**CHAPTER TWO**

 **2. MASTER BUDGET**

**Introduction**

The master budget is the aggregation of all lower-level [budgets](http://www.accountingtools.com/dictionary-budget) produced by a company's various functional areas, and includes budgeted [financial statements](http://www.accountingtools.com/definition-financial-statemen), cash forecast, and a financing plan. The master budget is typically presented in either a monthly or quarterly format, or usually covers a company's entire [fiscal year](http://www.accountingtools.com/definition-fiscal-year). An explanatory text may be included with the master budget, which explains the company's strategic direction, how the master budget will assist in accomplishing specific goals, and the management actions needed to achieve the budget. There may also be a discussion of the headcount changes that are required to achieve the budget. A master budget is the central planning tool that a management team uses to direct the activities of a corporation, as well as to judge the performance of its various [responsibility centers](http://www.accountingtools.com/definition-responsibility-acco).

**2.1. The Overall Plan and Its Characteristics**

Finance being the lifeblood of a business, financial planning is of utmost significance to a businessman. Budget is an important tool for financial planning and control. Financial planning is concerned with raising of funds and their effective utilization with a view to maximize the wealth of the organization. In spite of a good financial plan, the desired results may not be achieved if there is no effective control to ensure its effective implementation. The budget represents a set of yardsticks and guidelines for use in controlling internal operations of an organization. The discrepancy between plan performance and actual performance is highlighted through the budgets. The organization may have to change the course of its operation in a particular area or rallies its plans keeping in view the changing conditions.

**What is budget?**

A budget is a plan expressed in quantitative, usually monetary terms, covering a specific period of time, usually a year. In other words, a budget is a systematic plan for the utilization of manpower and natural resources. In a business budget represents an estimate of future costs and revenues. A budget prepared for the organization as a whole is called master budget. Master budget is a comprehensive expression of managements operating and financial plans for a future expression of managements operating and financial plans for a future time period (usually a year) that is summarized in a set of budgeted financial statements. If embraces the impact of both operating decisions and financing decisions. Operating decisions center on the use of scarce resources. Financing decisions center on how to obtain funds to acquire those resources. The master budget has two components. These are operating budget and financial budget.

Operating budgets includes budgeted income statement and its supporting schedules. Financial budget comprises the capital budget, Cash budget, budgeted balance sheet, and budgeted statement of cash flows.

 **Characteristics of budget**

* It is prepared in advance and is derived from the long-term strategy of the organization.
* It relates to future period for which objectives or goals have already been laid down.
* It is expressed in quantitative form, physical or monetary or both.

**2.2. Advantages of Budgeting**

Budgeting is advantageous for organizations, because:

1. Budgets foster organizational communication.
2. Budgets ensure a focus both on future events and on resolving day-to-day issues.
3. Budgets assign resources and the responsibility to use them wisely to managers who are held accountable for their results.
4. Budgets can identify potential constraints before they become problems.
5. Budgets facilitate congruence between organizational and personal goals.
6. Budgets define organizational goals and objectives numerically, against which actual performance results can be evaluated.

**2.3. Types of Budgets**

1. ***Capital budget***: - A budget that details the planned expenditures for facilities, equipment, new products and other long-term investments. Capital budgeting is the process of making long-run planning decisions for investments in projects.
2. ***Long – range budgets***: - LRB, are coordinated with capital budgets. It provides forecasted financial statement for 5 to 10 years periods.
3. ***Master budget:*** - it is an extensive analysis of the first year of the long-range plan. It summarizes the planning activities of all subunits of an organization- sales, production, distribution and finance. The master budget is prepared for a specific period and is static in the sense that it is based on a single level of output demand.
4. ***Continuous or Rolling budgets:*** - It is a form of master budget that adds one period in the future as the period just ended is dropped. Budgeting thus becomes an ongoing instead of periodic process. Continuous budgets force managers to always think about the next 12 months, not just the remaining months in a fixed budgeting cycle. For example, a budget may initially be prepared for January to December, year 1. At the end of the first quarter, that is, at the end of March, year 1, the first quarter’s budget is deleted. A further quarter is then added to the end of the remaining budget, for January to March, year 2. The remaining portion of the original budget is updated in the light of current conditions. This means that managers have a full year’s budget always available and the rolling process forces them to continually plan ahead.

