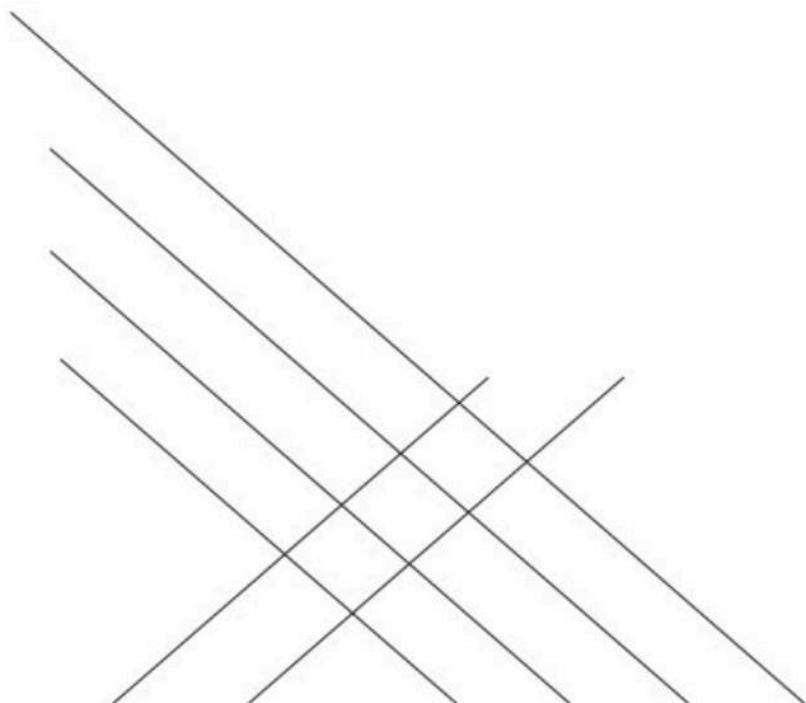




Budgeting 8



Learning Objectives

After studying this chapter, you should be able to do the following:

- Identify planning and control as the main objectives of budgeting
- Identify a number of different approaches to budget preparation:
 - Prepare an operating budget for a service department of an organization
 - Prepare an operating budget for a production department of an organization
 - Prepare an operating budget for a simple organization
- Understand the role of participation in budget setting
- Understand the role of budgeting in uncertain times

8.1

Introduction: From Strategy to Budgets

Planning is one of the five “functions of management” identified by Fayol (the others are organizing, commanding, co-ordinating, and controlling). Any competently run organization will make plans about its future. The strategic plan or a company’s strategy articulates the long-term plan how the company attempts to achieve its mission and vision. Whereas the mission defines the company’s purpose, the vision expresses the company’s aspiration. For example, the mission of Canada’s largest airline, Air Canada, is to connect Canada with the world, and its vision is to be among the best global airlines.

To develop their strategy, companies typically analyze their external environment and internal resources, capabilities, and competences in order to derive how they can successfully compete. The insights from the external and internal analysis can be channeled into a SWOT matrix, summarizing the companies’ internal strengths and weaknesses as well as external opportunities and threats.

Widespread tools for the external analysis are a PESTEL analysis and Porter’s five forces. PESTEL is an acronym to assess the political, economic, socio-cultural, technological, environmental, and legal factors constituting the company’s macro-environment. Porter’s five forces provide a framework to get a better understanding of the dynamics faced in the industry by evaluating the (1) threat of new entrants, (2) threat of substitutes, (3) bargaining power of customers, (4) bargaining power of suppliers, and (5) competitive rivalry. Widespread tools for the internal analysis are a value chain analysis or a core competence analysis. The value chain analysis evaluates the company’s primary (e.g., logistics, production, sales) and supporting (e.g., HR, IT) activities in producing goods or providing a service to understand and optimize how these activities generate added value for customers. In a core competence analysis, the company seeks to identify its **valuable**, **rare**, hard to **imitate**, and **non-substitutable**

(VRIN) competencies, stemming from particular resources and capabilities that allow to build and sustain a competitive advantage. By asking the question of value, rarity, imitability, and organization, the VRIO framework can help here to evaluate a company's internal resources and capabilities and thereby identify its competitive potential:

1. Is this resource or capability valuable to the firm?
2. Is it rare to have among competitors?
3. Is it difficult or costly to duplicate?
4. Is the company organized to exploit its value?

The insights from the external and internal (SWOT) analysis channel into different available strategic options, which are then evaluated in terms of potential success. For this, a scenario analysis can be used to test how each strategic option will perform under different imagined future states. Once the strategy of how the company will compete in its market(s), such as domestic and international passenger carriage, vacation travelling, or cargo transport, to stay with the Air Canada example, the next step is to implement the strategy over the specified time period. For this, strategic objectives and goals as well as medium-term targets are set. For example, Air Canada specifies four strategic priorities — (1) implement cost reduction and revenue-enhancing initiatives, (2) pursue international growth opportunities, (3) engage customers by enhancing their travel experience, and (4) foster a positive cultural change inside the firm to implement its strategy — and it sets medium-term profitability, return, and free cash flow targets. Then projects and initiatives are launched to achieve the strategic priorities and targets. And that is where budgeting comes in as it helps translate strategic priorities into an organizational plan of what needs to be done and achieved during the next year to realize the strategy.

When the organizational plan is expressed in financial terms, it is called a budget. The operating budget is the budget for all the activities that get reported in the income statement, and it is presented in the same format as the income statement. The main difference is that the income statement summarizes past events, whereas the budget forecasts future events. The cash budget is a list of forecast cash receipts and payments and their effect on cash balances. In this chapter, we consider how operating budgets can be prepared, and in the following chapter, we consider how cash budgets are prepared and used. In Chapter 10, we show how budgets may be used for control (another of Fayol's five management functions). In the control exercise, actual results are compared to budgeted results to see if the organization is on track or not. Without the budget, that judgment would be more difficult or even impossible to make.

Although planning and control are the most common uses to which budgeting will be put, it is also true that budgeting performs a valuable service in communicating information to managers (e.g., by implication, they map out the organizational structure, and they also communicate profit expectations), and budgets may be used as motivational devices to encourage managers to strive for organizational goals.

Because the budget has so many purposes, it is a very important part of the management process. Also, because budgets can be prepared with several

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different uses in mind, it is sometimes unclear as to how they should best be executed.

If the primary purpose of the budget is to support the planning process, then its most important characteristics should be, first, that it is integrated with the organizational objectives and strategy and, second, that it should be accurate. Use of the budget for planning is probably of greatest interest to top management, such as the board of directors or the chief executive officer and his immediate area managers.

If the primary purpose of the budget is to enable control, then its most important characteristics should be, first, that it is linked to the responsibility areas over which functional managers have control and, second, that it represents a fair basis for the control process. Fairness can be achieved by both parties (the manager exercising control and the manager being controlled) agreeing to the budget before it is put into use. Control of activities is normally exercised by (and on) functional managers, such as plant managers, marketing managers, and human resources managers.

Although communication and co-ordination are unlikely to be primary purposes of any budget, they should be borne in mind when considering the accuracy of the picture they give of the organization. The structure of the budget should not mislead the observer as to the reality of the organizational structure.

In sales and marketing situations (and occasionally in production and service units), the budget may have a major motivational objective. In that case, the budget should represent some challenging, but achievable, level of performance.

As a further gloss on this situation, the degree to which budgets are regarded as important varies among organizations. In some, the budget is regarded with almost religious fervour, and achieving or not achieving the budget is strongly linked to rewards and punishments. Those who exceed budget expectations are likely to receive bonus payments and promotions, whereas those who fail to meet their budgets will be denied such rewards. In other organizations, the budget is treated more lightheartedly: it is a source of valuable information, but rewards and punishments are unlikely to follow as a result of achieving or not achieving the budget.

8.2

Preparing the Budget for a Service Department

Sarah Smith has recently been promoted from salaries and benefits manager to being in charge of the whole human resources department at Tizer Foods Inc. The previous manager was given a \$20,000 severance package in September and told to go away. Sarah has the most recent departmental cost report on her desk (see Exhibit 8.1), which is for the month of September. It is now mid-October, and she has received a request from the management accounting department for her departmental budget for next year. How should she proceed?

Where is Sarah going to start in setting her proposed budget for next year? Her choices could include the following:

Exhibit 8.1: Departmental Monthly Cost Report

**Tizer Foods Inc.
Human Resources Department
Monthly Cost Report**

| Details | September | | Year to Date | |
|--|------------------|------------------|--------------------|--------------------|
| | Actual | Budget | Actual | Budget |
| Manager's salary | \$ 28,000 | \$ 8,000 | \$ 92,000 | \$ 72,000 |
| Other salaries | <u>75,000</u> | <u>72,000</u> | <u>675,000</u> | <u>658,000</u> |
| | <u>\$103,000</u> | <u>\$ 80,000</u> | <u>\$ 767,000</u> | <u>\$ 730,000</u> |
| Employee benefits (5% of salary cost) | <u>5,150</u> | <u>4,000</u> | <u>38,350</u> | <u>36,500</u> |
| Total staff costs | <u>\$108,150</u> | <u>\$ 84,000</u> | <u>\$ 805,350</u> | <u>\$ 766,500</u> |
| Travelling expense | 5,300 | 15,000 | 104,500 | 135,000 |
| Advertising expense | 10,700 | 17,500 | 173,200 | 157,500 |
| Depreciation expense | 2,000 | 2,000 | 18,000 | 18,000 |
| Occupancy expense (500 m ² @ \$200) | <u>10,000</u> | <u>10,000</u> | <u>90,000</u> | <u>90,000</u> |
| Total | <u>\$136,150</u> | <u>\$128,500</u> | <u>\$1,191,050</u> | <u>\$1,167,000</u> |

1. Previous Year's Budget

Take the current year's budget (\$128,500 per month) and say that it can be used again next year.

There are a number of issues with approach #1. First, the world does not stand still, and prices tend to rise through time, so with inflation in Canada running at around 2% per year, last year's budget will not be enough for next year. Sarah would be unwise to commit herself and her co-workers to meeting an unrealistic budget based on out-of-date data.

2. Previous Year's Budget + Inflation Adjustment

Take the current year's budget (\$128,500 per month) and add 2% for general inflation, to make it \$131,070 per month.

Although that is a little more realistic, there are still some issues with approach #2. The 2% inflation rate will not necessarily be relevant to all expense items. Some (salaries is a good example) may rise at rates higher than inflation. Others (depreciation, for example) may not rise at all.

We can also see that the actual expenses (both for the month of September and for the year to date) are greater than the budgeted expenses. Why was this? Was the budget inadequate, or was control lax? At this point, Sarah does not know. It would be reckless to commit to a budget without full information.

3. Previous Year Actual + Inflation Adjustment

Take the current month's actual expenses (\$136,150) and add 2% for inflation, to make the budget \$138,873 per month.

In approach #3, we institutionalize whatever was going on in September and immortalize it in our budget. Any inefficiencies that happened now become part of next year's budget request. In addition to any uncontrolled overspending

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in the month, closer examination of the cost report shows that the \$20,000 severance payment for the previous HR manager is included, for example, and that the travelling expenses were underspent by \$10,000. It would be incorrect for Sarah to base next year's budget on the expenses that were incurred in September as September was not typical. Probably any given month is atypical in some respect.

