Cost and Management Accounting I

Chapter I. Fundamentals of Cost Accounting

1.1 Definition of Cost accounting and Managements accounting

Accounting is a major means of helping managers

a. To administer each of the activity or functional areas offer which they are responsible and
b. To coordinate those functions within the framework of the organization as a whole.

Accounting provides information for three major purposes:

1. Routine internal reporting for the decisions of managers.
2. Non routine internal reporting for decisions of managers.
3. External reporting to investors, government authorities, and other outside parties on the organization's financial position, operations, and related activities.

Management Accounting

- Measures and reports financial and non financial information that helps managers to fulfil the goals of the organization.
- Concerned with providing information to mangers, i.e. people inside the organization who direct and control its operations.
- Focuses on internal reporting.

Financial Accounting

- Concerned with providing information to stockholders, creditors and other who are outside the organization.
- Focuses on reporting to external parties.
- It measures and records business transactions and provides financial statements that are based on GAAPs.

Managers are responsible for the financial statements issued to investors, government regulators, and other outside parties. Therefore, managers are interested in both management accounting and financial accounting.

1.2 Management Accounting Vs Financial Accounting

- Since planning is such an important part of the manager's job, managerial accounting has a strong future orientation. But financial accounting primarily provides summaries of past financial transaction. The difficulty with summaries of the past is that the future is not simply a reflection of what has happened in the past. Changes are constantly taking place in economic conditions, customer needs and so on.
- FA data are expected to be objective and verifiable. However, for internal uses the manger wants information that is relevant even if it is not completely objective or verifiable. By relevant, we mean appropriate for the problem on hand.
- Timeliness is often more important than precision to managers. If decision must be made, a manager would much rather has a good estimate now than wait for a week for a more precise answer. In addition MA places considerable weight on non monetary data. For example, information about customer satisfaction is more important even though it is difficult to express in monetary value.
- FA is primarily concerned with reporting for the company as a whole. But MA primary focuses much more on the parts, or ***segments*** of a company. These segments maybe product lines, sales territories, divisions, departments or ant other categorization of the company's activities that management finds useful.
- FA statements prepared for external users must be prepared in accordance with GAAPs. External users must have some assurance that the reports have been prepared in accordance with some set of ground rules. MA is not bound by GAAPs. Managers set their own ground rules concerning the content and form of internal reports. The only constraint is that the expected benefits from using the information should outweigh the cost of collecting, analyzing, and summarizing the data.
- FA is mandatory; that is, it must be done. But MA is completely optional, so the important question is always, "Is the information useful?" rather than, "Is the information required?"

- The field of managerial accounting is less sharply defined. That is to say that managerial accounting makes heavier use of economics, decision sciences, and behavioural sciences. The field of financial accounting, in contrast, is more sharply defined. This means that FA makes lighter use of related disciplines.

Features	**Managerial Accounting**	**Financial Accounting**
Users of Information	Managers at various levels within the organization.	Interested parties outside the organization.
Level of Aggregation	Detailed information on subunits within the organization	Summarized information on the company as a whole
Information type	Economic any physical data as well as financial data	Financial data
Regulation	Unregulated, limited only by the value-added principle.	Regulated by GAAP.
Information Characteristics	Estimates that promote relevance and enable timeliness.	Factual information that is characterized by objectivity, reliability, consistency, and accuracy.
Time Horizon	Past, present, and future	Past only, historically based
Reporting Frequency	Continuous reporting	Delayed with emphasis on annual reports
Sources of data	The organization's basic accounting system plus various other sources.	The organization's basic accounting system.
Delineation of activates	Field is less sharply defined.	Field is more sharply defined
Report Requirement	Not mandatory	Mandatory for external reports

Cost Accountancy is an essential part of accountancy, which has been developed to meet the managerial needs of business. Starting off as a branch of financial accounting, cost

accountancy has developed so fast in the last few decades that it is difficult to give suitable definition, which fully covers its scope.

Further ***cost accountancy*** is regarded as the science, art and practice of s cost accountant.