A **master budget** consists of a set of operating budgets and a set of financial budgets that detail an organization’s financial plans for a specific accounting period, generally a year. When a master budget covers an entire year, some of the operating and financial budgets may show planned results by month or by quarter.

As the term implies, **operating budgets** are plans used in daily operations. They are also the basis for preparing the **financial budgets**, which are projections of financial results for the accounting period.

The budgeted financial statements—that is, the budgeted income statement and budgeted balance sheet—are also called **pro forma financial statements**, meaning that they show projections rather than actual results. Pro forma financial statements are often used to communicate business plans to external parties.

If, for example, you wanted to obtain a bank loan so that you could start a new business, you would have to present the bank with a pro forma, or budgeted, income statement and balance sheet showing that you could repay the loan with cash generated by profitable operations.

Suppose you have started your own business. Whether it is a manufacturing, retail, or service organization, to manage it effectively, you would prepare a master budget each period. A master budget provides the information needed to match long-term goals to short-term activities and to plan the resources needed to ensure an organization’s profitability and liquidity.

* The operating budgets of **manufacturing organizations** include budgets for sales, production, direct materials, direct labor, overhead, selling and administrative expenses, and cost of goods manufactured.
* **Retail organizations** prepare a sales budget, a purchases budget, a selling and administrative expense budget, and a cost of goods sold budget.
* The operating budgets of **service organizations** include budgets for service revenue (sales), labor, services overhead and selling and administrative expenses. The sales budget (or in service organizations, the service revenue budget) is prepared first because it is used to estimate sales volume and revenues. Once managers know the quantity of products or services to be sold and how many sales dollars to expect, they can develop other budgets that will enable them to manage their organization’s resources so that they generate profits on those sales. For example, in a retail organization, the purchases budget provides managers with information about the quantity of merchandise needed to meet the sales demand and yet maintain a minimum level of inventory. In a service organization, the labor budget provides information about the labor hours and labor rates needed to provide services and generate the revenues planned for each period; managers use this information in scheduling services and setting prices.

**Budget Procedures**

Because procedures for preparing budgets vary from organization to organization, there is no standard format for budget preparation. The only universal requirement is that budgets communicate the appropriate information to the reader in a clear and understandable manner. By keeping that in mind and using the following guidelines, managers can improve the quality of budgets in any type of organization:

1. Know the purpose of the budget, and clearly identify who is responsible for carrying out the activities in the budget.
2. Identify the user group and its information needs.
3. Identify sources of accurate, meaningful budget information. Such information may be gathered from documents or from interviews with employees, suppliers, or managers who work in the related areas.
4. Establish a clear format for the budget. A budget should begin with a clearly stated heading that includes the organization’s name, the type of budget, and the accounting period under consideration. The budget’s components should be clearly labeled, and the unit and financial data should be listed in an orderly manner.
5. Use appropriate formulas and calculations in deriving the quantitative information.
6. Revise the budget until it includes all planning decisions. Several revisions may be required before the final version is ready for distribution.

Although procedures for preparing operating budgets vary, the tools used in the process do not. In this section, we use a frame-making company, called Framecraft Company, to **illustrate** how a manufacturing organization prepares its operating budgets. Because Framecraft Company makes only one product—a plastic picture frame—it prepares only one of each type of operating budget. Organizations that manufacture a variety of products or provide many types of services may prepare either separate operating budgets or one comprehensive budget for each product or service.

1. **The Sales Budget**

As we indicated earlier, the first step in preparing a master budget is to prepare a sales budget. A **sales budget** is a detailed plan, expressed in both units and dollars, which identify the sales expected during an accounting period. Sales managers use this information to plan sales- and marketing-related activities and to determine their human, physical, and technical resource needs. Accountants use the information to determine estimated cash receipts for the cash budget.