4. Zero-Based Budget

If Sarah were to go back to basics, she would go through each line of the budget and try to justify the dollar amount. So, her salary as manager would be line 1, and the budget would be based on her expected actual salary for next year — likewise for the remaining employees, the employees' benefits, travelling, advertising, etc. Her monthly budget might appear as follows:

| Details | Monthly Budget |
|--|------------------|
| Manager's salary | \$ 7,500 |
| Other salaries | <u>72,000</u> |
| | \$ 79,500 |
| Employee benefits (5%) | <u>3,975</u> |
| Total staff costs | \$ 83,475 |
| Travelling expense | 12,000 |
| Advertising expense | 17,500 |
| Depreciation expense | 2,000 |
| Occupancy expense (500 m ² @ \$200) | <u>10,000</u> |
| Total | <u>\$124,975</u> |

Approach #4 is often referred to as “zero-based budgeting” as it assumes a starting point of zero, and every expense item has to be justified before being included. President Jimmy Carter introduced zero-based budgeting in the 1970s to the U.S. government because he was appalled by the waste in government offices. There has been a recent revival of using zero-based budgeting. Leading consumer goods companies, such as Coca Cola, Kraft Heinz, or Kellogg's, use this budgeting approach to identify cost savings to improve their profitability. In particular, it helped them reduce selling, general, and administrative expenses (SG&A) in relation to sales growth. Improving the SG&A-to-sales ratio means that the companies became more efficient in turning, for example, selling expenses into sales dollars. The use of zero-based budgeting has since then spread into other industries, such as energy, finance, health care, and manufacturing.

Sadly, its three big problems soon became apparent: first, it takes an unreasonable amount of time to prepare budgets this way; second, managers who are preparing budgets soon become adept at sneaking unjustified expenses into the list to pad the budget, thus frustrating its main objective; and third, companies focusing on cutting costs might forget to reinvest cost savings into sales growth and new product development. This is what Kraft Heinz experienced in 2019 when it had to announce a USD 15.4 billion write-down of its goodwill and intangible assets because some of its brands were no longer that strong as anticipated in generating future sales. Kraft Heinz partly overestimated the strengths of its brands and resisted too long the demands from large retailers to lower prices in light of heavy competition from discounted in-store brands.

Preparing the Budget for a Service Department

Although it may be unmanageable to do zero-based budgeting every year, as an occasional exercise in cost control it has much to recommend it — as long as we do not forget to invest into the future growth of the company.

5. The Padded Budget

While talking to other department managers, Sarah might have heard that whatever budgets were put forward, the management accounting department routinely cut them back by 10% to get rid of the fat. That being the case, whatever budget she wants to finish up with (say, for example, the budget of \$124,975 per month in #4), she would add 10% to each of the line items so that the total budget she puts in for will be \$137,472.50.

What started off as a rational process has now become a political football. The only reason the management accounting department should have to cut back a budget by an arbitrary amount is if it expects managers to pad the budget in the first place, so the remedy is giving rise to the disease here.

6. The Compromise Budget

A compromise solution, which many organizations are comfortable with, is to base the budget of one year on that of the previous year but to make appropriate adjustments in respect of routine changes, such as inflation, and also challenge some of the major assumptions that underlie the budget. In this department, for example, salaries are the largest line item: there would be a periodic review of what the employees do and how that contributed to the goals and strategy of the organization.

7. Activity-Based Costing

Taken to its logical conclusion, both zero-based budgeting and challenging major assumptions lead to the identification of the activities the unit is carrying out and why it is doing so, and the related cost that should be incurred to carry out the activities. This is currently referred to as the idea of “activity-based” costing and management (ABC/ABM). The underlying theme of ABC/ABM is that there is a chain of activities that add value to the product or service the organization is selling. All activities that the organization executes should be part of the value chain; otherwise, they should be eliminated. ABC/ABM is discussed more fully in Chapter 12.

8. Benchmarking

Some organizations are lucky enough to be able to compare the cost of their activities to those of competitors. Car makers, for example, routinely share cost and efficiency information at various car plants worldwide. If that information is available, then budgets may be “benchmarked” against the best standards in the industry. Sarah probably does not have this information to help her.

9. Kaizen System

The Japanese Kaizen approach to budgeting regards standing still as unacceptable. Each period’s costs must be lower than those of the previous period, so a continuous series of efficiency-based improvements is required. By itself, any single improvement may be trivial, but cumulatively they may add up and keep

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efficiency on a steady upward path. The Kaizen system is widely used in manufacturing situations, but in theory, at least, it could be applied to any activity. Toyota is a recognized user of the Kaizen system.

10. Negotiation

Whatever budget amounts Sarah submits, we must recognize that her budget will then become part of a negotiation process. Whoever is co-ordinating the budget for the whole organization has the right to ask Sarah to reconsider her submission. If the overall operating budget is not able to meet the organization's profit expectations, then everyone will have to rethink how their contribution affects that overall picture. Only when all parties agree that the budget is possible and that it will achieve organizational objectives should it be approved and implemented.

Collective Bargaining

Collective bargaining is an issue that has both financial and non-financial ramifications.

From a financial perspective, collective bargaining will determine both the short-term and the long-term cost of wages. Short-term effects would be those that can be characterized as an immediate payment (in cash or in kind) that is not repeated. A lump sum award (such as a one-time bonus payment or the decision to hold a free Christmas party) is a short-term effect. Long-term effects would include an increase in base pay or a decision to increase the number of days of annual vacation, or any decision that continues on a regular basis into the future. The human resources manager or any party to the collective bargaining situation needs to be able to compare the cost of a short-term effect to the cost of a long-term effect.

A cash award is easy to measure. If 100 employees are each to be given a \$1,000 signing bonus for agreeing to a new contract, then the cost is \$100,000.

A permanent pay raise is more challenging to measure. An increase of \$1,000 in an employee's annual base pay has a value that is dependent on how long that employee will stay with the company and the relevant interest rate.

One extreme perspective on length of service is that regardless of whether the employee has been there for a very long time or that particular employee is only there for a brief period, the increased pay would continue to be paid to the replacement worker. This would be the case for a negotiated permanent pay increase for a particular job classification. This makes the payment of increase an annuity: an annual payment that goes on forever.

The value of a perpetual payment (one that goes on forever) is determined by the relevant interest rate. If 10% is a relevant interest rate, then a permanent increase of \$1,000 per year is worth \$10,000 ($\$1,000 \div 0.10$). This is one of the effects of the time value of money. The actual cash flow is far more than \$10,000 in total; however, as

continued on the next page

Collective Bargaining (continued)

each annual payment of \$1,000 is made, it is made further away in time and so becomes worth less and less.

On page 531 of the text, there is a table of present value factors for annuities. For an interest rate of 3%, a payment of \$1,000 per year forever is equivalent to \$33,333 now; at 4%, it is \$20,000; at 5%, it is \$12,000; and so on. This type of calculation enables the comparison of short-term and long-term items in collective bargaining.

If the negotiations are a “zero-sum game”, then any benefit awarded to workers becomes an equal amount of cost to the employer. Any lump-sum, one-time-only payment or any permanent increase in pay rates that is not tied to any associated non-financial changes (e.g., a 5% pay raise across the board without any strings attached) would be a zero-sum game.

A zero-sum game is an adversarial situation. The workers will want to maximize their reward, whereas the employer wants to minimize the cost. Typically, in collective bargaining, each party has a negotiating range. For example, the employer believes that the company would not be able to afford a raise of more than 5% in general pay rates, whereas the union believes that the minimum pay raise that would be acceptable to the workers is 6%. If that is the case, there is no likelihood of an agreement being reached.

The employer’s position should be based on affordability — that is, a careful examination of present and future profitability. The employees’ position is more likely to be based on factors such as the cost of living and comparisons with pay negotiations elsewhere. The fact that each party is negotiating from a different understanding of what is important is one of the many sources of disagreement in collective bargaining.

Non-financial changes can turn a zero-sum game into a situation where the disadvantage of a cash reward (be it long-term or short-term) is offset by changes in non-cash factors. For example, an incentive scheme could tie an increase in base pay to increased performance in production quantity or production quality. Incentive schemes can result in benefits to both parties to collective bargaining.

One of the most extreme forms of incentive scheme is piecework. In a piecework situation, employees are only paid for their actual output. The advantages of doing things this way include (1) the employer can directly relate the outgoings of employment to the creation of value through products made or services rendered, and (2) employees can increase (or decrease) their work effort and have it immediately translated into more (or less) pay. Issues that often occur in piecework situations include quality control and a perception of inequity between employees who do very well on piecework and others who do less well.

For piecework or, in fact, any incentive scheme to work well, it is essential that employees’ output can be precisely measured and that there are adequate controls over product quality.

In addition to the financial aspects of collective bargaining, there are financial dimensions to other pay negotiation situations. One list of the things that are “top of

continued on the next page

Collective Bargaining (continued)

mind” when deciding a strategic compensation package, with particular emphasis on negotiating the salaries of individuals, is as follows:

- To reward employees’ past performance
- To remain competitive in the labour market
- To maintain salary equity among employees
- To mesh employees’ future performance with organizational goals
- To control the compensation budget
- To attract new employees
- To reduce unnecessary turnover¹

Note

¹ M. Belcourt, P. Singh, S.A. Snell & S.S. Morris, *Managing Human Resources*, 9th Canadian edition (Toronto: Nelson, 2020), p. 328.

8.3

Preparing the Budget for a Production Department

In the previous example, Sarah Smith was preparing the budget for a department that provided a service to the rest of the organization (human resources management). The managers of any service department, including HR, accounting, marketing, research and development, and maintenance, would face a similar task. In the case of service departments, the budget would be prepared based on the anticipated organizational, meaning internal, demand for their services. A pharmaceutical company, such as Bayer, Roche, or Pfizer, would budget a relatively large amount for research and development activities. A designer and manufacturer of luxury goods, such as Louis Vuitton (LVHM), Estée Lauder, or Chanel, would budget a relatively large amount for marketing activities. This is, however, somewhat (but not totally) separated from the question of how many units the company will produce or the volume of services provided to customers.

Production departments face a different situation. In the case of a department that makes a product or that renders a service for sale to customers, there are some costs that behave like service department costs (essentially fixed costs) and others that would be expected to rise or fall with the number of products made or the number of services sold. These are called variable costs as they vary in direct proportion to activity.

Barbara Byng is the production manager of the Coated Nut Division of Tizer Foods Inc. Her monthly operating budget for the current year is shown in Exhibit 8.2.

When Barbara Byng prepares her operating budget for the following year, not only will she have to think about all the issues that Sarah Smith had to consider (such as changing prices), but she will also have to think about how many kilograms of coated nuts are planned for production.

Exhibit 8.2: Departmental Operating Budget for Current Year

**Tizer Foods Inc.
Coated Nut Division
Operating Budget for Current Year**

| | |
|---|-----------------------------------|
| Activity: Budgeted monthly output of coated nuts | 600,000 kg |
| Variable operating costs: | |
| Raw materials and packaging | |
| Nuts | 500,000 kg @ \$0.500 |
| Coating | 100,000 kg @ \$2.750 |
| Packing materials | 600,000 kg @ \$0.050 |
| Labels and inserts | 600,000 kg @ \$0.075 |
| Total | <u>\$ 250,000</u> |
| Labour | 8,000 hours @ \$25 |
| Other variable operating costs | 8,000 hours @ \$12.50 |
| Total variable costs (\$1.50 per kg of output) | <u><u>\$ 600,000</u></u> |
| | <u><u>\$ 900,000</u></u> |
| Fixed operating costs: | |
| Supervisory salaries (5 @ \$5,000 each) | \$ 25,000 |
| Rent & taxes | 100,000 |
| Utilities | 50,000 |
| Maintenance | 75,000 |
| Depreciation of plant & equipment | <u>200,000</u> |
| Total fixed operating costs (\$0.75 per kg of output) | <u><u>\$ 450,000</u></u> |
| Total operating costs (\$2.25 per kg of output) | <u><u><u>\$ 1,350,000</u></u></u> |

If the output of coated nuts is going to rise by 10% (from 600,000 kg to 660,000 kg), then even if the rate per kilogram stays the same (variable cost is currently \$1.50 per kg), the budgeted cost for coated nuts would rise by 10% (from \$900,000 to \$990,000). Likewise, if the budgeted output of coated nuts were to be 20% lower (480,000 kg), then the budgeted total variable cost would fall by 20% (from \$900,000 to \$720,000).

