

Money is an asset and the fuel for all businesses, whether for-profit, nonprofit, or government. Proper management of financial assets is vital to achieving the organization's objectives. Management must understand and record the use of assets, including all transactions involving money, so that they can make sound business decisions regarding the use of corporate assets. Businesses first used information systems to replace paper-based methods of helping management perform these functions, and that use continues today.

As we have discussed previously, information technology is a key strategic tool to help support the objectives of a business. Managers must therefore be able to understand the financial model of their organizations so they can make the best decisions regarding investments for their businesses. All organizations have finite resources. The decisions made regarding their optimal use can make the difference between the organization's success and failure in achieving its objectives.

When we begin to analyze businesses, it is important to understand the definition of terms and the impact that various interactions have on a business. This is not meant to serve as an accounting course, but rather as a tool to familiarize you with some vocabulary and concepts used in business. Some terms have been simplified to promote understanding. Let's start with some basic definitions.

Hold your mouse over a term to see examples of it.

[assets](#)

[fixed assets](#)

[liabilities](#)

[equity](#)

[fixed costs](#)

[variable costs](#)

[cost structure](#)

[revenue](#)

[profit](#)

[contribution margin](#)

[break-even point \(BEP\)](#)

This may be a review for some of you and new information for others, but it is important that we approach this course with a common understanding of the terms and interrelationships of these concepts so that we can understand why certain management actions make sense and others do not.

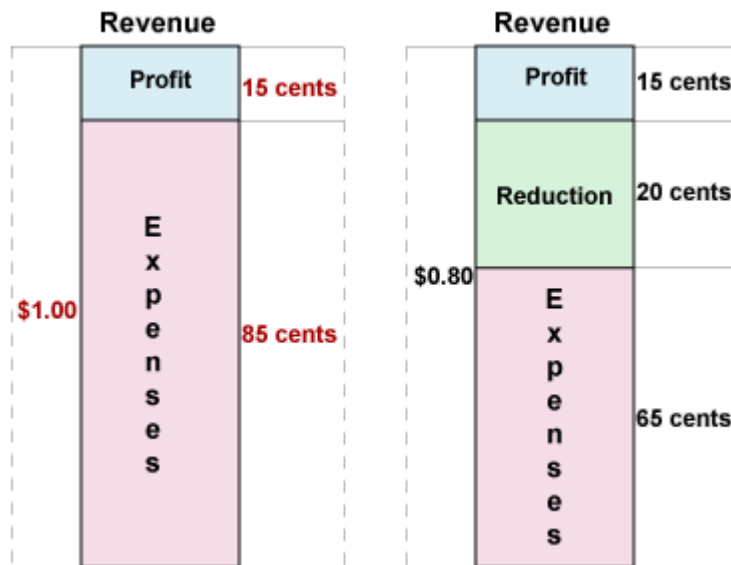
Revenue and expenses are the two determinants of profits. Understanding the cost structure of a business can help management emphasize the proper strategy to increase profits. For instance, if a business has high variable costs, then decreasing those costs should be a primary focus of management if they want to increase profits. If a business has high fixed costs, then maximizing the use of those assets should be management's focus.

Because the business model and cost structure are major determinants of business strategy, understanding them is crucial to the development of a systems strategy. Management can also approach profit from the aspect of increasing revenue. Some general areas that could be included in this consideration are customer satisfaction, timeliness of delivery, quality of goods or services, payment terms, and many others. Management's business strategy would define the objectives and areas of concentration, and an information systems strategy could be defined that would support that strategy as well.

It is important to note that this is not an either-or situation, but rather an effort to achieve the maximum benefit so that a business will use a combination of decreasing costs and increasing revenue to maximize profits. If management places too much emphasis on either factor, the result achieved could be negative. Therefore, management must balance the two factors to achieve the best possible result for their business model and financial structure. For example, cost cutting can create dissatisfied customers because the service level drops, thereby decreasing sales, with a corresponding decrease in profits.