The following equation is used to determine the total budgeted sales:

Total Estimated Estimated

Budgeted = Selling Price \* Sales in

Sales per Unit Units

The estimated sales volume is very important because it will affect the level of operating activities and the amount of resources needed for operations. To help estimate sales volume, managers often use a **sales forecast**, which is a projection of sales demand (the estimated sales in units) based on an analysis of external and internal factors. The external factors include:

1. The state of the local and national economies
2. The state of the industry’s economy
3. The nature of the competition and its sales volume and selling price

Internal factors taken into consideration in a sales forecast include:

1. The number of units sold in prior periods

2. The organization’s credit policies

3. The organization’s collection policies

4. The organization’s pricing policies

5. Any new products that the organization plans to introduce to the market

6. The capacity of the organization’s manufacturing facilities

* **Operating Budget**

**Exhibit 1-1 sales budget**



Exhibit 1-1 illustrates Frame craft Company’s sales budget for the year. The budget shows the estimated number of unit sales and dollar revenue amounts for each quarter and for the entire year. Because a sales forecast indicated a highly competitive marketplace, Frame craft’s managers have estimated a selling price of $5 per unit. The sales forecast also indicated highly seasonal sales activity; the estimated sales volume therefore varies from 10,000 to 40,000 per quarter.

1. **The Production Budget**

A **production budget** is a detailed plan showing the number of units that a company must produce to meet budgeted sales and inventory needs. Production managers use this information to plan for the materials and human resources that production related activities will require. To prepare a production budget, managers must know the budgeted number of unit sales (which is specified in the sales budget) and the desired level of ending finished goods inventory for each period in the budget year. That level is often stated as a percentage of the next period’s budgeted unit sales.

For example, Framecraft Company’s desired level of ending finished goods inventory is 10 percent of the next quarter’s budgeted unit sales. (Its desired level of beginning finished goods inventory is 10 percent of the current quarter’s budgeted unit sales.)

The following formula identifies the production needs for each accounting period:

Total Budgeted Desired Units of Desired Units of

Production = Sales in + Ending Finished - Beginning

Units Units Goods Inventory Finished Goods Inventory

Exhibit 1-2 shows Framecraft Company’s production budget for the year. Notice that each quarter’s desired total units of ending finished goods inventory become the next quarter’s desired total units of beginning finished goods inventory. Assume unit sales of 15,000 are budgeted for the first quarter of next year, the ending finished goods inventory for the fourth quarter of the year is 1,500 units (0.10 X 15,000 units), which is the same as the desired number of units of ending finished goods inventory for the entire year. Similarly, the number of desired units for the first quarter’s beginning finished goods inventory is assume 1,000—is the same as the desired number of units of beginning finished goods inventory for the entire year.

Exhibit 1-2 Production budget



1. **The Direct Materials Purchases Budget**

A **direct materials purchases budget** is a detailed plan that identifies the quantity of purchases required to meet budgeted production and inventory needs and the costs associated with those purchases. A purchasing department uses this information to plan purchases of direct materials. Accountants use the same information to estimate cash payments to suppliers.

To prepare a direct materials purchases budget, managers must know what production needs will be in each accounting period in the budget; this information is provided by the production budget. They must also know the desired level of the direct materials inventory for each period and per unit cost of direct materials.

The desired level of ending direct materials inventory is usually stated as a percentage of the next period’s production needs.

For example, Frame craft’s desired level of ending direct materials inventory is 20 percent of the next quarter’s budgeted production needs. (Its desired level of beginning direct materials inventory is 20 percent of the current quarter’s budgeted production needs.)

The following three steps are involved in preparing a direct materials purchases budget:

**Step 1.** Calculate each period’s total production needs in units of direct materials. Plastic is the only direct material used in Framecraft Company’s picture frames; each frame requires 10 ounces. Frame craft’s managers therefore calculate units of production needs in ounces; they multiply the number of frames budgeted for production in a quarter by the 10 ounces of plastic that each frame requires.