The fixed costs have a current budget of \$450,000. Price changes and increased efficiency may make the following year's budget for fixed costs different, but the level of activity should not change the budget for fixed costs. It would not matter if the output was the same (600,000 kg), was lower (e.g., 480,000 kg), or was higher (660,000 kg); these would still be expected to be \$450,000 (plus or minus any price or efficiency changes). Whether the Coated Nut Division produces more or less nuts in a given month, they still have, for example, to pay the same amount of monthly rent. It is a fixed cost that does not change with the volume of outputs produced. It only changes if the landlord decides to change the monthly rent or the Coated Nut Division decides to cancel the current lease to move to a larger or smaller production facility.

Suppose that Barbara Byng is preparing her budget for the next year. She has been given the following information to help her:

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1. The sales department plans on selling an average of 750,000 kg of coated nuts per month (an increase of 25%).
2. The purchasing department expects the following price changes:
 - The cost of nuts will increase to \$0.60 per kg.
 - The cost of coatings will increase to \$3.00 per kg.
 - The cost of packing materials will decrease to \$0.04 per kg.
 - The cost of labels and inserts is not expected to change.
3. The human resources department will agree to a new collective bargaining agreement that will increase wage rates by \$5 per hour.
4. Automation of the nut-roasting process will reduce the required labour hours to 0.01 labour hours per kg of output.
5. The other variable operating cost rate will increase to \$15 per labour hour.
6. One supervisor will be let go, at a cost saving of \$5,000 per month.
7. The remaining four supervisors will be paid \$6,000 each per month.
8. Depreciation will increase by \$50,000 per month.

In Exhibit 8.3, we show how Barbara Byng would prepare the monthly operating budget for next year for her division.

Exhibit 8.3: Departmental Operating Budget for Next Year

**Tizer Foods Inc.
Coated Nut Division
Operating Budget for Next Year**

| | |
|--|-------------------------------|
| Activity: Budgeted monthly output of coated nuts | 750,000 kg |
| Variable operating costs: | |
| Raw materials and packaging | |
| Nuts | (500,000 kg + 25%) @ \$0.600 |
| Coating | (100,000 kg + 25%) @ \$3.000 |
| Packing materials | (600,000 kg + 25%) @ \$0.040 |
| Labels and inserts | (600,000 kg + 25%) @ \$0.075 |
| Total | <u>\$ 836,250</u> |
| Labour | (750,000 × 0.01) hours @ \$30 |
| Other variable operating costs | (750,000 × 0.01) hours @ \$15 |
| Total variable costs (\$1.565 per kg of output) | <u>\$1,173,750</u> |
| Fixed operating costs: | |
| Supervisory salaries (4 @ \$6,000 each) | \$ 24,000 |
| Rent & taxes: no change | 100,000 |
| Utilities: no change | 50,000 |
| Maintenance: no change | 75,000 |
| Depreciation of plant & equipment (\$200,000 + \$50,000) | <u>250,000</u> |
| Total fixed operating costs (\$0.6653 per kg of output) | <u>\$ 499,000</u> |
| Total operating costs (\$2.2303 per kg of output) | <u>\$1,672,750</u> |

Note that 750,000 kg is a 25% increase in activity over the current year, so the quantities of all the variable cost inputs will have to increase by 25% before considering any price changes.

The budget in Exhibit 8.3 shows the following:

- Variable costs have risen from \$1.50 per kg to \$1.565 per kg; mostly this is due to rising raw material costs.
- Fixed costs have risen in total (from \$450,000 to \$499,000) but have actually decreased on a dollar per kg output basis (from \$0.75 per kg to \$0.6653 per kg) because of the increased production activity: the fixed cost is spread over a greater quantity of production.
- Total cost has decreased from \$2.25 per kg to \$2.2303 per kg. Considering the substantial raw materials cost increases, this is a remarkable achievement.

8.4

The Master Budget

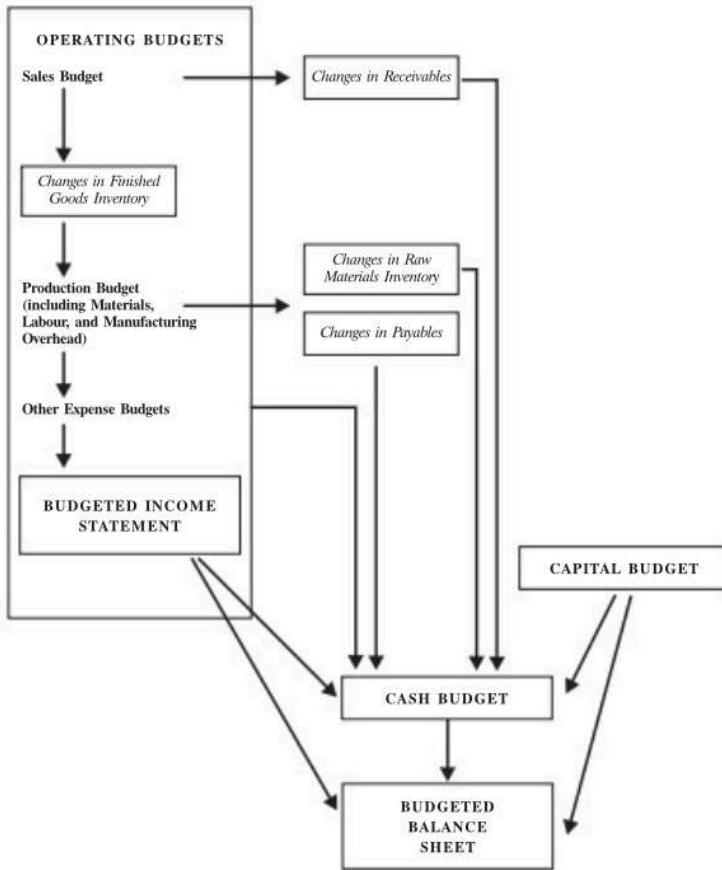
In addition to the various production and service departments creating budgets for their individual responsibility areas, there will be an operating budget for the whole organization. It will look like an income statement, listing the budgeted sales revenues and the budgeted costs and expenses incurred for the next year. It will also show the budgeted operating income and the budgeted net income.

In addition to the operating budget, most organizations will prepare budgets for a range of other items, such as a capital budget (for major investment expenditures), a cash budget (for movements in the cash balances), and a budgeted balance sheet. Aggregated, the operating and financial budgets form the master

Morgan Cars

Morgan Car Co. has been making cars since 1909. By the look of the cars, it seems as though the design may not have changed much in the past 110 years. The traditional appearance, however, masks a thoroughly modern car in many respects. What has not changed is the “craft” mentality used in their construction. Morgan has studiously avoided moving up to large-scale production so that the company can maintain its reputation for quality manufacturing. As a result, demand has consistently outstripped supply in recent years. If you want a Morgan, you can order one, any time, but in the late 1990s, the waiting list was an incredible 8 years.

As of 2020, the waiting list is 6 months but can be as long as 10 years. Clearly, Morgan cannot use “sales demand” as the starting point for preparing its budget, but it can use “production capacity” as a starting point as that is its binding constraint. All cars are hand-assembled, and as of 2019 the company makes fewer than 800 a year, compared to 1,500 in 2015.

Exhibit 8.4: The Master Budget

budget of the organization. We shall discuss the cash budget in the next chapter because it is so important for organizational survival that all managers are aware of the effect their actions have on cash flow; the rest of the master budget, however, can safely be left to accounting experts and will not be discussed here.

In Exhibit 8.4, we show the relationship between the various elements of the master budget.

8.5 The Operating Budget

The process starts with a forecast of sales. All organizations are subject to some limiting factor that determines the highest level of activity at which they could operate. Because we live in a vibrant modern market economy, sales level is

almost always the limiting factor. If potential sales exist, most organizations can somehow find the resources to deal with the additional customers.

Sales forecasts can come from various sources: extrapolations of past trends, the considered opinion of sales and marketing personnel, analysis of market and competitor activity, or any combination of these sources. They will consist of a schedule of products, prices, and volumes that are expected to occur.

In these days of “just-in-time inventory management”, it is highly probable that the sales forecast will be virtually identical to the planned production. If, however, the company’s plan is to build up inventory over the budget period, then planned production will exceed planned sales. Conversely, if it is planned to run inventories down, then production will be less than sales. Planned production levels, then, will be sales levels adjusted up or down for changes in finished goods inventories.

Production levels drive manufacturing costs. The raw material purchases necessary for the production plan will have to be bought and paid for. As with sales, if there is little or no inventory, raw materials and bought-in parts will be driven precisely by the production plan. Only if there is a build-up or run-down of raw materials inventory will purchase requirements differ from production. Production levels also drive wage costs and manufacturing overhead.

As a separate exercise, expense budgets will also be prepared for service departments, such as sales and distribution, human resources, accounting and administration, research and development, and any other areas of the organization that are separately managed (as discussed in 8.2).

Fortunately, as an area manager, it will never be your role to put together the master operating budget. That consolidation is done by the accounting staff in the financial planning and analysis (FP&A) department. The accountants, however, rely on managers for their inputs. As a functional area manager, it is important to realize that your input into the budgeting process is not an empty exercise in number shuffling but is one of the ingredients that make the whole thing reasonable and accurate. It is, therefore, essential that the process be taken seriously.

Rogers@Home

With considerable fanfare, Rogers announced its @Home Internet service. Because it was piped into your house through the TV cable, it was much faster than the phone line connections, which had been the main source of home Internet access up to that point. Rogers was successful — too successful, in fact. The number of customers increased beyond all expectations, including Rogers’ own. The sales level was so high that Rogers’ systems could no longer handle it effectively. Although the hookup was wickedly fast, it became increasingly unreliable. Customers defected to other services or retreated to old, slow modems. Eventually, a class action suit was brought against Rogers for failing to live up to its promises.

You could say that Rogers had two failures from a budgeting perspective: it had been inaccurate in its sales forecast, and it had taken on additional customers without having the service capacity to provide effective services.

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As a manager, you will be expected to budget for your area of responsibility. You can expect some base data to be given to you by the budgeting department. The data would consist of expected rates of inflation, wage settlement prospects, activity levels, etc. Translating that into a reasonable budget is your job.

8.5.1

Sales Forecasting

If sales activity is the driving force for other parts of the budget, we should start by considering the sales forecasting process. (Rogers' 2001 launch of its @Home Internet service is an excellent example of poor sales forecasting and its negative impact on a company.)

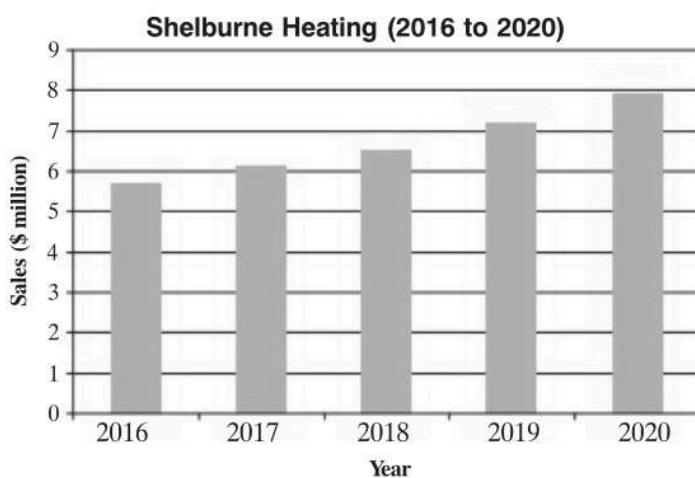
The past is not a perfect predictor of the future, but it is a very good starting point. Suppose that sales revenue has been growing steadily over the past few years. The most likely projection would be that it would continue to grow as long as the underlying factors have not changed. We might even expect the rate of growth to remain the same.

