CHAPTER TWO

RELEVANT INFORMATION AND DECISION MAKING

5.1 The Role of Accounting in special decisions:

- The basic purpose of accounting is providing of relevant accounting information for users to make decisions. Decision-making is the process of choosing among alternatives to change the future in favor of the firm. Users of accounting information may classify as internal such as managers and external such as investors, creditors and governmental authorities who use the information for making decisions. Both internal and external parties use accounting information, but the way in which they use differs. Therefore, the type of information they want may also differ.

- Internal users (managers) need management accounting information, which is, a process of identifying, measuring, accumulating, analyzing, interpreting and communicating information that helps management to achieve organizational goals. The basic role of management accountant in decision making process is to provide relevant information to managers who make decision. For example, production managers make decisions about alternative production process, marketing managers make pricing decisions etc all of these managers require relevant information that is pertinent for their decision.

- On the other hand, financial accounting information that refers to accounting information developed for external decision makers. Good accounting information helps an organization to achieve its goal and objectives in the following areas:

  a. **Scorekeeping:** is the accumulation and classification of data which enables both internal and external parties to evaluate organizational performance.
  b. **Attention directing:** means reporting and interpreting information that helps management to focus on operating problems, inefficiencies, and opportunities.
  c. **Problem solving:** is the aspect of accounting that quantifies the likely result of several alternatives and recommends the best alternative to follow.

5.2 Steps in decision making process

There are six steps that characterize the decision making process.

I. Define or clarify the decision problem

- Some times the decision to be made is clear and unambiguous but some times the decision problem may be unclear. For example, demand for a company's famous product is declined. The possibilities for the declining of demand are increasing competition, deteriorating of quality of product or new alternative product on the market. In such situation before a decision can be made, the problem needs to be clarified and defined.

II. Specify the criterion

- After a decision problem has been defined, the next step is specifying the criterion up on which a decision will be made. Some times the possible criteria may conflict each other. For example, product cost minimization and maintaining quality of product. In this case, one will be specified as a criterion and the other will be established as a constraint.

III. Identify alternatives

- Decision involves choosing between two or more alternatives. Determining all possible alternatives is a critical step in the decision process.

IV. Develop a decision model

- A decision model is a simplified representation of the choice problem. The most important elements of the problem are highlighted and unnecessary details are picked out. Thus, the decision model brings the criterion, constraints and the alternatives together.

V. Gather the data

- Selecting data pertinent to decisions is one of the most important roles of management accountant.

VI. Select an alternative

- After the decision model is formulated and the pertinent data are collected, the management makes a decision.

The information that is to be provided by management accountant must fulfill the following three characteristics.

- **Relevance:** is one of the key characteristics of good management accounting information and the information should be relevant.
- **Accuracy:** the information must also be accurate (precise).
- **Timeliness:** relevant and accurate information must be timely that means it should be available in time for a decision.

In general, the management accountant's primary role in the decision making process is:

- Decide what information is relevant to each decision problem
- Provide accurate and timely data

5.3 Relevant information

The most important element in decision-making process is identifying relevant and non-relevant information (revenues and costs). Relevance is one of the key characteristics of good management accounting information.

- The only revenues and costs that are relevant in making decisions are expected future revenues and costs that will differ among the alternatives. These are called incremental or differential revenues and costs.

The incremental costs are avoidable costs, since a company can change a cost by taking one alternative as opposed to the other. Suppose a company can save Br. 20,000 in salaries and other fixed costs if it stopped selling a product in a particular region. The Br. 20,000 is avoidable (differential) which would be incurred if the company continues to sell in the region and will not incur if the company stops selling in the region. Hence, the lost revenue is also differential in a decision to stop selling in the region.

- On the other hand, irrelevant information is information that doesn't help decision making. Revenues and costs that have already earned or incurred are irrelevant information in making decisions.