**Step 2.** Determine the quantity of direct materials to be purchased during each accounting period in the budget using the following formula:

Total Units of Total Production Desired Units of Desired Units of

Direct Needs in Ending Direct Beginning Direct

Materials to = Units of Direct + Materials - Materials

Be Purchased Materials Inventory Inventory

**Step 3.** Calculate the cost of the direct materials purchases by multiplying the total number of unit purchases by the direct materials cost. Frame craft’s Purchasing Department has estimated the cost of the plastic used in the picture frames at $0.05 per ounce.

Exhibit 1-3 shows Frame craft’s direct materials purchases budget for the year. Notice that each quarter’s desired units of ending direct materials inventory become the next quarter’s desired units of beginning direct materials inventory.

Exhibit 1-3 Direct Materials Purchases Budget



The company’s budgeted number of units for the first quarter of the following year is assume 150,000 ounces; its ending direct materials inventory for the fourth quarter of this year is therefore 30,000 ounces (0.20 X 150,000 ounces), which is the same as the number of desired units of ending direct materials inventory for the entire year. \_Similarly, the number of desired units for the first quarter’s beginning direct materials inventory is assume 24,000 ounces—is the same as the beginning amount for the entire year.

1. **The Direct Labor Budget**

A **direct labor budget** is a detailed plan that estimates the direct labor hours needed during an accounting period and the associated costs. Production managers’ use estimated direct labor hours to plan how many employees will be required during the period and the hours that each will work, and accountants use estimated direct labor costs to plan for cash payments to the workers.

Managers of human resources use the information in a direct labor budget in deciding whether to hire new employees or reduce the existing work force and also as a guide in training employees and preparing schedules of employee fringe benefits.

The following two steps are used to prepare a direct labor budget:

**Step 1.** Estimate the total direct labor hours by multiplying the estimated direct labor hours per unit by the anticipated units of production (see Exhibit 1-2).

**Step 2.** Calculate the total budgeted direct labor cost by multiplying the estimated total direct labor hours by the estimated direct labor cost per hour. A company’s human resources department provides an estimate of the hourly labor wage.

 Total Budgeted Estimated Total Direct X Estimated Direct

 Direct Labor Costs = Labor Hours Labor Cost per Hour

Exhibit 1-4 shows how Framecraft Company uses these formulas to estimate the total direct labor cost. Frame craft’s Production Department needs an estimated one-tenth (0.10) of a direct labor hour to complete one unit. Its Human Resources Department estimates a direct labor cost of $6 per hour.



1. **The Overhead Budget**

An **overhead budget** is a detailed plan of anticipated manufacturing costs, other than direct materials and direct labor costs, which must be incurred to meet budgeted production needs. It has two purposes: to integrate the overhead cost budgets developed by the managers of production and production-related departments and to group information for the calculation of overhead rates for the next accounting period. The format for presenting information in an overhead budget is flexible.

Grouping information by activities is useful for organizations that use activity-based costing. This approach makes it easier for accountants to determine the application rates for each cost pool.

As Exhibit 1-5 shows, Framecraft Company prefers to group overhead information into variable and fixed costs to facilitate C-V-P analysis. The single overhead rate is the estimated total overhead costs divided by the estimated total direct labor hours.

**Exhibit 1-5 overhead budget**

For example, Frame craft’s predetermined overhead rate is $18.70\* per direct labor hour, or $1.87 per unit produced. The variable portion of the overhead rate is $9.70 per direct labor hour, which includes factory supplies, $1.80; employee benefits, $2.40; inspection, $0.90; maintenance and repairs, $1.60; and utilities, $3.00.



1. **The Selling and Administrative Expense Budget**

A **selling and administrative expense budget** is a detailed plan of operating expenses, other than those related to production, that are needed to support sales and overall operations during an accounting period. Accountants use this budget to estimate cash payments for products or services not used in production-related activities.

For example, Framecraft Company’s estimated variable selling and administrative expense rate is $0.29 per unit sold, which includes delivery expenses, $0.08; sales commissions, $0.10; accounting, $0.07; and other administrative expenses, $0.04.