Shelburne Heating reports that its gross sales revenues have increased every year from 2016 to 2020:

| | \$ million |
|------|------------|
| 2016 | 5.7 |
| 2017 | 6.1 |
| 2018 | 6.5 |
| 2019 | 7.2 |
| 2020 | 7.9 |

Plotting the sales on a graph (see Exhibit 8.5) shows that the increase is roughly the same each year. Alternatively, year-on-year growth rates could be calculated, sales in 2017 were 7.0% higher than in 2016, for example.

Exhibit 8.5: A Sales Revenue Graph



The Operating Budget

| Year | Sales (\$ million) | Growth (\$ million) | % Growth |
|---------------------|-----------------------|------------------------|-------------------------------|
| 2016 | 5.7 | | |
| 2017 | 6.1 | 0.4 | 7.0 ($0.4 \div 5.7$) |
| 2018 | 6.5 | 0.4 | 6.6 ($0.4 \div 6.1$) |
| 2019 | 7.2 | 0.7 | 10.8 ($0.7 \div 6.5$) |
| 2020 | 7.9 | 0.7 | <u>9.7</u> ($0.7 \div 7.2$) |
| Average growth rate | | | <u>8.5</u> |

On average, sales have grown by 8.5% per annum over the four years since 2016. A reasonable forecast for 2021, on that basis, would be for sales of \$7.9 million plus 8.5%, which would be \$8.6 million.

A more sophisticated analysis of these data might draw a trend line through the data points, either by eye on the graph or by a calculation, such as a regression analysis. We do not need to go into the mechanics of regression analysis, but the best estimate of sales for 2021 would also be \$8.6 million.

Analyzing the trend is quite legitimate if the underlying circumstances are unchanged. If there have been any disturbances in the pattern, however, that might make the trend less reliable. Suppose that you are the manager of Shelburne Heating in Shelburne, Ontario. Superior Propane has just opened a store 500 metres away. It is inevitable that this will affect your sales as Superior Propane is such an effective competitor, and the store is so close to yours. A change such as that would have to be built into the sales forecast.

Another approach for sales forecasting is to use information on the current market volume, its expected market growth for the next year, and the company's current market share. For example, the market volume of the Canadian light-vehicle market, which includes passenger cars and light trucks such as pickups and SUVs, in 2019 was approximately 1.9 million new cars sold. Before the COVID-19 crisis also hit the automotive industry, market analysts were expecting sales levels to remain on that level for 2020. The Detroit-based car manufacturer Ford enjoys the highest market share, with 15%, in Canada. Hence, its sales forecast for 2020 could be as follows: 15% market share \times 1,900,000 cars market volume = 285,000. Of course, a company of the size of Ford does not leave it at a forecast of all new vehicles sold next year. It breaks it down and forecast first sales volume for the different light-vehicle segments (such as compact or midsize passenger cars) and then for each of its different models. For example, the F-series pickup, which has been for 54 consecutive years the best-selling pickup and for 10 years in a row the highest-selling vehicle in Canada, was sold approximately 154,000 times in 2019, followed by the Ford Escape, sold approximately 39,500 times in 2019. Based on growth expectations in the pickup market and Ford's market share, next year's sales volume can be forecasted. However, new car sales went down by 48% in March 2020 in Canada due to the spreading COVID-19 pandemic in Canada. Hence, three months in the year, it turned out to be rather unrealistic for Ford to keep its budgeted sales forecasts of approximately 1.9 million cars. Immediate measures were necessary, such as temporarily closing car assembly plants. How companies can deal with uncertainty in budgeting will be covered in section 8.8.

In recent years, big data or data analytics have become fashionable words. Data analytics can also be used to improve sales forecasting. For example, offset

Four Types of Data Analytics

Conceptually, there are four types of data analytics, and we introduce them below. For the technicalities of each, we leave them to company data specialists.

Descriptive analytics: What happened?

Descriptive analytics show what happened in the past. For example, plotting the development of the TSX stock index on a line chart or Ford's 2019 market share in Canada's light-vehicle market in a pie chart describes and visualizes what happened. Reports and presentations are also frequently used to describe data, such as last quarter's sales by regions, profit by product line, or generated cash flow by business units.

Diagnostic analytics: Why did it happen?

Diagnostic analytics help us understand why something happened in the past. We seek to find cause-and-effect relationships that help us explain, for example, why Internet traffic in our e-commerce shop increased, why customers fly a particular route more frequently, or why the oil price decreased.

Predictive analytics: What will happen?

Predictive analytics aim to foresee what will likely happen in the future. Like in the above example on predicting future tire sales, an explanatory model is built by finding (a combination of) variables, such as macroeconomic indicators, that are capable of anticipating historical sales data. Such an explanatory model is then used to predict for example future order intakes of trucks, cancellation habits from video streaming subscribers, or payment patterns of credit card users.

Prescriptive analytics: What should be done?

Prescriptive analytics provide recommendations to positively alter predicted outcomes. Hence, it goes one step further than predictive analytics because it already distills possible courses of actions and shows the potential effects of them. Let's assume a sales dip in six months is predicted. Now, prescriptive analytics simulates the effects of potential courses of actions, such as decreasing the selling price to counteract the sales dip, launch a marketing campaign, or release an updated version of the company's product to stimulate new sales.

printing machine manufacturer, such as Koenig & Bauer or Heidelberger Druckmaschinen AG, can use as an indicator a country's literacy rate or the paper consumption per capita to predict future demands for offset printing machines. The underlining logic is that the more paper is consumed per citizen, the more paper needs to be printed, and this leads to investments into new offset printing machines. Or tire producers can use transported goods as a predictive indicator for tire sales. The more goods are transported, the more trucks are used, which increases the demand for new tires. The time delay between the transportation of goods and the replacement of tires makes it potentially a suitable predictive indicator because the aim of predicting sales is to already

know ahead of time what the future demand for new tires will be. Sagaert and colleagues show in their research paper, published in the *European Journal of Operational Research* in 2018, how the following three macroeconomic indicators improved the forecasting accuracy of tire sales on a regional level: (a) employment in automobile dealerships, (b) number of national passenger car registrations, and (c) consumer price index for solid fuel prices. Let's assess whether there is a logical link between these indicators and the demand for new tires. In case of the first indicator, we can argue that if there are many people employed in car dealerships, there must also be many cars sold, which in consequence leads to the need for more tires. In case of the second indicator, the argument is that increases in car registrations mean that more cars are on the road and, thus more demand for tires. And in the last case, the logical relationship is that the more expensive the fuel price is for consumers, the less they will use their car and thus less demand for replacement of tires results. As we can see from this example, it is not enough to find statistically valid macroeconomic indicators for forecasting, but these indicators must also make logical sense.

8.5.2

Production Forecasting

Once the sales level has been estimated, we have to consider the implications for the rest of the business.

Ontario Brewery has forecast sales of 12 million hectolitres of beer for the next year. Clearly, the brewery will need manufacturing capacity for 12 million hectolitres. If the brewing process takes a month, the plant capacity will have to be rated at 1 million hectolitres, assuming that a steady production of 1 million hectolitres a month is sufficient to meet the annual demand. This would certainly be true if demand were constant, but demand for beer is very seasonal. It goes up in the summer and at holiday times and is generally lower in colder weather. Suppose that the demand was forecast with a seasonal pattern, as shown in Exhibit 8.6.

If sales demand can only be met with current production, then a plant rated at maximum demand (1.7 million hectolitres a month) will be necessary. Apart from the three months of maximum demand, there will be unused capacity for the rest of the year, when demand is less than 1.7 million hectolitres.

With this pattern of demand, it will be possible to meet demand with a plant rated at 1 million hectolitres per month if the product can be carried in inventory. Storing inventory enables production and demand to be “uncoupled”, and their capacities do not have to be precisely matched. Demand can be effectively met by the production plan shown in Exhibit 8.7.

The brewery is able to build inventory levels up gradually over the light months so that it can effectively meet demand in the heaviest months. Of course, there is a price to pay: the inventory has to be stored. This production plan calls for storage with a peak level of 1.7 million hectolitres. If the company has a plant that could meet the maximum monthly demand every month, then this storage would be unnecessary.

The decision to add 700,000 hectolitres of production capacity, or 1.7 million hectolitres of storage capacity, is one that would have to be made on its own merits.

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Exhibit 8.6: A Demand Forecast

Ontario Brewery Next Year's Demand Forecast

| Forecast Demand | Millions of Hectolitres |
|-----------------|-------------------------|
| January | 0.5 |
| February | 0.5 |
| March | 0.7 |
| April | 0.7 |
| May | 0.9 |
| June | 1.0 |
| July | 1.7 |
| August | 1.7 |
| September | 1.0 |
| October | 0.8 |
| November | 0.8 |
| December | 1.7 |
| Total | 12.0 |

Exhibit 8.7: A Production Plan

Ontario Brewery Next Year's Production Plan Hectolitres (in million)

| Month | Opening inventory | Production | Available | Demand | Closing inventory |
|-----------|-------------------|------------|-----------|--------|-------------------|
| January | 0.0 | 1 | 1.0 | 0.5 | 0.5 |
| February | 0.5 | 1 | 1.5 | 0.5 | 1.0 |
| March | 1.0 | 1 | 2.0 | 0.7 | 1.3 |
| April | 1.3 | 1 | 2.3 | 0.7 | 1.6 |
| May | 1.6 | 1 | 2.6 | 0.9 | 1.7 |
| June | 1.7 | 1 | 2.7 | 1.0 | 1.7 |
| July | 1.7 | 1 | 2.7 | 1.7 | 1.0 |
| August | 1.0 | 1 | 2.0 | 1.7 | 0.3 |
| September | 0.3 | 1 | 1.3 | 1.0 | 0.3 |
| October | 0.3 | 1 | 1.3 | 0.8 | 0.5 |
| November | 0.5 | 1 | 1.5 | 0.8 | 0.7 |
| December | 0.7 | 1 | 1.7 | 1.7 | 0.0 |
| Total | | 12 | | 12.0 | |

Although the main focus of the production forecasting exercise was to budget the production activity, there was a spinoff effect: changing inventory levels were planned. The ending inventory levels will enter as part of the brewery's current assets the budgeted balance sheet. In other words, the financial budget is being constructed in parallel with the operating budgets.

8.5.3

Labour Planning

Once production activity levels have been budgeted, it is possible to schedule the labour force necessary to carry out the production plan. Suppose Ontario Brewery now has a production plan that calls for 1 million hectolitres of beer to be produced each month. A constant level of labour would be appropriate to operate the production plant. Sales, however, are very seasonal, from a low of 500,000 hectolitres to a seasonal peak of 1.7 million hectolitres per month. Planning for the labour requirements in bottling and distribution will have to match that seasonal trend. Either casual workers will have to be added at the busy times, or overtime will have to be scheduled — or some combination of the two.

When budgeting labour costs, do not forget that there are several labour-related costs incurred by the company in addition to the wages paid to staff, including unemployment insurance and workers' compensation premiums, the employer's contribution to pension schemes, holiday pay, and so on. Typically, for budgeting, a constant percentage is added to raw labour costs for these fringe benefits.

We have the sales forecast and production plan for Ontario Brewery (see Exhibits 8.6 and 8.7). The production activity requires a workforce of 10 all year round. Production workers are paid \$25 per hour and work a 40-hour week. Bottling and distribution workers are needed at the rate of 10 people for every million hectolitres sold. Bottling and distribution workers are paid on average \$15 per hour, and they, too, work a 40-hour week. There are two supervisors (one for production and one for bottling and distribution), each earning \$40,000 per year. Fringe benefits are expected to cost an additional 10% of wage costs. The labour budget would be as shown in Exhibit 8.8.