- ❖ It is a ***science*** in the sense it is body of systematic knowledge having certain principles, which a cost accountant should follow for the proper discharge of his duties.
- ❖ It is an ***art,*** as it requires the ability and skill on the part of a cost accountant in applying the principles of cost accountancy to various managerial problems.

- ➢ **Cost Accounting** primarily deals with collection, analysis of relevant cost data for interpretation and presentation for various problems of management.
- ➢ **Cost accounting** is a management information system, which analyses past, present, and future data to provide the basis for managerial decision making.

- ➢ **According to Charles T. Horngren Cost Accounting** is "a Quantitative method that accumulates, classifies, summarizes, and interprets information for three major purposes: (i) Operational planning and control (ii) Special decisions and (iii) product decisions.
- ➢ **In general, cost accounting** is thus concerned with recording, classifying and summarizing costs for determination of costs of products or services, planning, controlling and reducing such costs and furnishing of information to management for decision making.

Cost Accounting

- Provides information for both management accounting and financial accounting.
- It measures and reports financial and nonfinancial information that relates to the cost of acquiring or consuming resources by an organization.

Includes those parts of both *management accounting* and *financial accounting* where cost information is collected or analyzed

Thus Cost Accounting is concerned with

- **Accounting the costs**
- **Controlling the costs**
- **Reducing the costs**

Value chain

Value chain is the sequence of business functions in which customer usefulness is added to products. Example six primary business functions: research and development, design, production, marketing, distribution, and customer service. We illustrate these business functions using Sony Corporation's television division.

1. Research and development (R&D)—Generating and experimenting with ideas related to new products, services, or processes. At Sony, this function includes research on alternative television signal transmission (analog, digital, and high-definition) and on the clarity of different shapes and thicknesses of television screens.

2. **Design of products and processes**. Detailed planning, engineering, and testing of products and processes. Design at Sony includes determining the number of component parts in a television set and the effect of alternative product designs on quality and manufacturing costs. Some representations of the value chain collectively refer to the first two steps as technology development.

3. ProductionProcuring, transporting and storing (also called inbound logistics), coordinating, and assembling (also called operations) resources to produce a product or deliver a service. Production of a Sony television set includes the procurement and assembly of the electronic parts, the cabinet, and the packaging used for shipping.

4.Marketing (including sales)Promoting and selling products or services to customers or prospective customers. Sony markets its televisions at trade shows, via advertisements in newspapers and magazines, on the Internet, and through its sales force.

5. DistributionProcessing orders and shipping products or services to customers (also called outbound logistics). Distribution for Sony includes shipping to retail outlets, catalog vendors, direct sales via the Internet, and other channels through which customers purchase televisions.

6. Customer service providing after-sales service to customers. Sony provides customer service on its televisions in the form of customer-help telephone lines, support on the Internet, and warranty repair work.

In addition to the six primary business functions, Example an administrative function, which includes functions such as accounting and finance, human resource management, and information technology, that support the six primary business functions.

When discussing the value chain in subsequent chapters of the book, we include the administrative support function within the primary functions. For example, included in the marketing function is the function of analyzing, reporting, and accounting for resources spent in different marketing channels, while the production function includes the human resource management function of training front-line workers.

Each of these business functions is essential to companies satisfying their customers and keeping them satisfied (and loyal) over time. Companies use the term customer relationship management (CRM) to describe a strategy that integrates people and technology in all business functions to deepen relationships with customers, partners, and distributors. CRM initiatives use technology to coordinate all customer-facing activities (such as marketing, sales calls, distribution, and post sales support) and the design and production activities necessary to get products to customers.

At different times and in different industries, one or more of these functions is more critical than others. For example, a company developing an innovative new product or operating in the pharmaceutical industry, where innovation is the key to profitability, will emphasize R&D and design of products and processes. A company in the consumer goods industry will focus on marketing, distribution, and customer service to build its brand. depicts the usual order in which different business-function activities physically occur. Do not, however, interpret Exhibit 1-2 as implying that managers should proceed sequentially through the value chain when planning and managing their activities. Companies gain (in terms of cost, quality, and the speed with which new products are developed) if two or more of the individual business functions of the value chain work concurrently as a team. For example, inputs into design decisions by production, marketing, distribution, and customer service managers often lead to design choices that reduce total costs of the company.