**Exhibit 1-6 Selling and Administrative Expense Budget**

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1. **The Cost of Goods Manufactured Budget**

A **cost of goods manufactured budget** is a detailed plan that summarizes the estimated costs of production during an accounting period. The sources of information for total manufacturing costs are the direct materials, direct labor, and overhead budgets. Most manufacturing organizations anticipate some work in process at the beginning or end of the period covered by a budget. However, Framecraft Company has a policy of no work in process on December 31 of any year. Exhibit 1-7 summarizes the company’s estimated costs of production for the year. (The right-hand column of the exhibit shows the sources of key data.)

The budgeted, or standard, product unit cost for one picture frame is rounded to $2.97 ($268,775 ÷ 90,500 units).

**Exhibit 1-7 cost of goods manufactured budget**

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* **Financial Budgets**

Financial budgets include a budgeted income statement, a capital expenditures budget, a cash budget, and a budgeted balance sheet.

1. **The Budgeted Income Statement**

A **budgeted income statement** projects an organization’s net income for an accounting period based on the revenues and expenses estimated for that period. Exhibit 1-8 shows Framecraft Company’s budgeted income statement for the year. The company’s expenses include 8 percent interest paid on a $70,000 note payable and income taxes paid at a rate of 30 percent.

Information about projected sales and costs comes from several operating budgets, as indicated by the right-hand column of Exhibit 7-8, which identifies the sources of key data and makes it possible to trace how Framecraft Company’s budgeted income statement was developed.

Framecraft Company has no budget for cost of goods sold; that information is included in its budgeted income statement.

**Exhibit 1-8**

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**9. The Capital Expenditures Budget**

A **capital expenditures budget** is a detailed plan outlining the anticipated amount and timing of capital outlays for long-term assets during an accounting period.

Managers rely on the information in a capital expenditures budget when making decisions about such matters as buying equipment, building a new plant, purchasing and installing a materials handling system, or acquiring another business.

Framecraft Company’s capital expenditures budget for the year includes $30,000 for the purchase of a new frame-making machine. The company plans to pay $15,000 in the first quarter of the year, when the order is placed, and $15,000 in the second quarter of the year, when it receives the machine. This information is necessary for preparing the company’s cash budget.

**10. The Cash Budget**

A **cash budget** is a projection of the cash that an organization will receive and the cash that it will pay out during an accounting period. It summarizes the cash flow prospects of all transactions considered in the master budget. The information that the cash budget provides enables managers to plan for short-term loans when the cash balance is low and for short-term investments when the cash balance is high.

A cash budget excludes planned noncash transactions, such as depreciation expense, amortization expense, issuance and receipt of stock dividends, uncollectible accounts expense, and gains and losses on sales of assets. Some organizations also exclude deferred taxes and accrued interest from the cash budget.

The following formula is useful in preparing a cash budget:

Estimated Total Total Estimated

Ending Cash = Estimated - Estimated + Beginning Cash

Balance Cash Receipts Cash Payments Balance

**Cash budget**

Beginning cash balance ------------------------------- XXX

Add: cash collection from customers ---------------- XXX

 Total cash available for needs(X) -------------------- XXX

Disbursements:

 Direct material ------------------------------------------ XXX

 Payroll --------------------------------------------------- XXX

 Interest expense ----------------------------------------- XXX

 Plant Asset ----------------------------------------------- XXX

 Income tax ----------------------------------------------- XXX

 Others ---------------------------------------------------- XXX

Total disbursements (Y) ------------------------------- XXX

Add: minimum cash balance XXX

Total Cash needed (P) XXX

 Cash excess (deficiency) (X – P) XXX

***Financing:***

Borrowing XXX

Repayment (XXX)

Interest (XXX)

Net effect of financing (Z) XXX

Ending Cash balance (X –Y + Z) XXX

Estimates of cash receipts are based on information from several sources. Among these sources are the sales budget, the budgeted income statement, cash budgets from previous periods, cash collection records and analyses of collection trends, and records pertaining to notes, stocks, and bonds. Information used in estimating cash payments comes from the operating budgets, the budgeted income statement, the capital expenditures budget, the previous year’s financial statements, and loan records.

