**Developing an Operating Budget**

Budgets are typically developed for a set period, such as a month, quarter, year, and so on. The set period can itself be broken into sub periods. For example, a 12-month cash budget may be broken into 12 monthly periods so that cash inflows and outflows can be better coordinated.

**Time Coverage of Budgets**

The motive for creating a budget should guide a manager in choosing the period for the budget. For example, consider budgeting for a new Harley-Davidson 500-cc motorcycle. If the purpose is to budget for the total profitability of this new model, a five-year period (or more) may be suitable and long enough to cover the product from design through to manufacture, sales, and after-sales support. In contrast, consider budgeting for a school

play. If the purpose is to estimate all cash outlays, a six-month period from the planning stage to the final performance may suffice. The most frequently used budget period is one year, which is often subdivided into months and quarters. The budgeted data for a year are frequently revised as the year goes on. At the end of the second quarter, management may change the budget for the next two quarters in light of new information obtained during the first six months. For example, Amerigroup, a health insurance firm, had to make substantial revisions to its third-quarter and annual cost projections for 2009 because of higher-than-expected costs related to the H1N1 virus. Businesses are increasingly using rolling budgets. A rolling budget, also called a continuous budget, is a budget that is always available for a specified future period. It is created by continually adding a month, quarter, or year to the period that just ended. Consider Electrolux, the global appliance company, which has a three- to five-year strategic plan and a four-quarter rolling budget. A four-quarter rolling budget for the April 2011 to March 2012 period is superseded in the next quarter—that is in June 2011—by a four-quarter rolling budget for July 2011 to June 2012, and so on. There is always a 12-month budget (for the next year) in place. Rolling budgets constantly force Electrolux’s management to think about the forthcoming 12 months, regardless of the quarter at hand. Some companies prepare rolling financial forecasts that look ahead five quarters. Examples are Borealis, Europe’s leading polyolefin plastics manufacturer; Millipore, a life sciences research and manufacturing firm headquartered in Massachusetts; and Nordea, the largest financial services group in the Nordic and Baltic Sea region. Others, such as EMC Corporation, the information infrastructure giant, employ a six-quarter rolling-forecast process so that budget allocations can be constantly adjusted to meet changing market conditions.

**Steps in Preparing an Operating Budget**

The best way to explain how to prepare an operating budget is by walking through the steps a company would take to do so. Consider Stylistic Furniture, a company that makes two types of granite-top coffee tables: Casual and Deluxe. It is late 2011 and Stylistic’s CEO, Rex Jordan, is very concerned about how he is going to respond to the board of directors’ mandate to increase profits by 10% in the coming year. Jordan goes through the five-step decision-making process introduced in Chapter 1.

1. Identify the problem and uncertainties. The problem is to identify a strategy and to build a budget to achieve a 10% profit growth. There are several uncertainties. Can Stylistic dramatically increase sales for its more profitable Deluxe tables? What price pressures is Stylistic likely to face? Will the cost of materials increase? Can costs be reduced through efficiency improvements?

2. Obtain information. Stylistic’s managers gather information about sales of Deluxe tables in the current year. They are delighted to learn that sales have been stronger than expected. Moreover, one of the key competitors in Stylistic’s Casual tables line has had quality problems that are unlikely to be resolved until early 2012. Unfortunately, they also discover that the prices of direct materials have increased slightly during 2011.

3. Make predictions about the future. Stylistic’s managers feel confident that with a little more marketing, they will be able to grow the Deluxe tables business and even increase prices slightly relative to 2011. They also do not expect significant price pressures on Casual tables in the early part of the year, because of the quality problems faced by a key competitor. They are concerned, however, that when the competitor does start selling again, pressure on prices could increase. The purchasing manager anticipates that prices of direct materials will be about the same as in 2011. The manufacturing manager believes that efficiency improvements would allow costs of manufacturing tables to be maintained at 2011 costs despite an increase in the prices of other inputs. Achieving these efficiency improvements is important if Stylistic is to maintain its 12% operating margin (that is, operating income ÷ sales = 12%) and to grow sales and operating income.

4. Make decisions by choosing among alternatives. Jordan and his managers feel confident in their strategy of pushing sales of Deluxe tables. This decision has some risks but is easily the best option available for Stylistic to increase profits by 10%.

5. Implement the decision, evaluate performance, and learn. As we will discuss in Chapters 7 and 8, managers compare actual to predicted performance to learn about why things turned out the way they did and how to do things better. Stylistic’s managers would want to know whether their predictions about prices of Casual and Deluxe tables were correct. Did prices of direct materials increase more or less than anticipated?