It is important to note that revenue is the result of price, which is made up of two factors, with profit constituting roughly 15 to 20 percent and costs making up the remaining 80 to 85 percent. Figure 1.9, below, shows the revenue splits between profit and expenses at two price points: \$1 and 80 cents. You can see that for this price reduction—the type Walmart is known for—expenses must be reduced dramatically for the business to remain profitable.

**Figure 1.9**  
**Revenue Split Between Expenses and Profits at Two Price Points**



Given that expenses make up such a large percentage of prices, there is more potential to increase profits by decreasing costs than by lowering profit margins. Adjusting any of the variables can have unexpected effects, however, so a good deal of analysis must be done before costs are decreased in an effort to increase profits. The model we will present in the next section will help you understand the interaction of many of these factors.

Below is a link to a model of the Comfy Chair Company that may help you understand the points discussed. The initial model shows a break-even point where the number of chairs sold just covers the expenses and there is zero profit.

[Comfy Chair Company model](#)

When using this sensitivity tool, you can change and then leave any of the input fields.

The **micro level** of the model is designed to analyze the impact on profit at the basic level of a Comfortable Chair as the unit of sale and manufacture. Comfy Chair has a number of fixed costs that the company pays, regardless of the production level. It also has variable costs that vary by the number of units produced; and with a production level of zero, the variable costs will be zero.

The initial situation depicted in the micro level is that the fixed costs are \$1,250,000, variable costs are \$21/chair, the selling price is \$100/chair, and sales are zero. The result is a break-even point of 15,822.78 chairs and a profit of \$0. This situation shows that the contribution margin (CM) of \$79 per chair has paid all of the fixed costs exactly, and at that point, the profits are \$0.

Let's change some of the variables and see what happens. Try the following in the Comfy Chair Company model above. Press the Reset button first. You can change the numbers in the white fields and tab to see the results in the yellow fields. Go ahead and play with it.

1. Let's assume that we sell 20,000 Comfortable Chairs at \$100 by entering 20,000 in the Enter Units cell (this reflects the number of chairs sold). We see that nothing in the model changes except the profit, which becomes \$330,000. Therefore, if we change only the sales number, we can see that profit is strictly related to sales.
2. If the insurance company raises insurance costs by \$50,300 to \$150,000, and we change the insurance cost to the new value (\$150,000) in our model, we see that a couple of things change. The BEP increases to 16,459

units and the profit decreases to \$279,700, which reflects the \$50,300 increase in insurance because we assumed no change in the sales volume.

What we have been demonstrating is that when any business decision is made, it can have many effects—some desirable and some not so desirable. It is important to note that profits can be affected by many factors and that the business model and financial structure have a major effect on the decisions that management makes.

Let's experiment with a different structure like Booz Allen Hamilton (BAH), where the fixed costs are low and the variable costs are high.

### [Booz Allen Hamilton model](#)

In this type of structure, it is very difficult to decrease variable costs by increasing capital spending or fixed assets, because the product being sold is staff hours, or the knowledge of that staff.

You can see in the BAH model that the fixed costs and contribution margin at BAH are significantly lower than at Comfy Chair.

Let's change some of the variables and see what happens. Try the following in the Booz Allen Hamilton model above. Press the Reset button first. You can change the numbers in the white fields and tab to see the results in the yellow fields. Go ahead and play with it.

1. Let's assume that BAH consults for a total 20,000 hours at \$150 per hour by entering 20,000 in the hours-sold cell. We see that nothing in the model changes except the profit, which becomes \$677,300. Therefore, if we change only the sales number, we can see that profit is strictly related to sales.
2. If the insurance company raises insurance costs by \$50,300 to \$150,000, and we change the insurance cost to the new value (\$150,000) in our model, we see that a couple of things change. The BEP increases to 9,550 hours, and the profit decreases to \$627,000, a decline that is exactly the same as the increase in insurance because we assumed no change in the sales volume. This is the same result we saw in the Comfy Chair Company example because the contribution margin cannot go to profits until the new fixed cost is paid.

This provides a vivid example of how the financial structure of a company and the nature of the competitive environment can affect management decisions and, therefore, systems and investment strategies.