In estimating cash receipts and cash payments for the cash budget, many organizations prepare supporting schedules. For example, Framecraft Company’s controller converts credit sales to cash inflows and purchases made on credit to cash outflows and then discloses those conversions on schedules that support the cash budget.

The schedule in Exhibit 1-9 shows the cash that Framecraft Company expects to collect from customers during the year. Cash sales represent 20 percent of the company’s expected sales; the other 80 percent are credit sales. Experience has shown that Framecraft collects payments for 60 percent of all credit sales in the quarter of sale, 30 percent in the quarter following sale, and 10 percent in the second quarter following sale.

As you can see in Exhibit 1-9, Frame craft’s balance of accounts receivable was $48,000 at the beginning of the budget year. The company expects to collect $38,000 of that amount in the first quarter and the remaining $10,000 in the second quarter. At the end of the budget year, the estimated ending balance of accounts receivable is $68,000—that is, $4,000 from the third quarter’s credit sales [($50,000 X 0.80) X 0.10] plus $64,000 from the fourth quarter’s sales [($200,000 X 0.80) X 0.40]. The expected cash collections for each quarter and for the year appear in the total cash receipts section of the cash budget.

**Exhibit 1-9 Schedule of Expected Cash Collection from Customers**

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Exhibit 1-10 shows Frame craft’s schedule of expected cash payments for direct materials during the year. This information is summarized in the first line of the cash payments section of the company’s cash budget. Framecraft pays 50 percent of the invoices it receives in the quarter of purchase and the other 50 percent in the following quarter. The beginning balance of accounts payable for the first quarter is given at $4,200. At the end of the budget year, the estimated ending balance of accounts payable is $8,250 (50 percent of the $16,500 of direct materials purchases in the fourth quarter).

**Exhibit 1-10 Schedule of Expected Cash Payments for Direct Materials**

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Frame craft’s cash budget for the year appears in Exhibit 1-11. It shows the estimated cash receipts and cash payments for the period, as well as the cash increase or decrease. The cash increase or decrease plus the period’s beginning cash balance equals the ending cash balance anticipated for the period. As you can see in Exhibit 1-11, the beginning cash balance for the first quarter is $20,000. This amount is also the beginning cash balance for the year.

Note that each quarter’s budgeted ending cash balance becomes the next quarter’s beginning cash balance. Also, note that equal income tax payments are made quarterly. You can trace the development of this budget by referring to the data sources listed in the exhibit.

Many organizations maintain a minimum cash balance to provide a margin of safety against uncertainty. If the ending cash balance on the cash budget falls below the minimum level required, short-term borrowing may be necessary to cover planned cash payments during the year. If the ending cash balance is significantly larger than the organization needs, it may invest the excess cash in short term securities to generate additional income.

For example, if Framecraft Company wants a minimum of $10,000 cash available at the end of each quarter, its balance of $7,222 at the end of the first quarter indicates that there is a problem. Frame craft’s management has several options for handling this problem. It can borrow cash to cover the first quarter’s cash needs, delay purchasing the new extrusion machine until the second quarter, or reduce some of the operating expenses. On the other hand, the balance at the end of the fourth quarter may be higher than the company wants, in which case management might invest a portion of the idle cash in short-term securities.

**Exhibit 1-11 Cash Budget**

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**11. The Budgeted Balance Sheet**

A **budgeted balance sheet** projects an organization’s financial position at the end of an accounting period. It uses all estimated data compiled in the course of preparing a master budget and is the final step in that process. Exhibit 1-12 presents Framecraft Company’s budgeted balance sheet at the end of the budget year. Again, the data sources are listed in the exhibit. The beginning balances for Land, Notes Payable, Common Stock, and Retained Earnings were $50,000, $70,000, $150,000, and $50,810, respectively.

**Exhibit 1-12 Budgeted Balance Sheet**

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