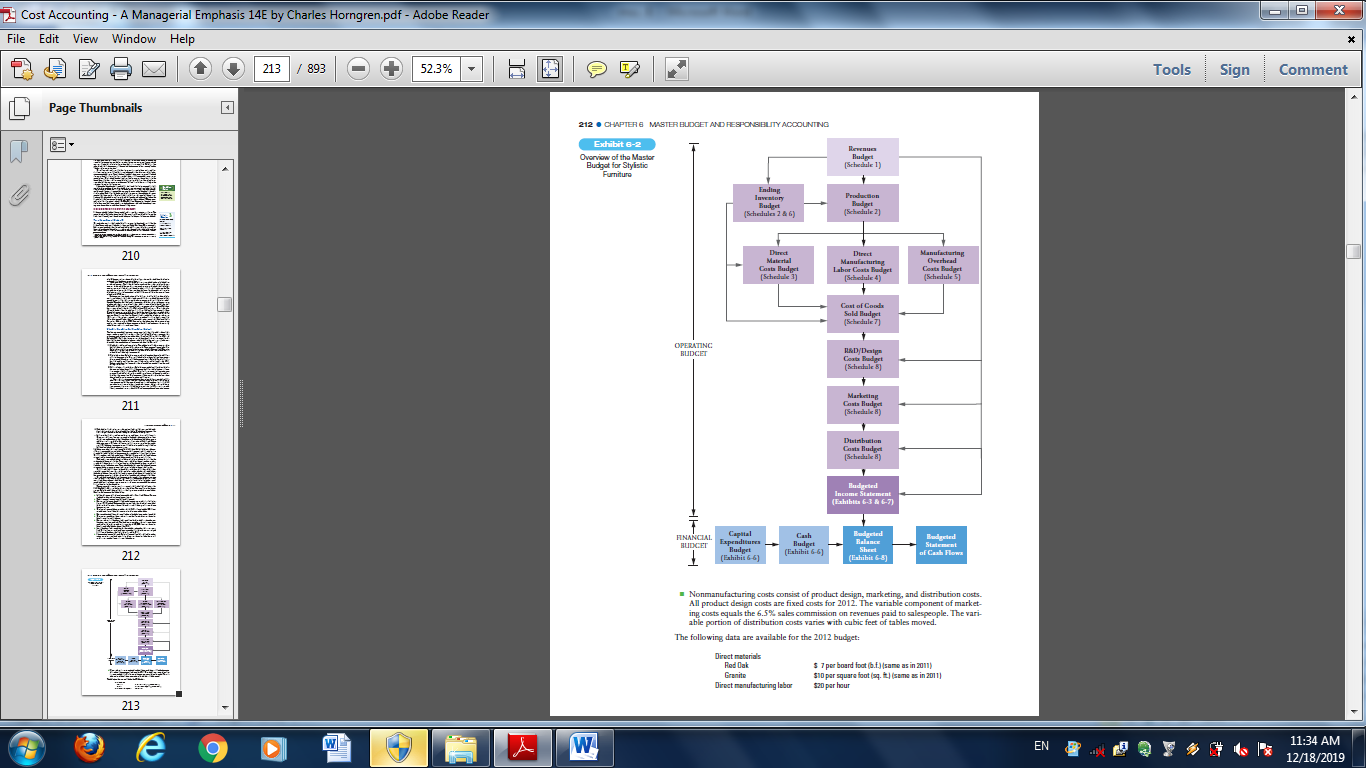
Did efficiency improvements occur? Such learning would be very helpful as

Stylistic plans its budgets in subsequent years. Stylistic’s managers begin their work toward the 2012 budget. Exhibit 6-2 shows a diagram of the various parts of the master budget. The master budget comprises the financial projections of all the individual budgets for a company for a specified period, usually a fiscal year. The light, medium, and dark purple boxes in Exhibit 6-2 represent the budgeted income

statement and its supporting budget schedules—together called the operating budget. We show the revenues budget box in a light purple color to indicate that it is often the starting point of the operating budget. The supporting schedules—shown in medium purple— quantify the budgets for various business functions of the value chain, from research and development to distribution costs. These schedules build up to the budgeted income statement—the key summary statement in the operating budget—shown in dark purple. The light and dark blue boxes in the exhibit are the financial budget, which is that part of the master budget made up of the capital expenditures budget, the cash budget, the budgeted balance sheet, and the budgeted statement of cash flows. A financial budget focuses on how operations and planned capital outlays affect cash—shown in light blue. The cash budget and the budgeted income statement can then be used to prepare two other summary financial statements—the budgeted balance sheet and the budgeted statement of cash flows—shown in dark blue. The master budget is finalized only after several