8.5.4

Preparing the Operating Budget

Next year's operating budget for Ontario Brewery is shown in Exhibit 8.9.

The brewery plans on selling a total of 12 million hectolitres of beer next year, with the demand showing a seasonal peak in the summer and another smaller peak in December, and lower demand in the rest of the year. Beer is retailed in the beer stores for \$5 per litre. The beer stores take a 20% margin (\$1), leaving \$4 per litre as gross revenue for the brewer. The government takes \$1.00 for excise duties¹ and sales taxes, leaving \$3.00 per litre net of tax revenue for the brewer. Total budgeted sales of 12 million hectolitres will result in budgeted revenue of \$3,600 million.

¹ According to the *Excise Act, 2001*, excise duties are imposed on spirits, wine, tobacco products and cannabis products produced in Canada.

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Exhibit 8.8: Labour Cost Budget

Ontario Brewery Next Year's Labour Cost Budget

| Month | Millions of Hectolitres Produced | Production $10 \times \$25 \times 40$ hrs $\times 4$ weeks | Millions of Hectolitres Sold | Bottling and Distribution |
|---------------------------|----------------------------------|--|------------------------------|---|
| | | | | $Sales \times 10 \times \$15 \times 40$ hrs $\times 4$ weeks |
| January | 1.0 | \$ 40,000 | 0.5 | \$ 12,000 |
| February | 1.0 | 40,000 | 0.5 | 12,000 |
| March | 1.0 | 40,000 | 0.7 | 16,800 |
| April | 1.0 | 40,000 | 0.7 | 16,800 |
| May | 1.0 | 40,000 | 0.9 | 21,600 |
| June | 1.0 | 40,000 | 1.0 | 24,000 |
| July | 1.0 | 40,000 | 1.7 | 40,800 |
| August | 1.0 | 40,000 | 1.7 | 40,800 |
| September | 1.0 | 40,000 | 1.0 | 24,000 |
| October | 1.0 | 40,000 | 0.8 | 19,200 |
| November | 1.0 | 40,000 | 0.8 | 19,200 |
| December | 1.0 | <u>40,000</u> | 1.7 | <u>40,800</u> |
| | | \$480,000 | | \$288,000 |
| Supervisors | | <u>40,000</u> | | <u>40,000</u> |
| | | \$520,000 | | \$328,000 |
| 10% fringe benefits, etc. | | <u>52,000</u> | | <u>32,800</u> |
| Total | | <u><u>\$572,000</u></u> | | <u><u>\$360,800</u></u> |

Exhibit 8.9: Operating Budget

Ontario Brewery Next Year's Operating Budget

| | 12 millions of hectolitres | \$ millions |
|-----------------------------------|----------------------------|----------------------|
| Sales | | |
| Sales revenue: Gross | \$4,800 | |
| Brewing excise & sales taxes | <u>1,200</u> | |
| Net sales revenue | | \$3,600 |
| Variable costs: | | |
| Raw material & packaging | \$1,800 | |
| Variable distribution & marketing | <u>240</u> | |
| Total variable costs | | <u>2,040</u> |
| Contribution margin | | <u>\$1,560</u> |
| Fixed costs: | | |
| Fixed distribution & marketing | \$ 180 | |
| Fixed general & administrative | <u>300</u> | |
| Total fixed costs | | <u>480</u> |
| Operating income | | <u>\$1,080</u> |
| Interest expense | | <u>80</u> |
| Taxable income | | <u>\$1,000</u> |
| Taxes: 40% | | <u>400</u> |
| Net income | | <u><u>\$ 600</u></u> |

Budget Preparation and the Functional Manager

Raw material costs and packaging costs are \$1.50 per litre. For 12 million hectolitres, this will be a budgeted cost of \$1,800 million. Variable distribution and marketing costs are \$0.20 per litre. For 12 million hectolitres, this will be a budgeted cost of \$240 million. Fixed distribution and marketing costs are budgeted to cost \$180 million for the year, whereas fixed general and administrative costs are budgeted to cost \$300 million for the year. Interest expense is budgeted at \$80 million for the year, and income taxes expense is budgeted to be 40% of the pre-tax profit.

If this business were to be evenly spread over the year, then the monthly budget would be calculated by dividing the annual total by 12. However, we know that it is a very seasonal business, so the budget for each month would have to be separately calculated to include its own level of production and the associated costs.

8.6

Participation in Budgeting

In some organizations, the budget is handed down from above as something the unit is expected to achieve, without giving the unit any say in the budget's contents. This is called an imposed or top-down budget. In general, we can expect the manager of the unit to be suspicious and resentful of an imposed budget and to have a low level of commitment to it. The organization may find that it has to set up a system of strong sanctions against managers who do not reach their budgets in order that they become realized.

By contrast, some other organizations will treat the budget-setting process as a dialogue, with managers sharing information and expectations to agree on a budget. The budget does not become formally adopted until both the manager and her superiors have signed off (a) that they regard it as a reasonable task to undertake and (b) that it meets organizational expectations. This is referred to as a participatory budget. In general, we can expect that the manager of a unit who has participated in the budget-setting process will be more highly personally committed to achieving the budgeted results. She will need fewer "sticks and carrots" to persuade her to work enthusiastically toward organizational success. Behaviourally, participatory budgets are superior to imposed ones.

8.7

Budget Preparation and the Functional Manager

In a very centralized organization, the budget will be set by "top management", generally by setting parameters and instructing the management accounting team to prepare the budget in keeping with those parameters. It will tend to be an imposed or top-down budgeting process.

In a very decentralized organization, functional managers will be responsible for preparing the budget themselves for tasks that lie under their operational control. This means that marketing/sales would be responsible for setting the revenue budgets, production managers would be responsible for setting the

production cost budget, and managers of service cost centres (e.g., human resources managers and accounting department managers) would be responsible for setting the budgets for the costs to be incurred in their own areas.

Clearly, functional managers cannot be left to set their budgets without any consideration of interrelationships between units. It would be plain dumb for marketing to set a budget for sales that is inconsistent with the production budget. For example, if the marketing department from Ford Canada budgets to sell 40,000 Ford Escape models, but the production department only produces 30,000 for the Canadian market, there would be a strong misalignment and no proper co-ordination between these two functions. Likewise, the purchasing function needs to consider the production budget when preparing its budget for purchasing. Otherwise, the production department might run out of materials to produce their budgeted units.

Similarly, setting the budget for a service cost centre without any regard for the work to be done or its affordability, and without some managerial checks, would be an abdication of management responsibility. Managers in such a situation have a tendency toward empire building, which fosters the consumption of ever greater amounts of the organization's resources.

So what tends to happen is that the responsible managers propose the budgets, which are then vetted by a higher level of management to ensure that the whole plan is co-ordinated and that it achieves whatever organizational objectives have been chosen. As a result, complete decentralization hardly ever exists; and although the process may start with the functional managers, an iterative process is used to ensure the acceptability of their budgets.

8.8

Planning under Uncertainty

The budget sets out the organizational plan for the next year. Underlying the budget preparation are assumptions on how the next year will turn out. These assumptions can include projections on market growth or the country's economic growth, measured as gross domestic product (GDP). It can include assumptions about the development of inflation rates, the U.S.-CAN foreign exchange rate, or oil prices. If the company operates in the so-called B2C market, meaning business-to-consumer, such as retailers, consumer goods companies, or car manufacturers, the consumer confidence index (CCI) might be consulted to project consumers' spending behaviour. If the company operates in the so-called B2B market, meaning business-to-business, such as chemical companies or machine, equipment, and plant manufacturers, a purchasing manager index or business climate index might be used for budget preparation. When Air Canada prepared its budget for 2020, its major assumptions included modest GDP growth in Canada, a foreign exchange rate of CAD 1.33 per USD, and a jet fuel price of 74 CAD cents per litre. Based on these and other assumptions, the operating budget for Air Canada was then prepared.

Budget assumptions fix the outlook of next year. However, as the COVID-19 pandemic vividly showed, the actual situation can turn out drastically different from what had been assumed when preparing the budget. Airline companies were hit hard and suddenly, leading to the cancellations of most flights or even

the temporary stop of operations. For example, the Toronto-based regional airline company Porter Airlines announced mid-March that it would suspend services from March 20 to June 1, 2020, and later extended its temporary suspension of all flights several times. The latest extension was until February 11, 2021. No flights for 11 months meant no revenues for 11 months, which was definitely not planned for when preparing the 2020 budget.

Generally, the contemporary business environment is characterized as being much more dynamic and fast-paced as previously. These are VUCA times for — at least some — businesses, meaning volatile, uncertain, complex, and ambiguous times, to which we can add another letter “C” at the end for chaotic, leading to the VUCAC acronym. Volatile refers to rapid and unexpected changes; uncertain to a lack of knowing in advance the future state; complex to having many different, but related, elements involved; ambiguous to carrying several and obscure meanings; and chaotic to a disorderly state.

These VUCA times lead to risks and opportunities for companies — risks as they might put pressure on a company’s existing business model (referring to the way to running the business). But these times also offer opportunities for creating new and changing ventures, business models, products, or services. For example, the electric-car manufacturer Tesla disrupted the automotive market and its reliance on the combustion engine, forcing car manufacturers, such as Toyota, Volkswagen, and General Motors, to adapt. The Seattle-based technology company Amazon first disrupted shopping-street bookstores with selling books online and then expanded its online marketplace to electronics, games, apparel, and many other consumer goods. Nowadays it is together with Apple, Google, and Microsoft, one of the big four tech companies. The ride-sharing company Uber changed the rules of the game in the market for car-based passenger transportation, forcing many taxi drivers and taxi companies out of business. With the entrance of Uber, the once expensive taxi licences to carry passengers in a city lost their value as “anyone” with a car and a driver’s licence could now sign up at Uber and start transporting passengers. Given these VUCA times, how can companies incorporate uncertainties in their planning and budgeting practices?

There are several different ways to incorporate uncertainties in planning and budgeting. The first one is to update the budget if the market outlook has significantly changed or an event occurred that altered the financial projections of the company. For example, the grounding of the Boeing 737 MAX in spring 2019 is such an event that made Air Canada suspend its financial targets for 2019. Air Canada had ordered 61 737 MAX planes until 2021 and had already received 25 of them in spring 2019. Now with the 25 planes on the ground, Air Canada had to update its planned operating activities, such as its flight scheduling and plane allocation, as well as take actions to reduce the operating impact on the business. In response, Air Canada, for example, purchased planes from the insolvent Wow Airlines to fill in for the grounded 737 MAX planes. Another example for updating existing budgets as the market outlook changed is the COVID-19 crisis, which led to substantial higher sales demand for retailers, such as Amazon or Walmart, or for home food delivery by grocery chains, such as Loblaw, Sobeys, or Metro. Amazon, Walmart, and others were hiring new staff, looking for drivers, distribution centre workers, and store employees to meet this unexpected high demand. For example, orders for grocery home

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delivery more than sextupled during the COVID crisis at the IGA grocery store in Villieray, Montreal. Although usually 50 to 70 orders were placed daily, it hiked to 350 orders, leaving the store personnel to prepare these orders for delivery during the night from 10.30 p.m. to 7 a.m. in order not to intervene with the normal opening hours. Workers at Amazon described this increased demand similar to the company's peak season, which is usually the holiday season. In March 2020, 100,000 new employees were hired. The old budget was no longer realistic. Hence, it had to be updated to the changed outlook of the (remaining) year.

A second way to capture uncertainties in budgeting is to conduct a what-if analysis to assess the effect of changes in key planning parameters, such as sales demand or production costs, on the budgeted results of the year. Doing so also allows us to identify the most influential risk factors that impact the achievement of budgeted results and thus need to be most closely managed. A what-if analysis is also called sensitivity analysis as it shows how sensitive budgeted results are when a planning assumption changes. The major operating cost for airline companies is jet fuel costs. Hence, assessing the effect of changes in the jet fuel price on operating profits helps us understand the risks induced by fluctuations of the fuel price on the company's profitability. Air Canada recently demonstrated that a 1% increase of the jet fuel price will reduce operating profit by \$43 million.