Managers track the costs incurred in each value-chain category. Their goal is to reduce costs and to improve efficiency. Management accounting information helps managers make cost-benefit tradeoffs. For example, is it cheaper to buy products from outside vendors or to do manufacturing in-house? How does investing resources in design and manufacturing reduce costs of marketing and customer service

Decision Making , Planning and control

a five-step decision-making process using the example of the
Daily News
, newspaper in Boulder, Colorado. Subsequent chapters of the book describe how managers use this five-step decision-making process to make many different types of decisions.
The
Daily News differentiates itself from its competitors based on in-depth analyses of news by its highly rated journalists, use of color to enhance attractiveness to readers and advertisers, and a Web site that delivers up-to-the-minute news, interviews, and analyses. It has substantial capabilities to deliver on this strategy, such as an automated, computer-integrated, state-of-the-art printing facility; a Web-based information technology infrastructure; and a distribution network that is one of the best in the newspaper industry.
To keep up with steadily increasing production costs, Naomi Crawford, the manager of the
Daily News, needs to increase revenues. To decide what she should do, Naomi works through the five-step decision-making process.

1. Identify the problem and uncertainties.

Naomi has two main choices:

a. Increase the selling price of the newspaper, or

b. increase the rate per page charged to advertisers.

The key uncertainty is the effect on demand of any increase in prices or rates. A decrease in demand could offset any increase in prices or rates and lead to lower overall revenues.

2**. Obtain information.**

Gathering information before making a decision helps managers

gain a better understanding of the uncertainties. Naomi asks her marketing manager to talk to some representative readers to gauge their reaction to an increase in the newspaper's selling price. She asks her advertising sales manager to talk to current and potential advertisers to assess demand for advertising. She also reviews the effect that past price increases had on readership. Ramon Sandoval, the management accountant at the

Daily News, presents information about the impact of past increases or decreases in advertising rates on advertising revenues. He also collects and analyzes information on advertising rates charged by competing newspapers and other media outlets.

3. Make predictions about the future.

On the basis of this information, Naomi makes predictions about the future. She concludes that increasing prices would upset readers and decrease readership. She has a different view about advertising rates. She expects a market-wide increase in advertising rates and believes that increasing rates will have little effect on the number of advertising pages sold.

Naomi recognizes that making predictions requires judgment. She looks for biases in her thinking. Has she correctly judged reader sentiment or is the negative publicity of a price increase overly influencing her decision making? How sure is she that competitors will increase advertising rates? Is her thinking in this respect biased by how competitors have responded in the past? Have circumstances changed? How confident is she that her sales representatives can convince advertisers to pay higher rates? Naomi retests her assumptions and reviews her thinking. She feels comfortable with her predictions and judgments.

4. Make decisions by choosing among alternatives.

When making decisions, strategy is a vital guidepost; many individuals in different parts of the organization at different times make decisions. Consistency with strategy binds individuals and timelines together and provides a common purpose for disparate decisions. Aligning decisions with strategy enables an organization to implement its strategy and achieve its goals.

Without this alignment, decisions will be uncoordinated, pull the organization in different directions, and produce inconsistent results. Consistent with the product differentiation

strategy, Naomi decides to increase advertising rates by 4% to $5,200 per page in March 2011. She is confident that the Daily News ’s distinctive style and Web presence will increase readership, creating value for advertisers. She communicates the new advertising rate schedule to the sales department. Ramon estimates advertising revenues of $4,160,000 ($5,200 per page

5. Implement the decision, evaluate performance, and learn.
Managers at the Daily

Take actions to implement the March 2011 budget. Management accountants collect information to follow through on how actual performance compares to planned or budgeted performance (also referred to as scorekeeping).

Information on actual results is different from the pre-decision planning information Naomi collected in Step 2, which enabled her to better understand uncertainties, to make predictions, and to make a decision. The comparison of actual performance to budgeted performance is the control or post-decision role of information.