rounds of discussions between top management and managers responsible for various business functions in the value chain. We next present the steps in preparing an operating budget for Stylistic Furniture for 2012. Use Exhibit 6-2 as a guide for the steps that follow. The appendix to this chapter presents Stylistic’s cash budget, which is another key component of the master budget. Details needed to prepare the budget follow:

* Stylistic sells two models of granite-top coffee tables: Casual and Deluxe. Revenue unrelated to sales, such as interest income, is zero.
* Work-in-process inventory is negligible and is ignored.
* Direct materials inventory and finished goods inventory are costed using the first-in, first-out (FIFO) method. Unit costs of direct materials purchased and unit costs of finished goods sold remain unchanged throughout each budget year but can change from year to year.
* There are two types of direct materials: red oak (RO) and granite slabs (GS). Direct material costs are variable with respect to units of output—coffee tables.
* Direct manufacturing labor workers are hired on an hourly basis; no overtime is worked.
* There are two cost drivers for manufacturing overhead costs—direct manufacturing labor-hours and setup labor-hours.
* Direct manufacturing labor-hours is the cost driver for the variable portion of manufacturing operations overhead. The fixed component of manufacturing operations overhead is tied to the manufacturing capacity of 300,000 direct manufacturing labor-hours that Stylistic has planned for 2012.
* Setup labor-hours is the cost driver for the variable portion of machine setup overhead. The fixed component of machine setup overhead is tied to the setup capacity of 15,000 setup labor-hours that Stylistic has planned for 2012.
* For computing inventoriable costs, Stylistic allocates all (variable and fixed) manufacturing operations overhead costs using direct manufacturing labor-hours and machine setup overhead costs using setup labor-hours.