- Spare capacity costs: operating with spare capacity can have a significant impact on the relevant costs for any short term production decision making. If spare capacity exists in a company, some costs, which are generally considered incremental, may be non-incremental and thus irrelevant in the short term. For example, if a company is operating at less than full capacity then its labor may be under utilized. If it is the policy of the company to maintain the level of its labor force in the short term, until activity increases, then the cost of this labor force would be irrelevant cost for a type of decision on whether to accept or reject a once-off special order. The labor cost is irrelevant cost because the wages will have to

  be paid whether the order is accepted or rejected.

- **Opportunity cost:** is the benefit lost by taking one alternative as opposed to the other. In other words, it is the value of one option, which cannot be taken as a result of following a different option.

- **Sunk cost:** is a cost that has already been incurred and cannot be altered no matter which decisions will be made. Sunk costs are irrelevant costs for decision making because they are not differential.

- a. They affect the future
- b. They differ between alternatives

- Future costs and revenues that are the same across all alternatives are not relevant.

5.4 Special decision areas

1. Make or Buy decision:

It is the first decision for which we examine relevant information. Manufactured products consist of several components that are assembled into final product. Many of these components can be bought from an outsider or made it inside.

Decisions about whether to buy or produce within the organization are often called make-or-buy decisions.

The make or buy decision is also called in-sourcing and outsourcing.

In-sourcing is making the product or part at home (in side the organization) and outsourcing is buying from an outside suppliers. The quantitative relevant costs such as the purchase price versus the component part's variable and avoidable fixed costs are important to such decisions. However, it may also be necessary to consider the opportunity cost of any plant capacity that can be converted to an alternative use if it is released from manufacturing the component part. In addition to that, relevant qualitative factors should be considered. Among those that must be considered are:

- The supplier's reliability: interruption of delivery may cause to stop production
- The supplier's product (component) quality
- Stability of prices: if the stated price is unstable, the expected advantage of buying may vanish when the price increased after some time.
- The time it would take to manufacture at home if the supplier fails to deliver as promised

Example: Suppose XYZ Company now makes a component for its major product. A manager has prepared the following estimates of costs at the volume of 10,000 units per year.

	Total cost for 10,000 units	Cost per unit
Direct material	Br.20,000	Br.2
Direct labor	50,000	5
Variable overhead	30,000	3
Fixed overhead	60,000	6
Total costs	**Br.160,000**	**Br.16**

An out side supplier offers to supply the component at Br.14 per unit for a two year period. Should the company accept the offer? The answer depends on the difference in expected future costs between the alternatives. Assume the total fixed overhead cost of Br.6 per unit, Br.2 is direct cost for the components and the other Br.4 is common cost (i.e. it is unavoidable cost regardless of whether the company produces the components inside the organization or not). The following schedule focuses on the relevant costs for each available course of action.

	Decisions	
	Make	**Buy-**
Direct materials	Br.20,000	Br. 0
Direct labor	50,000	0
Variable overhead	30,000	0
Direct fixed overhead	20,000	0
Purchase price	0	140,000
Total	**Br.120,000**	**Br.140,000**

XYZ saves Br. 20,000 by making the component. The following analysis shows only the differentials of a decision to make the component.

New cost-purchase from suppliers		Br. 140,000
Less: Cost savings-material	Br.20,000	
-labor	50,000	
-variable overhead	30,000	
-direct fixed overhead	20,000	
Total savings……		120,000

Difference favoring the components……Br. 20,000

Considering only the quantitative data, XYZ should make the components until some other opportunity cost arises-the benefit to be gained by using the space and equipment for other purpose-exceeds the Br.20,000 cost savings available by using those resources to make the component. Such a benefit could come from renting the space and equipment or using them to make another product that would bring more than Br. 20,000 incremental profit. In such situations, the company might consider buying the component from outside supplier.