Control comprises taking actions that implement the planning decisions, deciding how to evaluate performance, and providing feedback and learning to help future decision making. Measuring actual performance informs managers how well they and their sub-units are doing. Linking rewards to performance helps motivate managers. These rewards are both intrinsic (recognition for a job well-done) and extrinsic (salary, bonuses, and promotions linked to performance). A budget serves as much as a control tool as a planning tool. Why? Because a budget is a benchmark against which actual performance can be compared.

Cost-Benefit Approach

Managers continually face resource-allocation decisions, such as whether to purchase a new software package or hire a new employee. They use a cost-benefit approach when making these decisions: Resources should be spent if the expected benefits to the company exceed the expected costs. Managers rely on management accounting information to quantify expected benefits and expected costs although all benefits and costs are not easy to quantify. Nevertheless, the cost-benefit approach is a useful guide for making resource-allocation decisions. Consider the installation of a company’s first budgeting system. Previously, the company used historical recordkeeping and little

formal planning. A major benefit of installing a budgeting system is that it compels managers to plan ahead, compare actual to budgeted information, learn, and take corrective action. These actions lead to different decisions that improve performance relative to decisions that would have been made using the historical system, but the benefits are not easy to measure. On the cost side, some costs, such as investments in software and training are easier to quantify. Others, such as the time spent by managers on the budgeting process, are harder to quantify.

Regardless, senior managers compare expected benefits and expected costs, exercise judgment, and reach a decision, in this case to install the budgeting system.

Behavioral and Technical Considerations

The cost-benefit approach is the criterion that assists managers in deciding whether, say, to install a proposed budgeting system instead of continuing to use an existing historical system. In making this decision senior managers consider two simultaneous missions: one technical and one behavioral. The technical considerations help managers make wise economic decisions by providing them with the desired information (for example, costs in various value-chain categories) in an appropriate format (such as actual results versus budgeted amounts) and at the preferred frequency. Now consider the human (the behavioral) side of why budgeting is used. Budgets induce a different set of decisions within an organization because of better collaboration, planning, and motivation. The behavioral considerations encourage managers and other employees to strive for achieving the goals of the organization.

Both managers and management accountants should always remember that management is not confined exclusively to technical matters. Management is primarily a human activity that should focus on how to help individuals do their jobs better—for example, by helping them to understand which of their activities adds value and which does not. Moreover, when workers underperform, behavioral considerations suggest that management systems and processes should cause managers to personally discuss with workers ways to improve performance rather than just sending them a report high lighting their underperformance.

Different Costs for Different Purposes

This book emphasizes that managers use alternative ways to compute costs in different

decision-making situations, because there are different costs for different purposes. A cost concept used for the external-reporting purpose of accounting may not be an appropriate concept for internal, routine reporting to managers.

Consider the advertising costs associated with Microsoft Corporation's launch of a major product with a useful life of several years. For external reporting to shareholders, television advertising costs for this product are fully expensed in the income statement in the year they are incurred. GAAP requires this immediate expensing for external reporting. For internal purposes of evaluating management performance, however, the television advertising costs could be capitalized and then amortized or written off as expenses over several years. Microsoft could capitalize these advertising costs if it believes doing so results in a more accurate and fairer measure of the performance of the managers that launched the new product.

We now discuss the relationships and reporting responsibilities among managers and management accountants within a company's organization structure.

ORGANIZATION STRUCTURE AND THE MANAGEMENT ACCOUNTANT

Organization Structure and the Management Accountant

We focus first on broad management functions and then look at how the management accounting and finance functions support managers.

Line and Staff Relationships

Organizations distinguish between line management and staff management.

- Line management

, such as production, marketing, and distribution management, is directly responsible for attaining the goals of the organization. For example, managers of manufacturing divisions may target particular levels of budgeted operating income, certain levels of product quality and safety, and compliance with environmental laws. Similarly, the pediatrics department in a hospital is responsible for quality of service, costs, and patient billings.

- Staff management

, such as management accountants and information technology and human-resources management, provides advice, support, and assistance to line management. A plant manager (a line function) may be responsible for investing in new equipment. A

management accountant (a staff function) works as a business partner of the plant manager by preparing detailed operating cost comparisons of alternative pieces of equipment.