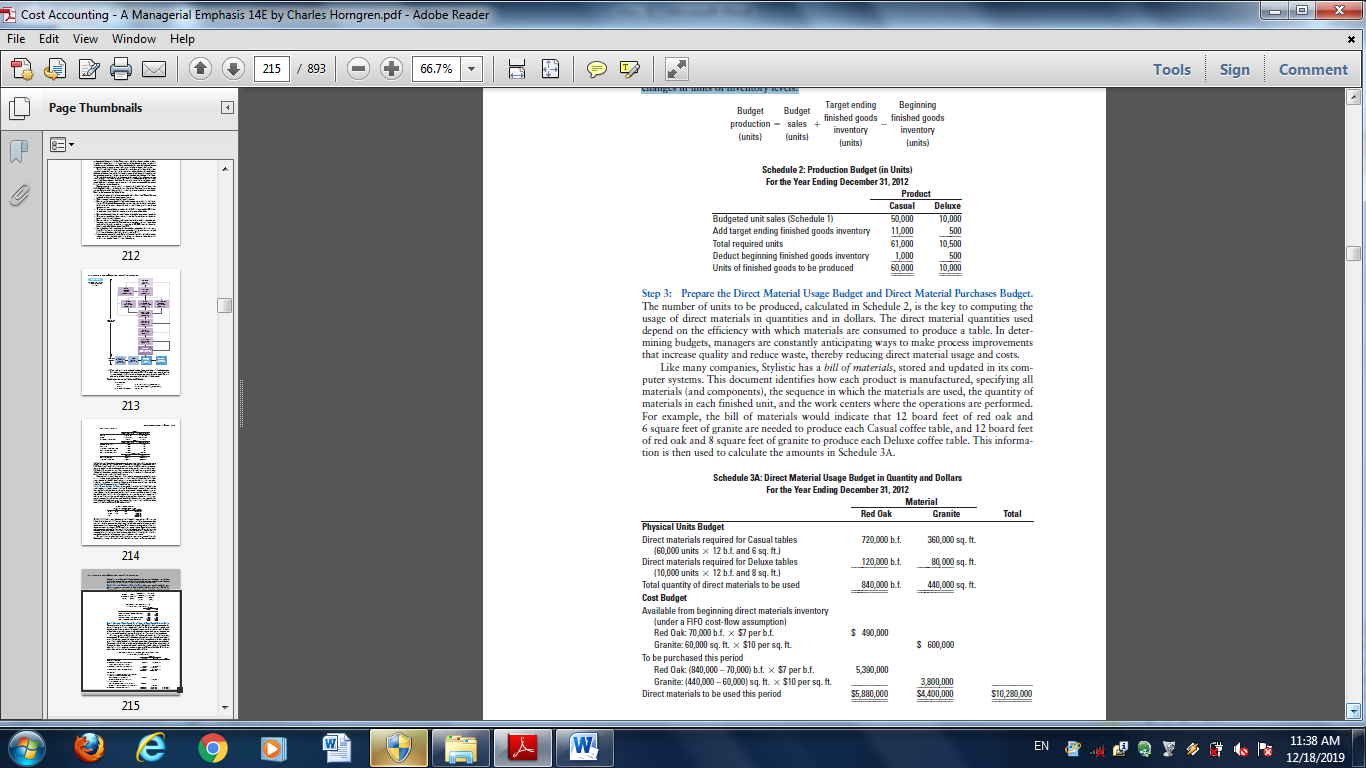


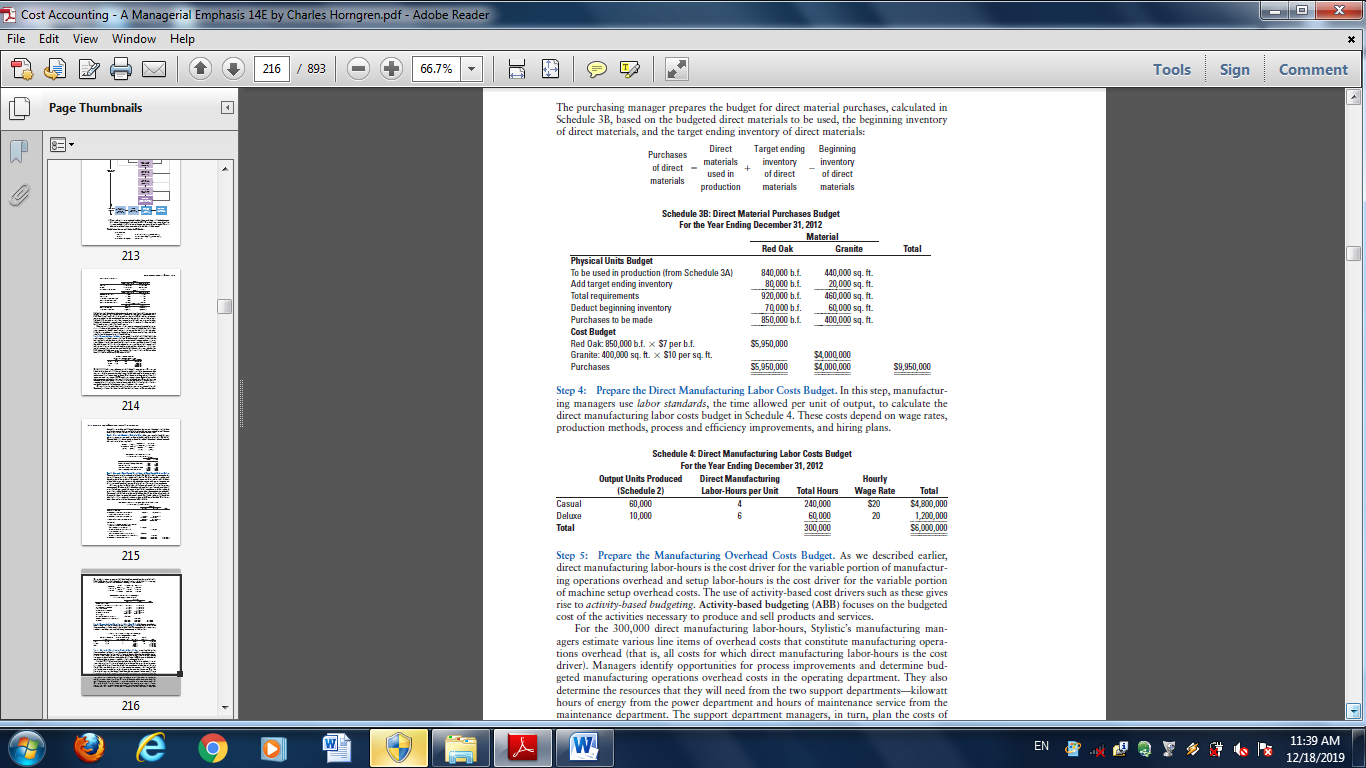


The $38,000,000 is the amount of revenues in the budgeted income statement. The revenues budget is often the result of elaborate information gathering and discussions among sales managers and sales representatives who have a detailed understanding of customer needs, market potential, and competitors’ products. This information is often gathered through a customer response management (CRM) or sales management system. Statistical approaches such as regression and trend analysis can also help in sales forecasting. These techniques use indicators of economic activity and past sales data to forecast future sales. Managers should use statistical analysis only as one input to forecast sales. In the final analysis, the sales forecast should represent the collective experience and judgment of managers. The usual starting point for Step 1 is to base revenues on expected demand. Occasionally, a factor other than demand limits budgeted revenues. For example, when demand is greater than available production capacity or a manufacturing input is in short

supply, the revenues budget would be based on the maximum units that could be produced. Why? Because sales would be limited by the amount produced.

Step 2: Prepare the Production Budget (in Units). After revenues are budgeted, the manufacturing manager prepares the production budget, which is calculated in Schedule 2. The total finished goods units to be produced depend on budgeted unit sales and expected changes in units of inventory levels:

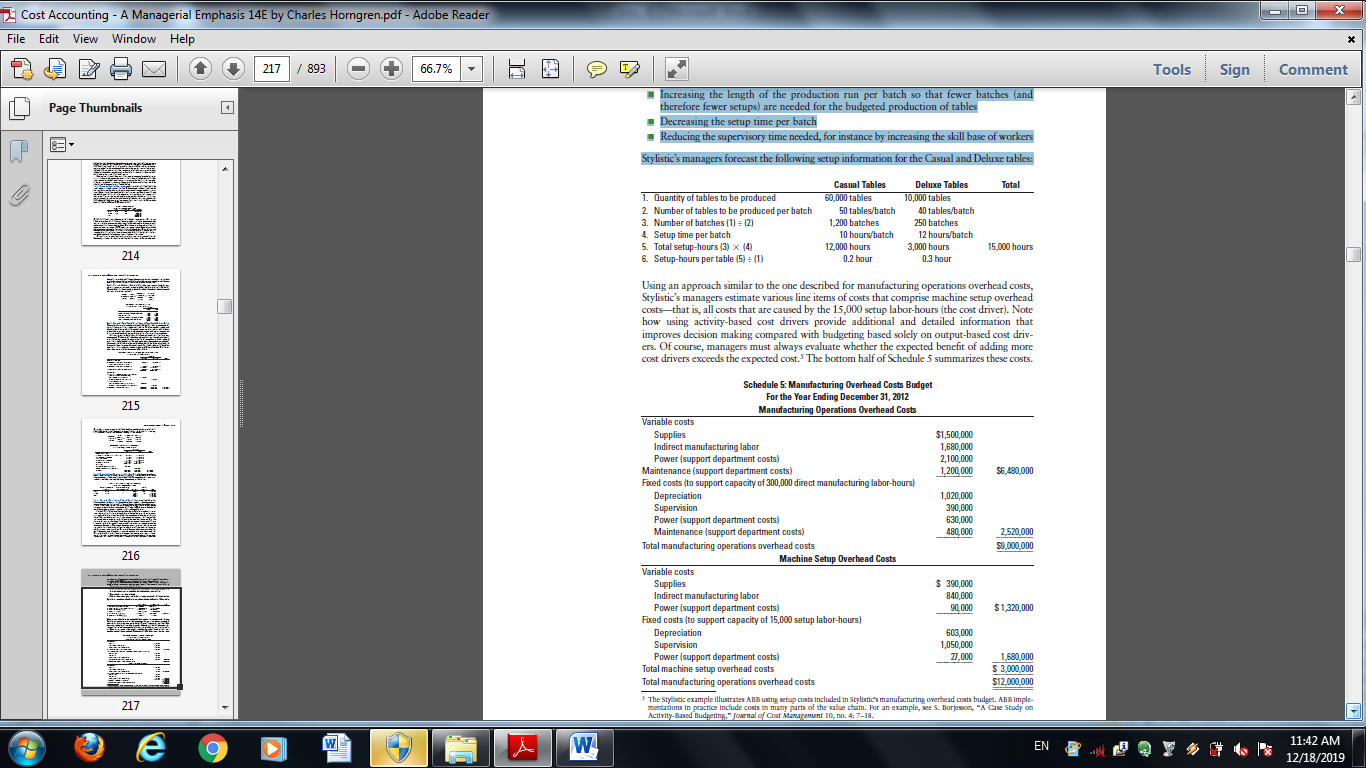




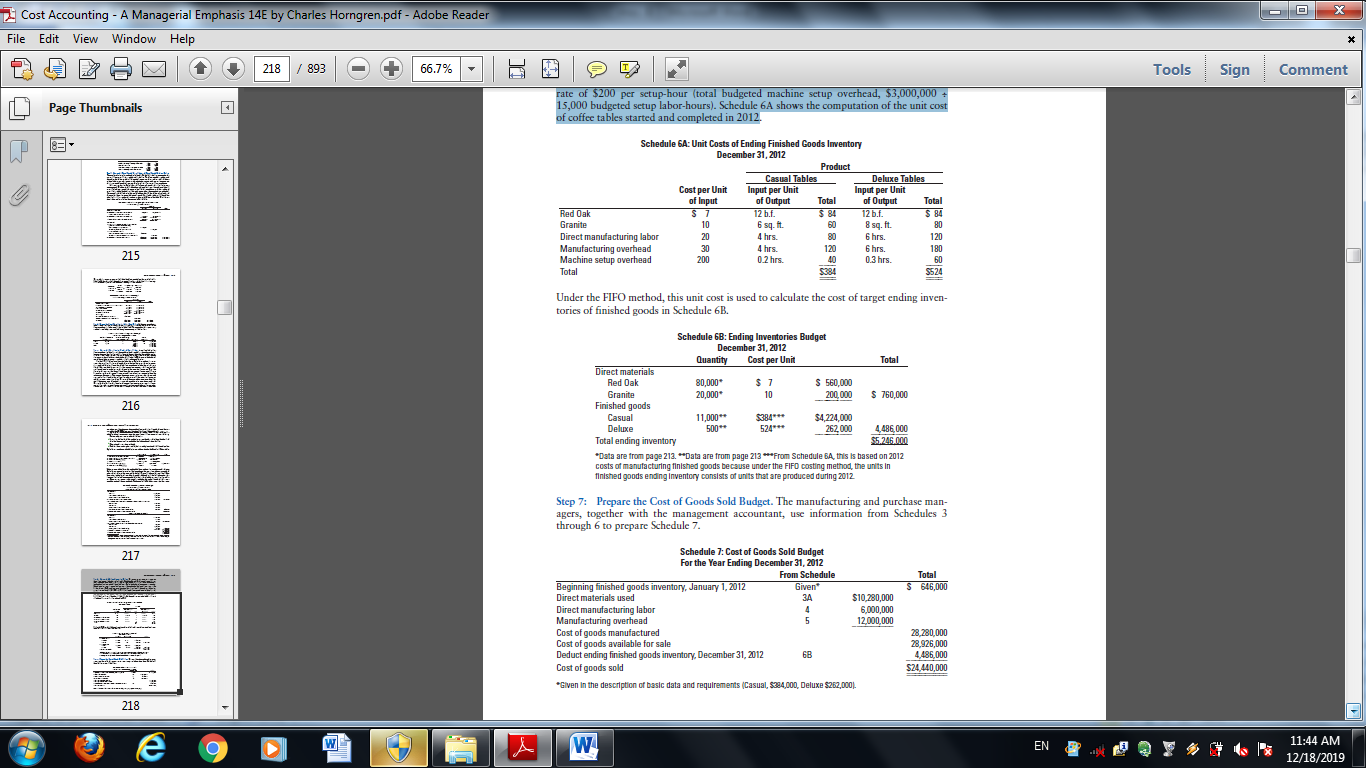
Step 5: Prepare the Manufacturing Overhead Costs Budget. As we described earlier,