A third way to include uncertainties in budgeting is by means of a scenario analysis. As the name signifies, not one but multiple scenarios are prepared in the budgeting process. Often three scenarios are evaluated: (a) the worst or pessimistic case, (b) the best or optimistic case, and, in between the two (c) the likely or most probable case. However, the number of scenarios prepared can and should vary depending on the specific situation. In comparison with a sensitivity analysis that takes a single input variable (such as the discussed change in jet fuel price) and examines its effects on the outcome, such as profitability or cash flow, a scenario analysis bundles several input variables together into a scenario to evaluate their combined effect on the outcome. These scenarios represent different imagined future business environments in which the company would have to operate. For each scenario, the company then derives how to succeed in such a future business environment by identifying key success factors and deriving necessary counter actions to cope with the identified challenges from the scenario. These key success factors and counteractions would next inform the preparation of the plan. Alternatively, each scenario can be used to assess how successful the intended plan would be. Here scenario analysis would serve as a robustness check of how resilient the company's plan is. The concept became known in the context of management through Royal Dutch Shell in the 1970s/1980s and has lately received popularity again in VUCA times. For example, the Danish toy maker LEGO uses scenario analysis for its business planning process. The different business areas at LEGO use it either as a creative and imaginative thinking process to inform the development of strategic plans or as a robustness test to see whether and how developed plans will succeed in different business environments. In interactive meetings, managers imagine different future states of the economy and assess how resilient LEGO's plan would be in such a scenario. For example, a world with free trade can be contrasted to a world of protectionism to assess the strengths and weaknesses of LEGO's plans.

Although LEGO uses scenario analysis for strategic planning with a long-term time horizon, scenarios can also be prepared for the short-term as part of the budgeting process. For example, although currently changing in Ontario, publicly funded universities and colleges are mainly funded by the number of student enrollment. Hence, universities can plan their available resources for teaching and research activities in the next academic year(s) based on different enrollment scenarios. Or the Ontarian-based global automotive supplier Magna anticipates a sales corridor between USD 30 and USD 40 million for 2020 and between USD 40.5 and USD 43.5 million for 2022, providing a range of probable scenarios.

A fourth way to consider uncertainties in budgeting is to run simulations. Without going into the statistical details of how a so-called Monte Carlo simulation works, the idea is simple: We take two dice, roll them many, many times — it could be a thousand, ten thousands, or more times — and report each time the outcome of our throw. Let's say we want to know the probability of throwing a 10 with our two dice. So we count how many times we threw a 10 and divide it by how many times we rolled the dice in total. This gives us the probability of throwing a 10 with two dice. We do the same for all other possible outcomes when rolling two dice, such as a 2, 3, 4, 5, etc. The result is a probability distribution of how often the different outcomes — here the sum of the throw of two dice — result. This is what a Monte Carlo simulation does for us computerized. Taking this example back to budgeting, each die represents an uncertain planning parameter, such as sales volume, jet fuel price, foreign exchange rate, etc., and the outcome of throwing dice, our budgeted results, such as next year's profit or cash flow. Of course, in our simulation we would work not only with two dice but would include many uncertain planning parameters. Although the possible range of values is 1 to 6 for each die and each value from 1 to 6 has the same probability to occur, this is (most likely) not the case for our uncertain planning parameters, such as sales volume or jet fuel price. Take sales volume: the possible range is not simply 1 to 6 but much wider, and each value does not have the same probability of occurring. Extreme low or high sales volume is much less likely to result than the average sales volume of the past. Hence, we assign or better derive a probability distribution to each uncertain planning parameter. As each planning parameter is an input factor for our simulation, these probability distributions are called input probability distributions. Now we can start the simulation as our planning model is programmed, and each time the dice are thrown, which is called iterations, random values from the input probability distributions are drawn and the resulting outcome is calculated and recorded. To stay with the two-dice example, the first iteration led, for example, to 10, the second iteration led to 8 points, etc. Iteration after iteration, the range of possible outcomes and the distributions of these possible outcomes are built. And after a thousand, ten thousands, or more iterations, we have our simulation result. It informs the company about two things: first, what may happen, meaning the range of possible outcomes, such as next year's worst- and best-case profit level; second, how likely these possible outcomes may happen, meaning their probability of occurrence, such as once in 10 years or once every 25 years. In comparison with a sensitivity analysis, simulations do not only include a few (e.g., likely case, best case, and worst case) but, arbitrarily, many possible future business environments. Furthermore, it also informs us about the probability of

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these many different scenarios of the future, which a scenario analysis does not specify. In comparison with sensitivity analysis, it also includes the interdependency of input factors, or what we call uncertain planning parameters.

Although Monte Carlo simulations have already been used for a while in finance to value investments, they have been more recently introduced to the context of planning and budgeting. The accounting firm PricewaterhouseCoopers developed such a simulation-based planning concept called corridor planning in 2010, and other consultancies and accounting firms have introduced similar concepts under the label of risk-based or stochastic planning. The premium car manufacturer Audi or the German airline company Lufthansa, for example, uses such simulation-based planning approaches. Here is a YouTube link to watch how corridor planning works: <<https://www.youtube.com/watch?v=bY3IebRuOIU>>.

Simulations can also be used for stress testing, meaning to assume a severely adverse economic condition to assess whether the company's capital and/or liquidity position is strong enough so that the company can survive this condition. In the aftermath of the 2008 financial crisis, banking regulators require financial institutions regularly to stress test their balance sheet to assess whether the banking system is in a healthy state. A challenge with stress testing is to identify ex-ante, meaning before they materialize, crisis situations to test for. So-called black swan events describe extremely rare but severe events, which are very difficult to predict — some even say unpredictable. Although pandemics are scenarios that business continuity managers also had on their agenda before COVID-19, it was hard to imagine the severity of such a black swan event. At the outset of the COVID-19 pandemic, the U.S. federal reserve (FED) ran, for example, a stress test on financial institutions, assuming a 10% increase in the unemployment rate in the United States and a further 50% crash of the U.S. stock market, to assess whether the U.S.-regulated banks would sustain this shock. Before the COVID-19 pandemic it was hard to imagine a complete standstill of operations for months as, for example, airline companies had to sustain during the COVID-19 crisis. This would be another example for a stress test: Could the company's liquidity situation sustain not simply a large drop in sales but a complete quarter without sales? The next months will tell how many companies went insolvent due to the COVID-19 crisis, despite government's best effort to support them during these VUCA times.

Although these four ways showcase how to incorporate planning uncertainty into existing budgeting processes to be better prepared in VUCA times, the Beyond Budgeting Round Table (BBRT), formed in 1998, has an alternative suggestion: abandon budgeting and instead focus on staying agile and adaptive to changing market conditions through continuous and dynamic planning processes. Why? Because the budgeting process is too lengthy, consumes many resources, and is full of organizational politics, and its outcome — the budget — is too rigid and potentially already outdated by the time the budget is officially approved. As the former CEO of GE (General Electric) Jack Welsh, famously said, “The budget is the bane of corporate America. It should never have existed ... everyone is negotiating ... you get the lowest out of people”. And CEO Greg Vesey from LNGL (Liquefied Natural Gas Limited), formerly an executive at Chevron and Texaco, added that budgeting is “the most political of all processes”.

Exhibit 8.10 The Beyond Budgeting Principles

Leadership Principles:

1. Purpose. Engage and inspire people around bold and noble causes; not around short-term financial targets.
2. Values. Govern through shared values and sound judgement; not through detailed rules and regulations.
3. Transparency. Make information open for self-regulation, innovation, learning and control; don't restrict it.
4. Organisation. Cultivate a strong sense of belonging and organise around accountable teams; avoid hierarchical control and bureaucracy.
5. Autonomy. Trust people with freedom to act; don't punish everyone if someone should abuse it.
6. Customers. Connect everyone's work with customer needs; avoid conflicts of interest.

Management Processes Principles:

7. Rhythm. Organise management processes dynamically around business rhythms and events; not around the calendar year only.
8. Targets. Set directional, ambitious and relative goals; avoid fixed and cascaded targets.
9. Plans and forecasts. Make planning and forecasting lean and unbiased processes; not rigid and political exercises.
10. Resource allocation. Foster a cost conscious mind-set and make resources available as needed; not through detailed annual budget allocations.
11. Performance evaluation. Evaluate performance holistically and with peer feedback for learning and development; not based on measurement only and not for rewards only.
12. Rewards. Reward shared success against competition; not against fixed performance contracts.

For more information, on each of the 12 principles, watch the videos on BBRT's website.

Source: BBRT's Web site, <<https://bbrt.org/?s=Beyond+budgeting+principles>>.

Instead of following the traditional budgeting process, which stems from a centralized command-and-control culture in organizations, the beyond budgeting movement suggests to free organizations from the bureaucratic budgeting burden and change to an empowered and adaptive way of managing the organization. To do so, 12 principles have been derived (and updated in 2016), including six leadership principles and six management processes principles as listed in Exhibit 8.10. As the 12 principles underline, beyond budgeting is a management philosophy that focuses on transforming companies to agile and decentralized networks that can sense and respond fast and continuously to changing dynamics in the business environment.

Various tools and techniques are available to move beyond budgets. Here we will focus on two: setting relative targets and using rolling forecasts. As former CEO Jan Wallander from the Swedish universal bank Svenska Handelsbanken

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vividly said, “The budget gives you the wrong target … to beat the budget … [not] to beat the competition” — hence, the suggestion not to work with fixed targets but with relative, self-adjusting targets that seek to outperform the performance of competitors. The target is not “achieve a profit margin of 12%”, which is a fixed target, but benchmarked to competitors or the industry, such as “achieve a profit margin that is 5% better than industry average”.

In the telecommunications industry, the churn rate is an important performance benchmark to assess how competitors impact the subscriber base of a carrier. It measures how often subscribers leave the carrier. A high rate suggests that subscribers are leaving the carrier for reasons, such as price, dissatisfaction with the service quality, or more appealing competitor’s offers. Thus, the lower the rate the better as it is usually more costly to acquire a new subscriber than retain an existing one. For example, the Montreal-based telecommunications company BCE (Bell) can benchmark its churn rates for wireless (mobile) and Internet services to the other two dominant players, Rogers and Telus, in the Canadian telecommunications market and set relative performance targets to have lower churn rates than its competitors. BCE’s prepaid churn rate for wireless (mobile) services increased from 3.17% (2018) to 4.44% (2019), meaning that 4 to 5 out of 100 subscribers cancelled its service. BCE explains this increase by greater competition in the discount mobile market. Benchmarked to Rogers’ prepaid churn rate of 4.44% (2018) and 4.86% (2019), BCE is still in an advantageous position. However, the performance gap between the two narrowed from 1.21 percentage points (2018) to 0.42 percentage points (2019), indicating that BCE needs to quickly react. In particular, for postpaid wireless services, the churn rate is important for telecommunications providers as they highly subsidize mobile phones to win customers for longer-term contracts, increasing the acquisition costs of new customers.

Linked to the critique of working with fixed targets is the criticism that traditional budgeting tries to combine conflicting budgeting functions — target-setting, forecasting, and resource allocation — into one single process and the same budgeted numbers. Although apparently efficient to have only one process, combining these three functions into a single process might create issues. For example, target setting is about stipulating what the company wants to achieve next year, whereas forecasting tries to understand what will likely happen in the next year. Target setting should be ambitious and forecasting unbiased and realistic. But can the budgeted sales number be at one and the same time a projection of what will happen next year and an ambitious target for the next year? The beyond budgeting movement doubts this and hence suggests separating these three budgeting functions into separate processes.