Increasingly, organizations such as Honda and Dell are using teams to achieve their objectives. These teams include both line and staff management so that all inputs into a decision are available simultaneously.

Chapter 2: Basic cost terms and concepts

1.2 Concepts and classifications of cost

Costs, Expenses and Losses

- **Cost** is defined as the monetary value of goods and services expended to obtain current or future benefits.
- **Expenses** are expired costs for which benefits have already been received in the current fiscal period. Expenses are deductible from revenue.
- **Losses** sacrifices without any benefit. Loss can be defined as the excess of all expenses over revenues for a period.
  - Accountants define ***cost*** as a resource sacrificed or forgone to achieve a specific objective. It is usually measured as the monetary amount that must be paid to acquire goods or services.
  - An actual cost is the cost incurred (a historical cost) as distinguished from budgeted or forecasted costs.

General Cost Classifications

A. Manufacturing Costs

➢ *Direct Materials*

Raw materials refer to any materials that are used in the final product; and finished product of one company can become the raw materials of another company.

Direct materials are those materials that become an integral part of the finished product and that can be physically and conveniently traced to it. This would include for example the seats Boeing purchases from subcontractors to install in its commercial aircrafts.

Those that can not be traceable to the final product are called ***indirect materials***. This can be glue used to assemble a chair.

➢ *Direct Labor*

The term ***direct labor*** is reserved for those labor costs that can be easily i.e. physically and conveniently traced to individual units of product. Direct labor is sometimes called ***touch labor***, since direct labor workers typically touch the product while it is being made.

Labor costs that cannot be physically traced to the creation of products, or that can be traced only at great costs and inconvenience, are termed as indirect labor and treated as part of manufacturing overhead. It includes the labor costs of janitors, supervisors, material handlers, and night security guards.

➢ *Manufacturing Overhead*

Includes all costs of manufacturing except direct materials and direct labor.

Manufacturing overhead includes items such as

- indirect materials;
- indirect labor
- maintenance and repairs on production equipment
- heat and light
- property taxes
- depreciation and insurance on manufacturing facilities.

A company also incurs costs for heat and light, property taxes, insurance, depreciation, and so forth associated with its selling and adminstatrative functions but these cots are not included as part of manufacturing overhead. Only those costs associated with operating the factory is included the manufacturing overhead category.

Manufacturing overhead is also called indirect manufacturing cost, factory overhead and factory burden

Direct Material + Direct Labor = *Prime Cost*
Direct Labor + Manufacturing Overhead = *Conversion Cost*[1]

Ex2-1: Classify the following as direct materials, direct labor, or factory overhead:

a. Glue used in the manufacture of desks
b. Labor of a janitor
c. Factory utilities
d. Wood used in the manufacture of a table
e. Labor of a machinist

B. Non-manufacturing Costs

Generally, non-manufacturing costs are sub classified into two categories:

- ***Marketing or selling costs:*** include all cost categories to secure customer orders and get the finished product or service into the hands of the customer. These costs are often called order-getting and order filling costs. Like advertising, shipping, sales travel, sales commissions, sales salaries, and costs of finished goods warehouses.
- ***Administrative Costs:*** include all executive, organizational associated with the general management of an organization rather than with manufacturing, marketing or selling. Like executive compensation, general accounting, secretarial, public relations, and similar costs involved in the overall, general administration of the organization as a whole.

Cost Classifications on financial Statements

The Balance Sheet

The balance sheet or statement of financial position, of a manufacturing company is similar to that of a merchandising company. However there are differences in the inventory accounts.

A merchandising company has only one class of inventory- goods purchased from suppliers that are awaiting resale to customers. By contrast, manufacturing companies have three classes of inventories:

- ***Raw materials:*** shows the cost of raw materials on hand and intended for use in the manufacturing process.
- ***Work in process***: shows the cost of goods in the manufacturing process, but not completed at the end of the accounting period.
- ***Finished goods:*** shows the cost of the goods completed and ready for sale.

