-profits and governments.
- A budget is a quantitative expression of future plans.
- The purposes of a budget are:
 - to communicate specialized knowledge to other parts of the organization, e.g.,
 - vertically, from salespeople to corporate marketing staff about local sales outlook in different areas, and
 - horizontally, from sales to production, to ensure sufficient units available for sale;
 - to coordinate the activities of the different parts of the organization, e.g.,
 - if 10k units have to be produced, does purchasing have enough materials ordered?
 - if cash receipts are expected to be \$10m, and cash disbursements \$12m, has the treasurer raised the \$2m cash shortfall?



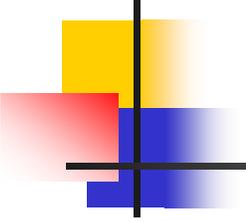
Budgeting

- to confer decision rights, e.g.,
 - if budget includes funding for new hires in a given department, then the manager is authorized, or given the decision right, to hire.
 - In bottom-up or participative budgeting, the manager must have requested approval to hire (“initiation” in decision management). The budget is formal ratification (one step in decision control).
 - In governments, the budget is a legal document. Funding confers decision rights, and reducing or eliminating funding effectively removes decision rights;
- to control behavior and processes, by examining (short-term) deviations from budget
- to evaluate and reward (or punish) performance, by examining (longer term) deviations from budget, e.g.,
 - the bonus may be a percentage of the sales in excess of budget;
- to motivate performance, by setting challenging or “stretch” goals.
 - Most employees work harder to avoid failure (meet expectations) than to achieve success (beat expectations);



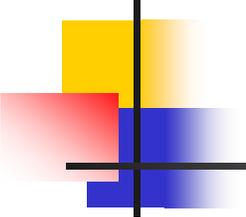
Budgeting

- to compel planning
 - if you fail to plan you plan to fail;
- to provide a guide to action
 - once the budget is finalized, operating managers can focus their efforts on the plan.
- Budgets have been severely criticized in recent years because they are costly and induce a variety of unproductive or value-consuming activities.
- However, budgets survive and are pervasive, suggesting, from a Darwinian perspective, that their benefits must outweigh their costs.
- This is the point of enumerating the benefits as above.



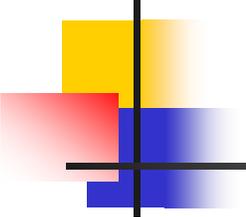
Budgeting

- Where should the budgeting process start?
 - One approach is to start with the least controllable aspect of the business.
 - Typically, this is sales, so most companies start with a sales forecast.
 - However, a company may start with production or materials budgets if, e.g., natural resources are rationed or allocation is centrally planned in the economy.
- Let us start with the sales budget: the number of units that will be sold, the price per unit and total revenues.
 - In participative budgeting, regional sales managers will solicit forecasts from individual salespeople, and then submit a forecast for their region.
 - The corporate sales staff will combine regional forecasts with macroeconomic information, and may resend to regional managers.
 - At the conclusion of the iterations, the sales budget is prepared.
 - Notice the vertical information flows.



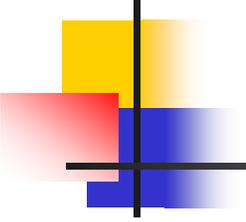
Budgeting

- Next is the production budget: number of units to be produced = sales + target ending inventory – beginning finished goods inventory.
 - Ending inventory is not a ‘leftover.’ It is a budgeted or planned amount.
- Materials usage and purchases budget: purchases = materials to be used + target ending inventory – beginning materials inventory.
- Direct labor budget: labor hours required for production, cost per hour and total labor cost.
- Manufacturing overhead budget: variable overhead, fixed overhead and total overhead.



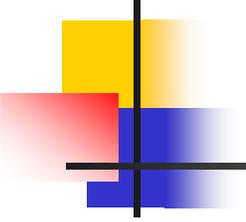
Budgeting

- Cost of goods sold budget: cost of beginning finished goods + production cost – cost of ending finished goods.
- Non-manufacturing costs budget: R&D, marketing, distribution, customer service and administrative expenses.
- All these budgets then are used to prepare a budgeted, or pro forma, Income Statement.
 - This is the final step of the operating budget.
- The financial budget is then prepared
 - to ensure that financial resources will be available to meet the operating budget.
 - A capital expenditures budget, cash budget and budgeted balance sheet are prepared.
 - The treasurer has to obtain cash for cash shortfalls, or raise additional financing for capital expenditures, for example.