Another tool advocated by beyond budgeting is the use of rolling forecasts. A rolling forecast projects the future result of a company. It is called rolling because unlike a budget it always considers the next 12 months and not a fixed time period, such as calendar or fiscal year. By rolling forward in time, the forecast stays current as a 12-month, short-term outlook of the company’s performance. How does it work? At the end of each month, a new month is added to the previous forecast so that the next 12 months are always forecasted. Let’s assume that we have March 31, 2021, and we want to update our monthly rolling forecast. The previous forecast covered the time period from March 1, 2021

to February 28, 2022. To always have the next 12 months considered, we add the month of March 2022 to our updated rolling forecast. Hence, the forecasted period is now April 1, 2021 to March 31, 2022. Instead of updating monthly, other companies update the forecast on a quarterly basis. Let's assume Ford uses a quarterly rolling forecast. Although new vehicles sales were comparable to 2019's sales in January and February 2020, sales went down from mid-March as car dealers voluntarily closed or were forced to close their stores. This led to an overall drop in sales volume by 13.8% in the first quarter of 2020 for Ford. When preparing now the next rolling forecast for the time period April 2020 to March 2021, Ford would include this dramatically changed market outlook for new vehicle sales in Canada. Industry experts estimated in April 2020 that new car sales in Canada could drop by 25 to 30% for 2020, with a worst case of 60% and an optimistic case of 10 to 15% in sales decline. Although Ford initially budgeted to sell approximately 1.9 million new vehicles in Canada, the updated rolling forecast would now project, for example, an expected sales volume of 1.33 million cars, considering a 30% decrease in sales. Overall, rolling forecasts convert budgeting from a periodic process into an ongoing process. The effect is that managers are no longer fixated on the end of the fiscal year but think continuously about the next 12 months ahead. This way plans are not on last year's assumption but on today's outlook of the future, and decisions are not focused on the remaining months of the current year but are about the upcoming 12 months.

Svenska Handelsbanken is known as pioneering and implementing beyond budgeting principles and was praised for achieving superior profitability than its European peers over many decades. Other companies, such as the car manufacturer Volvo, the telecommunications company Ericsson, petroleum company Equinor (formerly Statoil), and Southwest Airlines, embraced (some) beyond budgeting ideas.

Yet practitioner surveys continuously show that budgeting remains a central management tool for steering organizations, suggesting that not many companies moved completely beyond budgets. Why?

Some processes and tools are still needed to co-ordinate and plan activities within and across functions and departments, as well as for setting targets, measuring performance, and controlling organizations to achieve targets. Budgeting can help here. And if you read more deeply about the companies that have adopted beyond budgeting, you will find that the major thing that has changed is the use to which budgets are put. No longer is the budget seen as a fixed target, with severe sanctions for not being met. The companies still prepare forecasts, but they are used as guidelines, not straitjackets. Whether companies streamline the budgeting process to lower the bureaucratic burden, complement it with more adaptive tools, such as rolling forecasts and flexible targets, start to prepare uncertainty-informed budgets, or move completely beyond budgeting is a top management decision on the company's management style.

As discussed throughout this chapter, budgeting serves several functions. In times of severe uncertainty, some of its functions can become more important than others. So companies during the 2008 financial crisis continued to use budgets but less for performance evaluation (as the market developments were uncontrollable for managers) and more for planning and resource allocation to steer through the crisis. This suggests that some of the multiple functions of

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budgeting become more and other less relevant in times of crisis. Budgets, however, in the sense of plans for the future, are still prepared and widely used.

8.9

Summary

The management activity of planning is realized through the preparation of budgets, which translate the company's strategic priorities into an organizational plan, expressed in financial terms, of what needs to be accomplished during the next year to realize the strategy. Budgeting consists of estimating operating revenues and expenses and, hence, operating income. Furthermore, budgeting entails planning cash receipts and payments via the cash budget, which is covered in the next chapter. A budgeted balance sheet and capital budget for major investments in new assets complement the budgeting process of organizations. Preparing budgets (covered in this chapter) paves the way for budgetary control, which is the topic of Chapter 10.



Self-Study Problems

1. Sales revenues in USD for the Bombardier Inc. group of companies were as follows:

| Year | \$ billion |
|-------------|-------------------|
| 2015 | 18.2 |
| 2016 | 16.3 |
| 2017 | 16.2 |
| 2018 | 16.2 |
| 2019 | 15.8 |

Required

- (a) Calculate the year-on-year increase in sales revenue in \$ and %.
- (b) What is your best estimate of the sales revenue in 2020 based on your calculations under (a)?
- (c) Make a quick business news search on Bombardier on the Internet. What major transaction was announced in February 2020? How does this effect your sales estimate for 2020?

2. Bombardier Recreational Products (BRP), once a division of Bombardier Inc. and since 2003 operating as an independent company, makes Ski-Doo snowmobiles. Assume that in 2021 BRP plans to sell 80,000 snowmobiles at a price of \$11,000 each. At the start of the year, the company will have 5,000 snowmobiles in inventory. The company would like to have an inventory of 3,000 snowmobiles at the end of the year.

Required

- (a) What is the budgeted sales revenue for snowmobiles for the year?
- (b) How many snowmobiles should BRP plan on manufacturing in the year?
- (c) What monthly manufacturing capacity should BRP plan to have for the Ski-Doo snowmobile plant?

3. Carlton Co. makes luxury travel bags. They are sold to retailers for \$250 each. Material costs are \$40 per bag; labour costs are \$60 per bag; overhead is a fixed amount of \$100,000 per month. The company expects to sell 1,000 bags per month.

Required

Prepare budgets for production and sale of 800, 1,000, and 1,200 bags.

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Solutions

1. (a) \$ billion

| Annual Sales Revenue | | | | Increase/(Decrease) | |
|--|------|------|------|---------------------|--|
| Year | \$ | Year | \$ | \$ | % |
| 2015 | 18.2 | 2016 | 16.3 | (1.9) | $(-\$1.9 \div \$18.2) \times 100\% = (10.4\%)$ |
| 2016 | 16.3 | 2017 | 16.2 | (0.1) | $(-\$0.1 \div \$16.3) \times 100\% = (0.6\%)$ |
| 2017 | 16.2 | 2018 | 16.2 | 0.0 | $(\$0.0 \div \$16.2) \times 100\% = 0.0\%$ |
| 2018 | 16.2 | 2019 | 15.8 | (0.4) | $(-\$0.4 \div \$16.2) \times 100\% = (2.5\%)$ |
| 2015 to 2019 Average: $(-10.4\% - 0.6\% - 0.0\% - 2.5\%) \div 4 = (3.4\%)$ | | | | | |

- (b) The average growth rate for the four years is -3.4% , but that is affected by the greater negative growth rate in 2016. The most likely growth rate appears to be negative, -1% (based on 2017 to 2019).

Estimate of 2020 revenues:

$$\begin{aligned} &= \$15.8 \text{ billion} - 1\% \\ &= \$15.64 \text{ billion} \end{aligned}$$

- (c) On February 17, 2020, Bombardier announced its plan to sell the transportation division to Alstom, meaning that the company will focus on its aviation business. In 2019, the aviation division generated USD 7.5 billion in revenues and the transportation division USD 8.3 billion. Selling the transportation division reduces their revenues by more than 50%. Hence, the sales expectation of \$15.64 billion needs to be lowered to about \$7.4 billion, assuming that the transaction will be approved by regulators and takes place during 2020.

2. (a) Budgeted sales revenue:

$$\begin{aligned} &= 80,000 \times \$11,000 \\ &= \$880,000,000 \end{aligned}$$

| | |
|---------------------------------|---------------|
| (b) Budgeted sales units | 80,000 |
| Less: Opening inventory | <u>5,000</u> |
| | 75,000 |
| Add: Budgeted closing inventory | <u>3,000</u> |
| Budgeted production | <u>78,000</u> |

- (c) If Ski-Doo snowmobile production is carried out continuously during the year, then the required manufacturing capacity is

$$78,000 \div 12 = 6,500 \text{ per month}$$

If production is seasonal, then a larger capacity would be required. Suppose that the plant makes Ski-Doo snowmobiles for only four months and then changes to making Sea-Doo watercrafts. The required capacity is

$$78,000 \div 4 = 19,500 \text{ per month}$$

Self-Study Problems

| 3. Number of bags (= n) | 800 | 1,000 | 1,200 |
|-------------------------|------------------|------------------|---------------------------------------|
| Sales revenue | <u>\$200,000</u> | <u>\$250,000</u> | <u>\$300,000</u> ($n \times \250) |
| Materials | \$ 32,000 | \$ 40,000 | \$ 48,000 ($n \times \$40$) |
| Labour | 48,000 | 60,000 | 72,000 ($n \times \$60$) |
| Overhead | <u>100,000</u> | <u>100,000</u> | <u>100,000</u> |
| Total expense | <u>\$180,000</u> | <u>\$200,000</u> | <u>\$220,000</u> |
| Operating profit | <u>\$ 20,000</u> | <u>\$ 50,000</u> | <u>\$ 80,000</u> |



Discussion Questions and Problems

Discussion Questions

1. What are the objectives of budgeting?
2. Compare and contrast a budget based on the previous period with a zero-based budget. Which is more appropriate?
3. Why does budget preparation start with a forecast of sales?
4. How are sales and production linked in the planning process?
5. Why is it important to distinguish between variable costs and fixed costs in preparing a budget for a production division?
6. Describe the difference between a participative budget and an imposed budget.
7. What is the difference between a budget for a production department and a budget for a service department?
8. Who in the organization is responsible for forecasting sales quantities and selling prices?
9. Who in the organization is responsible for preparing the master budget?
10. Visit the BBR website (www.bbrt.org) and watch the videos on the 12 beyond budgeting principles. Now explain the difference between traditional budgeting and beyond budgeting.
11. How can companies prepare budgets in VUCA times?

Problems

1. The Toothpaste Division of Consumer Cosmetics had the following sales revenues in recent years:

| | |
|------|-------------|
| 2016 | \$1,000,000 |
| 2017 | \$1,050,000 |
| 2018 | \$1,102,500 |
| 2019 | \$1,157,625 |
| 2020 | \$1,215,506 |

Required

- (a) Calculate the year-on-year percentage increase in sales revenues.
- (b) Estimate the sales revenue for 2021.

2. The following are the sales revenues for the McDonald's Corporation in millions of U.S. dollars for recent years:

| | |
|------|----------|
| 2013 | \$28,106 |
| 2014 | \$27,441 |
| 2015 | \$25,413 |
| 2016 | \$24,662 |
| 2017 | \$22,820 |
| 2018 | \$21,025 |
| 2019 | \$21,077 |

Required

- (a) Calculate the year-on-year percentage increase in sales revenues.
- (b) Estimate the sales revenue for 2020.

Discussion Questions and Problems

- (c) What would you expect to happen to McDonald's sales revenues in 2020 because of the COVID-19 pandemic?
- (d) Now search for McDonald's reported quarterly results during 2020. Are you surprised by its sales levels during the quarters of 2020?
3. The following is extracted from Canadian Tire's 2019 annual report:

3.1 Selected Annual Consolidated Financial Trends

The following table provides selected annual consolidated financial and non-financial information for the last three fiscal periods. The financial information has been prepared in accordance with IFRS.

(C\$ in millions, except per share amounts and number of retail locations)

| | 2019 | 2018 | 2017 |
|-----------------------|------------|------------|------------|
| Revenue | \$14,534.4 | \$14,058.7 | \$13,276.7 |
| Net income | \$894.8 | \$783.0 | \$818.8 |
| # of retail locations | 1,746 | 1,700 | 1,702 |

Since 2017, consolidated revenue increased every year. In its 2019 annual report, Canadian Tire explains:

- Total retail revenue increased primarily driven by shipment growth at Canadian Tire as well as sales growth across other Retail banners. Retail revenue was also positively impacted by the inclusion of Party City and the full-year impact of Helly Hansen. Note that Canadian Tire acquired Helly Hansen on July 3, 2018, and Party City on October 1, 2019.