[1] This term stems from the fact that direct labor costs and overhead costs are incurred in the conversion of materials into finished products.

The Income Statement

Merchandising Company

Sales			*xxx*
Cost of goods sold			
Beginning merchandise inventory		*xxx*	
Add Purchases	*xxx*		
Goods available for sale	*xxx*		
Deduct: Ending merchandise inventory	*xxx*		*xxx*
Gross Margin			*xxx*
Less: Operating Expenses			
Selling Expenses	*xxx*		
Administrative Expenses	*xxx*		*xxx*
Net Income			*xxx*

Manufacturing Company

Sales			*xxx*
Cost of goods sold			
Beginning finished goods inventory	*xxx*		
Add: ***Cost of goods manufactured***	*xxx*		
Goods available for sale	*xxx*		
Deduct: Ending finished goods inventory	*xxx*		*xxx*
Gross Margin			*xxx*
Less operating expenses:			
Selling Expenses	*xxx*		
Administrative Expenses	*xxx*		*xxx*
Net income			*xxx*

Schedule of Cost of Goods Manufactured

Direct Materials		
Beginning raw materials inventory	*xxx*	
Add: Purchases of raw materials	*xxx*	
Raw materials available for use	*xxx*	
Deduct: Ending raw materials inventory	*xxx*	
Raw materials used in production		*xxx*
Direct Labor		xxx
Manufacturing overhead		
Insurance, factory	*xxx*	
Indirect labor	*xxx*	
Machine rental	*xxx*	
Utilities, factory	*xxx*	
Supplies	*xxx*	
Depreciation, factory	*xxx*	
Property taxes, factory	*xxx*	
Total manufacturing costs		*xxx*
Add: Beginning work in process inventory		xxx
Total goods in production		*xxx*
Deduct: ending work in process inventory		xxx
Cost of goods manufactured		**xxx**

Ex 2-2*: The following cost data relate to Taylor Products Company for the year ended June 30, 2005.*

Direct Materials	$ 55,600
Direct Labor	72,400
Factory Overhead	36,500
Work in process inventory, July 1, 2004	38,200
Work in process inventory, June 30, 2005	34,800

Required:

1. Calculate the manufacturing costs for the year.
2. Calculate the cost of goods manufactured for the year.

Ex 2-3: *Iowa Products Company accumulated the following data for 2005*.

	Jan 1, 2005	Dec 31, 2005
Inventories:		
Finished Goods	$ 52,000	$ 54,000
Work in Process	29,600	27,800
Raw materials	14,200	15,000
Direct labor		95,000
Raw material purchases		138,000
Indirect labor		15,300
Indirect materials and supplies		10,800
Factory utilities		18,600
Depreciation expense- Factory		14,000
Factory rent		18,000
Payroll taxes- Factory wages		8,100
Repairs and maintenance		6,000
Insurance expense- Factory		6,800
Miscellaneous factory expenses		5,200
Sales		710,000
Sales discount		12,000
Selling expenses		95,600
General expenses		75,300
Interest expenses		7,000

Required:

1. ***Prepare a statement of cost of goods manufactured.***
2. ***Prepare an income statement (assume an income tax rate of 25%)***

Product Costs versus Period Costs

- ***Product Costs***
  - Product costs include all cots that are involved in acquiring or making product- dirct materials, direct labor, and manufacturing overhead.
  - Initially product costs are assigned to an inventory account on the balance sheet. When goods are sold, the costs are released from inventory as expenses (cost of goods sold) and matched against revenue. For this reason they are also known as ***inventoriable costs***.

- Product costs are not necessarily treated as expenses in the period in which they are incurred. Rather they are treated as expenses in the period in which the related products are sold. This means that a product cost such as direct materials or direct labor might be incurred during one period but not treated as an expense until a following period when the completed product is sold.

➢ ***Period Costs***

- Period costs are all the costs that are not included in product costs. These costs are expensed on the income statement in the period, in which they are incurred, the rules of accrual accounting.
- Period costs are not included as part of the cost of either purchased or manufactured goods like sales commissions and office rent and all selling and adminstatrative expenses are considered to be period costs.