direct manufacturing labor-hours is the cost driver for the variable portion of manufacturing operations overhead and setup labor-hours is the cost driver for the variable portion of machine setup overhead costs. The use of activity-based cost drivers such as these gives rise to activity-based budgeting. Activity-based budgeting (ABB) focuses on the budgeted cost of the activities necessary to produce and sell products and services. For the 300,000 direct manufacturing labor-hours, Stylistic’s manufacturing managers estimate various line items of overhead costs that constitute manufacturing operations overhead (that is, all costs for which direct manufacturing labor-hours is the cost driver). Managers identify opportunities for process improvements and determine budgeted manufacturing operations overhead costs in the operating department. They also determine the resources that they will need from the two support departments—kilowatt hours of energy from the power department and hours of maintenance service from the maintenance department. The support department managers, in turn, plan the costs of personnel and supplies that they will need in order to provide the operating department with the support services it requires. The costs of the support departments are then allocated (first-stage cost allocation) as part of manufacturing operations overhead. Chapter 15 describes how the allocation of support department costs to operating departments is done when support departments provide services to each other and to operating departments. The upper half of Schedule 5 shows the various line items of costs that constitute manufacturing operations overhead costs—that is, all overhead costs that are caused by the 300,000 direct manufacturing labor-hours (the cost driver). Stylistic’s managers determine how setups should be done for the Casual and Deluxe line of tables, taking into account past experiences and potential improvements in setup efficiency . For example, managers consider the following:

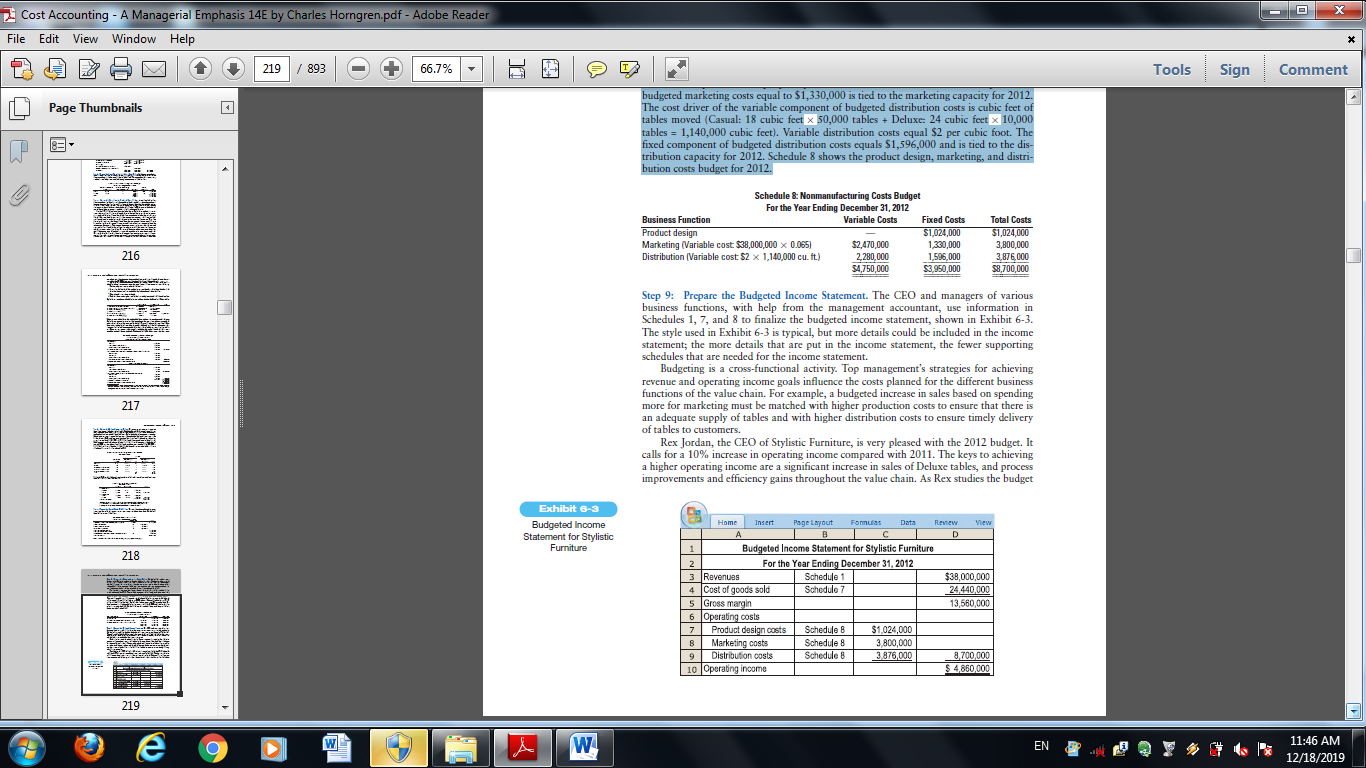
* Increasing the length of the production run per batch so that fewer batches (and therefore fewer setups) are needed for the budgeted production of tables
* Decreasing the setup time per batch
* Reducing the supervisory time needed, for instance by increasing the skill base of workers Stylistic’s managers forecast the following setup information for the Casual and Deluxe tables:



Step 6: Prepare the Ending Inventories Budget. The management accountant prepares the ending inventories budget, calculated in Schedules 6A and 6B. In accordance with generally accepted accounting principles, Stylistic treats both variable and fixed manufacturing overhead as inventoriable (product) costs. Stylistic is budgeted to operate at capacity. Manufacturing operations overhead costs are allocated to finished goods inventory at the budgeted rate of $30 per direct manufacturing labor-hour (total budgeted manufacturing operations overhead, $9,000,000 ÷ 300,000 budgeted direct manufacturing labor-hours). Machine setup overhead costs are allocated to finished goods inventory at the budgeted rate of $200 per setup-hour (total budgeted machine setup overhead, $3,000,000 ÷ 15,000 budgeted setup labor-hours). Schedule 6A shows the computation of the unit cost of coffee tables started and completed in 2012



Step 8: Prepare the Nonmanufacturing Costs Budget. Schedules 2 through 7 cover budgeting for Stylistic’s production function of the value chain. For brevity, other parts of the value chain—product design, marketing, and distribution—are combined into a single schedule. Just as in the case of manufacturing costs, managers in other functions of the value chain build in process and efficiency improvements and prepare nonmanufacturing cost budgets on the basis of the quantities of cost drivers planned for 2012. Product design costs are fixed costs, determined on the basis of the product design work anticipated for 2012. The variable component of budgeted marketing costs is the commissions paid to sales people equal to 6.5% of revenues. The fixed component of budgeted marketing costs equal to $1,330,000 is tied to the marketing capacity for 2012. The cost driver of the variable component of budgeted distribution costs is cubic feet of tables moved (Casual: 18 cubic feet\* 50,000 tables + Deluxe: 24 cubic feet\*10,000 tables = 1,140,000 cubic feet). Variable distribution costs equal $2 per cubic foot. The fixed component of budgeted distribution costs equals $1,596,000 and is tied to the distribution capacity for 2012. Schedule 8 shows the product design, marketing, and distribution costs budget for 2012.



more carefully, however, he is struck by two comments appended to the budget: First, to achieve the budgeted number of tables sold, Stylistic may need to reduce its selling prices by 3% to $582 for Casual tables and to $776 for Deluxe tables. Second, a supply shortage in direct materials may result in a 5% increase in the prices of direct materials (red oak and granite) above the material prices anticipated in the 2012 budget. If direct materials

prices increase, however, no reduction in selling prices is anticipated. He asks Tina Larsen, the management accountant, to use Stylistic’s financial planning model to evaluate how these outcomes will affect budgeted operating income.

**Financial Planning Models and Sensitivity Analysis**

Financial planning models are mathematical representations of the relationships among operating activities, financing activities, and other factors that affect the master budget. Companies can use computer-based systems, such as Enterprise Resource Planning (ERP) systems, to perform calculations for these planning models. Companies that use ERP systems,

and other such budgeting tools, find that these systems simplify budgeting and reduce the computational burden and time required to prepare budgets. The Concepts in Action box on page 220 provides an example of one such company. ERP systems store vast quantities of information about the materials, machines and equipment, labor, power, maintenance, and setups needed to manufacture different products. Once sales quantities for different products have been identified, the software can quickly compute

the budgeted costs for manufacturing these products. Software packages typically have a module on sensitivity analysis to assist managers in their planning and budgeting activities. Sensitivity analysis is a “what-if” technique that examines how a result will change if the original predicted data are not achieved or if an underlying assumption changes.

To see how sensitivity analysis works, we consider two scenarios identified as possibly affecting Stylistic Furniture’s budget model for 2012.

Scenario 1: A 3% decrease in the selling price of the Casual table and a 3% decrease in the selling price of the Deluxe table.

Scenario 2: A 5% increase in the price per board foot of red oak and a 5% increase in the price per square foot of granite.

Exhibit 6-4 presents the budgeted operating income for the two scenarios.

Note that under Scenario 1, a change in selling prices per table affects revenues (Schedule 1) as well as variable marketing costs (sales commissions, Schedule 8). The Problem for Self-Study at the end of the chapter shows the revised schedules for Scenario 1. Similarly, a change in the price of direct materials affects the direct material usage budget (Schedule 3A), the unit cost of ending finished goods inventory (Schedule 6A), the ending