For its different retail segments or brands, the company says:

- Canadian Tire retail store sales increased by 4.5% while comparable sales increased 3.8%. Growth was driven by strength in product assortment, particularly in Kitchen and Personal Care and Cleaning which were the largest contributors to sales growth. The inclusion of Party City also contributed to the increase in retail sales.
- SportChek retail sales increased 2.6% and comparable sales increased 3.3% driven by expanded assortments and efficient promotional strategies. Footwear, Accessories and Wellness were the top performing categories.
- Mark's retail sales increased 2.4% and comparable sales increased 2.5%. The increases in sales was driven by increases across all channels and regions with promotions benefiting casual footwear and casual wear categories.
- Canadian Tire Gas+ Petroleum retail sales decreased by 5.7% attributable to lower per litre gas prices, lower gas volume and lower non-gas sales.

Required

- (a) Using only the data about sales revenue, calculate the year-on-year revenue growth.

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- (b) Using the revenue growth % in (a) above, estimate the revenue for 2020.
- (c) Refer to the explanations for the revenue growth. In what ways do those explanations form an adequate basis for using past Canadian Tire data to estimate its future sales revenue? Would you expect the different segments or brands (Canadian Tire, Sport Chek, Mark's, and Gas+ Petroleum) to grow differently?
4. The research and development department at Consumer Cosmetics Co. is responsible for the design and development of new face care products. The following refers to actual costs in 2020:
- (i) The department employed 10 scientists, each paid \$75,000 per year, and 20 laboratory assistants, each paid \$50,000 per year.
 - (ii) Employee-related overhead added 20% to the direct cost of each employee.
 - (iii) In addition to employee costs, the department incurred \$125,000 in occupancy costs, \$10,000 in travel costs, and \$15,000 in miscellaneous costs.

For 2021, you expect the following changes:

- (i) The number of scientists will be increased from 10 to 12, and the number of laboratory assistants will be increased from 20 to 25.
- (ii) All salaries will be increased by 2.5%, in line with the expected cost of living.
- (iii) Occupancy costs will increase by 10%.
- (iv) The travel budget will be cut to half the 2020 amount.
- (v) Miscellaneous costs will increase by \$2,000, due mainly to increases in the cost of cat food for the cats who keep the laboratories clear of mice.

Required

- (a) Prepare a budget for 2021.
 - (b) Due to a slump in company sales, the manager of the research and development department has been asked to reduce his overall budget. Head office would like the 2021 budget to be 5% lower than the 2020 actual cost. List and explain the choices the manager has when dealing with this request.
 - (c) In past years, the research and development manager has observed that, whatever budget he proposed, upper management would cut it by 5%. What should he do to ensure that he had a budget sufficient to meet his operational needs?
5. In 2020, the marketing department of Freda's Fashions had two employees. One prepared advertising copy, and her salary (including employer's contributions) cost the company \$60,000; the other organized shows and events, and her salary (including employer's contributions) cost the company \$75,000. In addition to the above, the company spent \$400,000 on advertising on late-night television and \$400,000 on shows and events.

Discussion Questions and Problems

In 2021, the company plans to maintain the same amount of advertising and double the number of shows and events (the existing employee can handle this extra workload). In addition, salaries will rise by 10%, and all other costs are expected to go up by 5%.

Required

Prepare a budget for 2021 for the marketing department.

6. The Burlington plant of Consumer Cosmetics is responsible for manufacturing all the lip gloss products that the company manufactures. In 2020, the plant had the following budgeted and actual costs.

| | 2020 Budget | 2020 % | 2020 Actual | % |
|------------------------|------------------------|-------------------|------------------------|--------------|
| Raw materials | \$ 100,000 | 10.0% | \$ 110,000 | 10.2% |
| Direct labour | 250,000 | 25.0% | 275,000 | 25.6% |
| Manufacturing overhead | 400,000 | 40.0% | 440,000 | 41.0% |
| Distribution costs | 100,000 | 10.0% | 110,000 | 10.2% |
| Administration | <u>150,000</u> | <u>15.0%</u> | <u>140,000</u> | <u>13.0%</u> |
| Total | \$1,000,000 | 100.0% | \$1,075,000 | 100.0% |
| Production units | 850 kg | | 935 kg | |

Required

- (a) Head office is complaining about cost overruns. It says that all the manufacturing costs are higher than the budget in both \$ and %. As manager of the plant, how would you respond to justify your position?
- (b) Ignoring price changes, etc., if you were told that the quantity to be manufactured in 2021 would be 1,000 kg, prepare the budget for 2021.

7. The human resources department of Consumer Cosmetics has responsibility for all aspects of payroll and ongoing management of the HR function, hiring new employees, and terminations. The departmental report for 2020 included the following:

| | |
|--|---------------------|
| Average number of company employees in 2020 | 5,000 |
| Number of new hires | 500 |
| Number of terminations | 50 |
| Number of HR employees | 100 |
| HR department costs | |
| Salaries | \$ 5,000,000 |
| Employee-related overhead (25% of HR salaries) | 1,250,000 |
| Office expenses | 5,000,000 |
| Travel & interview costs | 1,000,000 |
| Advertising | <u>500,000</u> |
| Total actual cost | <u>\$12,750,000</u> |

In 2021, it is expected that the number of employees will rise to 5,500; there will be 400 new employees hired and no terminations. Inflation will run at 2% for all costs.

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Required

- (a) What assumptions do you have to make before you can plan your budget for 2021?
 - (b) Using those assumptions, prepare a budget for 2021.
8. The Toothpaste Division of Consumer Cosmetics expects the following sales in 2021:

| | |
|-----------|---------------|
| Quarter 1 | 210,000 units |
| Quarter 2 | 220,000 units |
| Quarter 3 | 250,000 units |
| Quarter 4 | 270,000 units |

The division also anticipates sales of 200,000 units in the first quarter of 2022.

Each unit sold requires various raw materials, which weigh 0.5 kg and cost \$5.00 per kg at 2021 prices. The division's inventory management plan calls for carrying enough raw material for 20% of the following quarter's production at the end of each quarter.

Required

Prepare a production plan and budget for 2021.

9. The Fragrances Division of Consumer Cosmetics is expected to have an inventory of finished goods of 5,000 litres of various products at the end of each accounting period. At the start of 2021, the division's inventory had a cost of \$10 per litre, totalling \$50,000. The division expects production cost per litre to remain constant during 2021. Sales for 2021 are budgeted to be as follows:

| | |
|-----------|---------------|
| Quarter 1 | 25,000 litres |
| Quarter 2 | 40,000 litres |
| Quarter 3 | 20,000 litres |
| Quarter 4 | 15,000 litres |

The division also anticipates sales of 20,000 litres in the first quarter of 2022.

Required

- (a) Based on the above information, prepare a production plan for the four quarters of 2021.
- (b) The company has decided to move toward a more efficient inventory management system. In 2021, it will start with an inventory of 5,000 litres, but at the end of each quarter the closing inventory will be planned as 10% of the following quarter's sales. Prepare a revised production plan for 2021.
- (c) The assistant procurement manager has just got back from an intensive training course. He is convinced that the company can operate on a pure just-in-time inventory management system. In 2021, the company will start the year with inventory of 5,000 litres,

Discussion Questions and Problems

- but from then on it will carry zero inventory of finished goods. Prepare a production plan for 2021.
- (d) What are the advantages and disadvantages of moving to a just-in-time inventory management system?
10. Superior Software operates at the cutting edge of designing new software applications, including games, retail support, and product design groups. Typical project time, from concept to first commercial application, is about six months, and typical product life cycle is two years of retail sales. As the competition changes so quickly, it is not possible to know exactly which products will dominate the sales or for how long each product is likely to survive in its market.
- After 10 years of operating more like a family than a business, the owner, Bill Doors, wants to make the management more professional, and he has every intention of introducing formal annual budgeting for both sales revenues and costs so that he knows how much profit he will have to play with in the next few years.
- It has been suggested that he should use statistical methods, such as “time series analysis” to predict sales, “regression analysis” to predict costs, and “just-in-time” inventory management to control production activities.
- Required**
Is Bill on the right track?
11. Consumer's Cosmetics Co. manufactures face care products. These are sold to retail outlets of all descriptions: from big-box stores down to convenience stores. There are a number of divisions, each specializing in a particular product line.
- Material purchases are handled centrally to enable the negotiation of low prices and to control quality. All labour negotiations are subject to a company-wide collective agreement. Each year, in November, division heads are told by head office what their next year's sales forecast should be and what their budgeted operating expenses are. Divisions are controlled through a strict monthly budget reporting exercise. During the exercise, actual results are compared to the budget, and any discrepancies are expected to be explained.
- Required**
(a) Is this a participative budgeting situation?
(b) Is this budgeting system appropriate to this organization?
12. The chief executive officer of Consumer's Cosmetics Co. has been reading about the Beyond Budgeting Round Table. He is quite taken with the idea of eliminating budgeting at Consumer's Cosmetics Co.

Required

List the advantages and disadvantages of eliminating budgeting.

Comprehensive Case #1

Compensation and Equity at We Clean

We Clean is a private addiction rehabilitation clinic in rural Ontario. Following initiatives for greater efficiency to meet the expectations of the Ministry of Health, the clinic is trying to link its compensation package to its strategic outcomes.

One of the results measured by the ministry is the success of its programs and interventions: for example, a combination of the length of stay (shorter is more efficient) and less recidivism (fewer return visits are more efficient).

At a recent collective bargaining meeting with drug counsellors, it was agreed that a measurable 10% increase in performance on specific strategic objectives would give rise to a 2% increase in base pay.

As soon as this was announced, the other clinic staff, such as nurses, doctors, and occupational therapists, complained that they, too, had a role in the successful outcomes and that it was unfair to reward the drug counsellors without also rewarding them.

Advise We Clean about how to resolve this issue.

Comprehensive Case #2

Tizer Pharmaceuticals

Tizer Pharmaceuticals has an annual budget preparation and review process that begins on November 1. At that time, the finance department instructs all departments to prepare their budgets for the upcoming year, which would start on January 1. Normally, units are expected to plan for modest growth in sales and production activity based on the growth in the economy in general and the province's health care budget in particular.

Hazel Coleman is human resources manager at Tizer Pharmaceuticals. She prepared the following budget:

| Tizer Pharmaceuticals Human Resources Department Budget for the Year | | |
|---|----------------------------|------------------|
| Cost line | Cost Driver | |
| Manager's salary | Manager | \$ 80,000 |
| Employees' salaries | # Human resource employees | <u>400,000</u> |
| Total salaries | | \$480,000 |
| Salary related costs | 15% of salaries | 72,000 |
| Travel & interview costs | # interviews | 100,000 |
| Position advertising | # new positions | 50,000 |
| Office expenses | Centrally allocated cost | 100,000 |
| Miscellaneous | | <u>50,000</u> |
| Total | | <u>\$852,000</u> |

It is mid-December. Hazel has just received the following e-mail from the finance department:

Bad news, we are sorry to tell you. A strategic analysis of the market has indicated that we have an unexpected problem. Changes in the North American Free Trade Agreement have resulted in greater competition being expected from our neighbours south of the border. Instead of our usual growth of between 2% and 5%, we are now anticipating a 10% shrinkage in our sales.

All departments will please submit revised budgets, bearing in mind the following:

- An overall cut of 20% must be made to all budget totals.
- Plan to reduce your departmental head count by at least 10%. Employees should be let go on a last-in, first-out basis.
- There will be no new hiring in any unit for the next 6 months.

As Hazel, how would you respond to the proposed budget cut?