Cost Classification for Predicting Cost Behaviour

Cost behaviour mans how a cost will react or respond to changes in the level of business activity. As the activity level rises and falls, a particular cost may rises and fall as well or it may remain constant.

➢ ***Variable Cost***

- A variable cost is a cost that varies, in total, in direct proportion to change in the level of activity. The activity can be expressed in many ways such as units produced, units sold, miles driven, beds occupied, hours worked and so on.
- A good example of a variable cost is direct materials. The cost of direct materials used during a period will vary, in total, in direct proportion to the number of units that are produced.
- In variable cost, the *total cost* rises and falls as the activity level rises and falls. One interesting aspect of variable cost behaviour is that a variable cost is constant if expressed on *a per unit basis*.

Let's assume that we manufacture autos, each auto requires a battery that costs Br. 24 each. If only 1 auto is manufactured the total variable cost for batteries is Br. 24.

No. of Autos Produced	Cost for Battery	Total VC-Batteries
1	Br. 24	Br. 24
500	24	12,000
1,000	24	24,000

➢ ***Fixed Cost***

- A fixed cost is a cost that remains constant in total regardless of changes in the level of activity. Unlike variable costs, fixed costs are not affected by changes in activity.
- Consequently, as the activity level rises and falls, the fixed costs remain constant in total amount unless influenced by some outside force, such as price changes.
  E.g.:- Rent Expense
- When we say a cost is fixed, we mean it is fixed within some relevant range. The relevant range is the range of activity within which the assumptions about variable and fixed costs are valid.

- Fixed costs can create difficulties if it becomes necessary to express the costs on per unit basis. This is because if fixed costs are expressed on a per unit basis, they will react *inversely* with changes in activity.

Monthly Rental Cost	No. of Tests Performed	Average Cost per Test
Br. 8,000	10	Br. 800
8,000	500	16
8,000	2000	4

Behaviour of the Cost (within the relevant range)		
Cost	**In Total**	**Per Unit**
Variable Cost	Total variable cost increases and decreases in proportion to changes in the activity level.	Variable cost remains constant per unit.
Fixed Cost	Total fixed cost is not affected by changes in the activity level within the relevant range.	Fixed costs decrease per unit as the activity level rises and increase per unit as the activity level falls.

Ex: 2-4: ***Classify the following as variable cost or fixed cost.***

a. President's salary
b. Direct labor
c. Straight-line depreciation on factory building
d. Commissions paid to sales persons.
e. Direct material
f. Advertising

Ex 2-5: Guild Company manufactures and sells one product. The production can vary from 20,000 to 60,000 units. A partially schedule of the company's total and per unit costs for the coming year follows:

	Units produced and sold		
	20,000	**40,000**	**60,000**
Total costs:			
Variable costs	$ 80,000	?	?
Fixed costs	100,000	?	?
Total costs	**$ 180,000**	**?**	**?**
Cost per unit:			
Variable cost	?	?	?
Fixed cost	?	?	?
Total cost per unit	**?**	**?**	**?**

Required:

1. ***Compute the schedule for Guild Company's total and per unit costs.***
2. ***Determine the cost formula in the format of $Y=a + bx$***

Cost Classification for Assigning Costs to Cost Object

- A ***cost object*** is anything for which cost data are desired- including products, product lines, customers, jobs, and organizational subunits or which is anything for which a separate measurement of costs is desired. For the purpose of assigning costs to cost objects, costs are classified as either *direct or indirect*.
- A costing system typically accounts for costs in two basic stages- accumulation and then assignment.
- ***Cost accumulation*** is the allocation of cost data in some organized way by means of an accounting system.
- ***Coat assignment*** is a general term that includes both *(1) tracing accumulated costs to a cost object, and (2) allocating accumulated cost to cost object*
- A key question in cost assignment is whether costs have direct or an indirect relationship to a particular cost object.

➢ *Direct Cost*

A direct cost is a cost that can be easily and conveniently traced to the particular cost object under consideration. The concept of direct cost extends beyond just direct material and direct labor.