2. Special sales order decisions:

At a time a customer may offer special sales orders at less than full cost. At the beginning, it may appear that accepting the offer reduce the overall profitability of the firm. However, the full cost (production cost) contains fixed costs that do not change whether the special order is accepted or not. Such special orders should come once in a while. Factors that should be considered under such type of decisions are:

- The special orders must not compute with regular customers
- There has to be an excess capacity with in the organization
- The price should be more than the variable cost, and additional costs associated with the special offer

Example: the management of Ethio Airways receives an offer from Nile tourist agency about flying chartered tourist flights from Addis Ababa to Lalibela. The tourist agency has offered the airline Br. 75,000 per round-trip flight on a 737 jet. Given the airline's usual occupancy rate and air fares, a round-trip 737 jet flight between Addis to Lalibela brings revenue of Br. 125,000. Assume that the airline has two 737 jets that are not currently being used. Data pertains to a typical round trip 737 jet flight between Addis and Lalibela is as shown below:

Revenue		Br. 140,000
Expenses:		
Variable expenses	Br. 45,000	
Fixed expenses	50,000	
Total expenses		**95,000**
Profit		**Br. 45,000**

Further assuming that the airline has reservation and ticketing expenses amount to Br. 2,500 for a scheduled flight. The fixed cost allocated to each flight cover the airline's fixed cost such as air craft depreciation, fixed administrative costs etc. Should the airline accept the special order?

To make decisions, the only relevant costs are variable costs, the fixed costs are irrelevant costs since they will be paid whether the airline accept the offer or not. Moreover, the reservations and ticketing costs would not incur. Thus, the analysis of the charter offer is as shown below:

Special price for charter		Br. 75,000
Variable costs	Br. 45,000	
Less: savings on reservation and ticketing	2,500	
Variable cost of charter		**42,500**
Contribution from charter		**Br. 32,500**

The analysis shows that the offer will contribute Br. 32,500 toward covering the fixed costs and profit. There fore, since the airline has excess capacity, the decision is to accept the special offer.

3. Add or Drop decisions

There are many ways to segment a company. Determining the best mix of segments is a problem for managers who have to decide whether to drop a segment or to replace one segment with another. Relevant information plays a great role in such type of decision.

Example: (adapted from Managerial Accounting, 9th edition) assume RTV Fashions uses its available space for three product lines. The following is the income statement for last month and management of RTV expects these results to continue in the near future.

	Clothing	**Shoes**	**Jewelry**	**Total**
Sales	Br.45,000	Br.40,000	Br.15,000	Br.100,000
Variable costs	25,000	18,000	11,000	54,000
Contribution margin	**Br.20,000**	**Br.22,000**	**Br. 4,000**	**Br. 46,000**
Fixed costs:				
Direct all avoidable	(4,000)	(3,400)	(1,500)	(8,900)
Indirect (common allocated on sales	(9,450)	(8,400)	(3,150)	(21,000)
Profit (loss)	**Br.6,550**	**Br.10,200**	**Br.(650)**	**Br.16,100**

Should the store drop the jewelry line because it shows a loss? To answer that question we should know what would change if RTV dropped the line. Let's start with a choice between two simple alternatives: keep jewelry or drop it and rent the available space to another company for Br. 400 per month. If it dropped jewelry, RTV would lose Br. 15,000 of sales but could avoid the Br. 11,000 of variable costs of those sales as well as the Br. 1,500 avoidable fixed costs. Suppose RTV's analysis shows that dropping jewelry would reduce common costs by Br. 1,000. The following analysis summarizes the decision.

Decision: Rent out the space rather than sell jewelry

Differential revenues:	
Lost sales from jewelry	Br. 15,000
New rent revenue	400
Net revenue lost	**Br. 14,600**

Differential costs:		
Variable costs saved on jewelry	Br. 11,000	
Direct fixed costs saved	1,500	
Indirect fixed costs saved	1,000	
Total cost saving		**13,500**
Differential loss from dropping jewelry		**Br. 1,100**

2. Keeping jewelry seems the better choice because dropping it and renting the space will reduce income by Br. 1,100 or total income drops from Br.16,100 to Br.15,000.

4. Product mix decisions (under capacity constraints)

Limited resource (factor) is the item that restricts or constrains the production or sale of a product or service. Limited factors include labor hours, machine hours, the availability of direct materials and components. When a firm produces more than one product with limited resources, managers should decide which product should be more produced and sold.

We will examine the concept of relevance applies to product mix decisions. Product mix decision is the decision about how much of each product to sell.