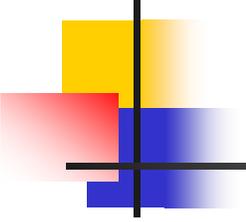
Budgeting

- Cash budgets are especially important for small new businesses.
 - E.g., they may have good income, but not enough cash to pay taxes at the end of the year.
- The time period covered by budgets can vary.
 - This depends on whether the primary purpose is decision making or control.
 - Shorter period budgets, such as monthly, are useful for control.
 - Longer periods, such as quarterly or annual, are useful for decision making, by ignoring random short term fluctuations.
 - Strategic budgets, for 3 or 5 years, are also useful for decision making.



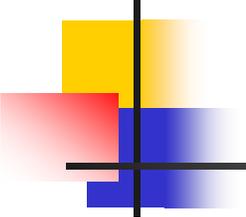
Budgeting

- Activity-based budgets (ABB) can be used to forecast overhead costs.
 - E.g., if 10k units are to be produced, then the number of batches is multiplied by setup time per batch to get the total setup hours.
 - To reduce setup costs, the firm can now increase the batch size, or decrease setup times.
- Kaizen budgeting is the practice of continuous improvement in small steps, rather than quantum leaps.
 - It relies on employee suggestions and initiative.
 - An improvement factor (as at the Peoria Engine Plant) is incorporated into the budget.



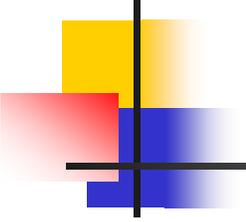
Budgeting

- Behavioral problems in budgeting arise because budgets are used for both decision making and control.
- Specialized information, that is not publicly available, is required for the budget, e.g.,
 - local sales forecasts from individual salespeople,
 - materials costs forecasts from purchasing agents,
 - labor hour requirements from production managers, etc.
- This information is needed for decision making at all levels.
 - The more accurate the information, the higher the decision quality.



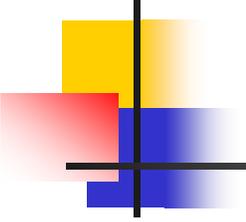
Budgeting

- However, employees with the specialized knowledge also anticipate that the budget will be used to evaluate their performance.
 - Therefore, the information they provide will be biased.
 - E.g., salespeople will under-forecast, in order to set the bar low.
 - Materials purchasing agents or managers will over-forecast the cost of materials, to make it easier to beat.
 - Production managers will over-forecast labor costs, scrap rates, etc.
- i.e., slack will be built into the budget, and this will impair decision making and resource allocation.
 - E.g., not enough units may be produced if the sales forecast is low, and too many production staff may be hired / retained if production labor requirements are exaggerated.
- Beware when using solicited information for decision making, if this information is expected to be used for control.



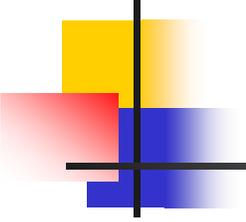
Budgeting

- To control slack, firms can:
 - reduce the weight on budgetary deviations in performance evaluation;
 - cross-train employees, rotate managers and promote internally to spread specialized knowledge more widely.
- Ratcheting budgets increase expectations after good years, but do not decrease them after bad years (unidirectional movement).
- These induce employees to smooth improvements over long periods, to ‘store’ productivity gains, or to defer windfalls.



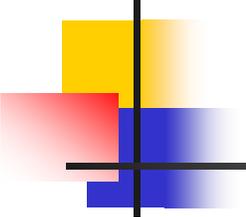
Budgeting

- Types of budgets include:
 - Rolling budgets. These are continuously updated with the most recent data, and are useful in fluid environments.
 - Lapsing budgets. These preclude unspent funds from being carried over, to prevent managers from building a fund or slack for the future.
 - However, they can create a ‘spend it or lose it’ mentality at year-end, and may result in wasteful spending
 - Line-item budgets provide tighter control by preventing commingling of funds.
 - E.g., if there are separate line item budgets for each of two inputs, then suboptimal input substitution is not possible.