What we have been doing in the past few exercises and examples is called a [sensitivity analysis](#) or a what-if analysis, which is used constantly in business and in many personal situations to look at the financial results of potential actions. It is a very powerful tool and could also be called a decision-support system. A model is created that reflects the reality of the situation or business, and then variables are adjusted to determine the results. Try the indicated exercises in the rest of this section, and when you are satisfied with your answers, check to see if they are correct.

If we look at MitiTech, we see that it is a very low-fixed-cost company that has low variable costs and low overhead. Also, its fixed costs are stable because it uses outsourcing.

### [MitiTech model](#)

MitiTech is not penalized during slack times, has no high fixed costs to pay, and does not have to purchase equipment to increase capacity; they merely increase the workload on their suppliers. (**Note:** The numbers used in this example for MitiTech are purely hypothetical and are based only on their organizational structure.)

Let's change some of the variables and see what happens. Try the following in the Mitigation Technologies model above. Press the Reset button first. You can change the numbers in the white fields and tab to see the results in the yellow fields. Go ahead and play with it.

1. Let's assume that we sell 20,000 units at \$200 by entering 20,000 in the units-sold cell. We see that nothing in the model changes except the profit, which becomes \$2,725,000. So if we change only the sales number, we can see that profit is strictly related to sales, as the BEP stays the same: 1,587 units.
2. If the insurance company raises insurance costs by \$50,000 to \$100,000, and we change the insurance cost to the new value (\$100,000) in our model, we see that a couple of things change. The BEP increases to 1925.68 units, and the profit decreases to \$2,675,000, which is exactly the increase in insurance cost because we assumed no change in the sales volume. These first two examples produce the same results in all three cases.
3. The sales department tells management that they can increase revenue by 20 percent by increasing sales 20 percent, or 4,000 to 24,000 units, but the production department says that to achieve that number of units, they will have to add another supplier of the parts and pieces. (No new piece of equipment will be required, as in the previous instances, because the manufacturing is outsourced.) What happens when we enter those changes into our model? Clearly, a 20 percent increase in sales will increase revenue by 20 percent, or to \$4,800,000, but what happens to profits?

There are no changes in the model other than changing sales to 24,000 units. The result is that the BEP does not change, because there is no increase in fixed costs, and profits increase to \$3,267,000, an increase of 22 percent ( $(\$3,267,000 - \$2,675,000) \div \$2,675,000 \sim 22\%$ ). This indicates that profits would increase 22 percent without the risk of any investment, which is a benefit of outsourcing.

4. Management believes that they can increase the price per unit by 10 percent in this new situation and improve profits by 10 percent, but price is not the nature of MitiTech's competitive environment. The competition is based on the results of the product, its patent, and the DHS certification, so the sales volume will remain the same (unlike the other situation at Comfy Chair). Using our model, what will happen to profits if only the price is increased by 10 percent?

If we increase the price to \$220/unit, profits will be \$3,747,000, an increase of \$480,000, or 15 percent. So the change in price of 10 percent results in an increase in profits of 15 percent and a decrease in the BEP to 1,696 units, because no costs were changed and the contribution margin increased, lowering the BEP and starting profits earlier.

5. The chief information officer recommends that a new computer and software costing \$100,000 be purchased and installed because it will decrease staff costs by \$4/unit and shipping and handling by \$2/unit, resulting in a 10 percent increase in profits. Is he correct?

When you try the numbers in the model, you will see that the addition of computer resources would have no effect on either staff costs or shipping and handling, because they are not part of the variable costs. Instead, this purchase would increase fixed costs. This investment should not be made, based solely on these facts.

This demonstrates both the power of outsourcing and the importance of the business model, financial structure, and competitive environment in the determination of a company's business and systems strategies.

We have seen three different, but representative, business models, financial structures, and competitive environments, and how management decisions and business strategies are tied to these factors. These illustrations also indicate that understanding these factors about a company is critical to understanding where the real value of systems technology is to a business. Although the businesses used in these models are all for-profit businesses, the same types of modeling and

variables exist in nonprofits and government. A government is not a homogeneous entity; it is composed of a number of different government agencies. These agencies do not have identical models, but they are made up of some or all of the above examples.