Example: (Adapted from Cost Accounting: A managerial emphasis, 10th edition). Consider Power Recreation, a company that manufactures engines for a broad range of commercial and consumer products. At one of its plant, the company assembles two engines-a snowmobile engine and a boat engine. Information on these products is as follows:

	Snowmobile Engine	Boat Engine
Selling price	$800	$1,000
Variable cost per unit	560	625
Contribution margin per unit	**$240**	**$ 375**
Contribution margin percentage	30%	37.5%

Assume that only 600 machine hours are available daily for assembling engines. Additional capacity cannot be obtained in the short run. The company can sell as many engines as it produces. The constraining resource is the machine hours. It takes 2 machine hours for one snowmobile engine and 5 machine hours to produce one boat engine. Which product should the company emphasize?

In terms of contribution margin per unit and contribution margin percentage, boat engine are more profitable than snowmobile engine. But the product to be emphasized is not necessarily the product with higher individual contribution margin per unit or contribution margin percentage. Managers should choose the product with the highest contribution margin per unit of the constraining factor. The following table summarizes the analysis of the decision.

	Snowmobile Engine	Boat Engine
Contribution margin per engine	$240	$375
Machine hours required per engine	2	5
Contribution margin per machine hour ($240/2; $375/5)	$120	$75
Total contribution margin for 600 machine hours ($120*600; $75*600)	**$72,000**	**$45,000**

Producing snowmobile engines contributes more margin per machine hour that is the constraining resource in the example. Therefore, choosing the snowmobile engine is the right product-mix decision.

5. Pricing decisions: (Chapter 6)

Another area of special decision is to determine (or set) the best price for a product. Price decision involves the activity of considering the competitive markets. But in addition to this, pricing must also be based on future relevant costs to avoid long run profitability problems.

Firms may vary in their pricing techniques, and some of the most known approaches are:

1. **Skimming:**

   This is the method of setting higher prices to a new product. When a firm decides to skim the market, it initially set quite high price for a new product so that it will attract only a small number of customers. This strategy provides manufacturers to quickly recover greater portion of their start up costs. However, the method is more effective only when competitors cannot easily enter into the market.

2. **Market penetration:**

   When market penetration is easy, a firm may prefer to use market penetration technique for pricing rather than skim. In market penetration pricing, a firm sets the initial price of a new product very low enough to capture a large share of the market. This method is best when a firm has a very high fixed cost with a low variable cost. If the company can penetrate the market with a high volume and a low price, the fixed cost per unit will decrease rapidly and overall profitability will increase since the company has large sales volume.

3. **Markup pricing:**

   In markup pricing, a predetermined percentage is included in a product's cost to cover the seller's operating costs, income taxes and reasonable profit. The method could be based either on sales price or cost.

   Examples:

   (a) If the cost of a product is Birr 60, and the company is having a policy of 75% mark-up on cost, then the sales price will be Birr 105 (75%*60 +60).

   (b) On the other hand, if the policy is 75% mark-up on sales price, the result will Birr 240; that is,

(100% sales price) - (75% mark-up) = 25% cost

Thus, Birr 60 = 25% of sales price

= 60/25%

= **Birr 240 sales price**

4. **Target return pricing**

It is based on the assumptions of specified return on investment (ROI) on sales prices. The problem of this method is the definition of investment.

Example: Assume a company requires 12% (after tax) ROI from its investment. The company has defined investment as total assets. Further assume that the company has Birr 2 million assets, produces 10,000 units of output and Birr 20,000 variable & fixed costs. Tax rate is 40%.

Before tax ROI = 12% / (1-40%) = 20%

ROI = 20% * 2,000,000 = 400,000

Selling price per unit = (400000+20,000)/10,000

= Br. 42 sales price

5. **Demand oriented pricing**

Hotels and restaurants change their pricing strategy depending on the demand of their service/product. For example during "KULIBI" celebrations hotels and restaurants around Drie Dawa charge extra normal price on rooms and services. When the season passes, the price will go down to the normal.

6. **Competition based pricing**

This strategy is used to compete with competitors. After analyzing the competitor's manufacturing process, the price will be set as equal, low or higher of the competitor.