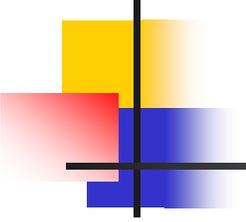
Budgeting

- Zero-based budgets. These start each period from scratch, and all expenses, not just incremental expenses, need to be justified.
 - This is difficult to use to in practice, and is infrequently used.
- To enhance the usefulness of the budget:
 - emphasize its importance as a planning device, rather than as a control device;
 - encourage wide participation;
 - ensure that top managers are engaged in the process, to give it credibility.



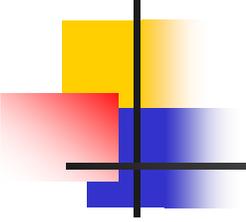
Budgeting

- In using the budget for control, deviations from budget are called variances.
 - Firms analyze variance reports, to determine what and when corrective action is needed, and who is responsible for the variance.
 - We will look at variance analysis on Thursday.
- In variance analysis, two concepts are useful:
 - The static budget, which is prepared at the beginning of the budget period, and based on budgeted volume.
 - The flexible budget, which is prepared at the end of some period, and based on actual volume.
 - Variable costs are adjusted for actual volume.
 - This budget removes the effect of volume fluctuations in calculating variances.



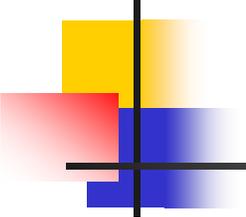
Budgeting

- What is the primary role of budgets at Peoria?
 - It is used for control, i.e., to minimize variances.
 - This is consistent with the high frequency variance reports.
- Which budgets are relevant in the Peoria case?
 - The labor and manufacturing overhead budgets.
- Is the budget at Peoria zero-based?
 - No, the “budget base” is the previous year’s cost.
 - This is then adjusted for changes in expected volume and other factors.
 - Finally, an improvement factor is applied.



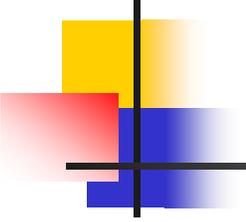
Budgeting

- At Peoria , how does the “calendarized” budget differ from the “authorized” budget (p.6)?
 - The calendarized budget is the static budget.
 - The authorized budget is the flexible budget, because it is based on actual volumes.
 - If production volume is dictated by corporate HQ, then the flexible budget is more appropriate for evaluating the engine plant.
- What are the disadvantages of the daily reports?
 - Excessive attention on short-term control.
 - Any variance seems to be treated as avoidable.
 - Some variability is unavoidable. Not recognizing this may lead to “over-correction” and increase variability.
 - No tolerances specified



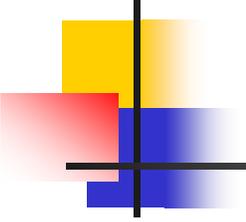
Budgeting

- Managers in large organizations sometimes supplement data from management accounting reports with data from their own ‘private’ network.
 - In this case, Hal Green gets hourly reports, which reduces the value of the daily reports.
- What information would be useful in the daily reports?
 - Number of pieces produced by department, machine up-time, quality (p.4).
- What are the disadvantages of the weekly reports and meetings?
 - Induces dysfunctional behavior, such as smoothing necessary purchases over time to avoid cost variances.
 - Reports do not identify / isolate controllable variances, but perhaps this is the purpose of the meetings (meeting seems like a costly way of getting this information).
 - Reports do not seem to be useful to department superintendents such as Hal Green.



Budgeting

- So should these reports be discontinued?
- See Peoria B.
 - The benefits may become apparent if the reports are discontinued.
- Why is control important at Peoria, when labor and overhead account for only 20% of costs?
 - 20% of a large number is a large number.
 - It is about \$240m in 1992 dollars, or about \$350m in today's dollars.
 - Worldwide Motors has six (or ten?) engine plants.
 - So labor and manufacturing overhead account for \$2.1b of costs.



Budgeting

- Summary:
 - Budgets serve many roles, including communicating private information, coordinating activities in decentralized organizations, resource allocation, decision rights allocation and performance evaluation and control.
 - Numerous problems arise in budgeting because private information that is collected for decision making is also expected to be used for control.
 - The benefits of budgets appear to be substantially outweigh their costs, given the pervasiveness of budgets.