➢ *Indirect Cost*

An indirect cost is a cost that cannot be easily and conveniently traced to the particular cost object under consideration. To be traced to a cost object such as a particular product, the cost must be caused by the cost object.

The term ***cost allocation*** is used to describe the assignment of indirect costs to a particular cost abject.

A ***common cost*** is a cost that is common to a number of costing objects but cannot be traced to them individually. A common cost is a particular type of indirect cost.

Cost Classification for Decision Making

Costs are an important feature of many business decisions. In making decisions, it is essential to have a firm grasp of the concepts of *differential cost, opportunity cost, and sunk costs.*

➢ *Differential Cost and Revenue*

- A difference in cost between any two alternatives is known as a ***differential cost***. A difference in revenue between ant two alternatives is known as ***differential revenue***.
- A differential cost is also known as an *incremental cost*, although technically an incremental cost should refer only to an increase in cost from one alternative to another; decrease in cost should be referred to as *decremental costs*. Differential cost is a broader term, encompassing both cost increases (incremental cost) and cost decreases (decremental cost) between alternatives.
- The accountant's differential cost concept can be compared to the economist's marginal cost concept. The revenue that can be obtained from selling one more unit of product is called *marginal revenue*, and the cost involved in producing one more unit of product is called *marginal cost*.

- Differential cost can be either fixed or variable.

➢ *Opportunity Cost*

- Opportunity cost is the potential benefit that is given up when one alternative is selected over another.
- Opportunity cost is not usually entered in the accounting records of an organization, but it is a cost that must be explicitly considered in every decision a manager makes.

Example: **-** Vicki has a part-time job that pays $100 per week while attending college. She would like to spend a week at the beach during spring break, and her employer has agreed to give her the time off, but without pay. The $100 in lost wages would be an opportunity cost of taking the week off to be at the beach.

➢ *Sunk Cost*

A sunk cost is a cost that has already been incurred and that cannot be changed by any decision made now or in the future. Since sunk costs cannot be changed by any decision, they are not differential costs. Therefore, they can and should be ignored when making a decision.

Chapter 4 : Cost Allocation

Cost Allocation is an inescapable problem in nearly every organization and in nearly every aspect of accounting.

Purposes of Cost Allocation

1. To provide information for economic decisions.
2. To motivate managers and other employees.
3. To justify costs or compute reimbursement.
4. To measure income and assets for reporting to external parties.

I. Allocating Costs from One Department to Another.

There are several issues to consider when allocating costs:

- *Should different methods of allocation be used for fixed costs and for variable costs,*
- *Should budgeted rates or actual rates be used, and*
- *Should budgeted quantities or actual quantities be used?*

Single-Rate and Dual-Rate Methods

The single-rate allocation method pools all costs in one cost pool and allocates theses costs to cost objects using the same rate per unit of the single allocation base. There is no distinction between costs in a cost pool in terms of cost behavior, such as fixed costs versus variable costs.

The dual-rate cost allocation method classifies costs in each cost pool into to sub cost pools, a variable cost pool and a fixed cost pool. Each of these pools uses a different cost allocation base.

Example:

Sand Hill Co. has a Central Computer Department; the department has two users, Microcomputer Division and Peripheral Equipment Division. The following data apply to the coming budget year.

Fixed costs of operating the computer facility in the 6000-18000hr relevant range	*Br3, 000,000/year*
Total capacity available	*18,000hrs*
Budgeted long-run usage	
Microcomputer Division	*8,000hrs*
Peripheral Equipment Division	*4,000hrs*
Total	*12,000hrs*
Budgeted variable cost per hour	*$200/hour used*

Assume during the year the Microcomputer uses 9,000 hrs and Peripheral Equipment uses 3,000 actual hours.

1. **Single Rate Allocation Method**

Total cost pool =3,000,000+200*12,000	5,400,000
Budgeted usage	12,000hrs

Budgeted totals rate per hour= 5,400,000 = Br.450/hr
12,000hrs

Allocation rate for Microcomputer Division	Br. 450/hr
Allocation rate for Peripheral Division	Br. 450/hr

Microcomputer=9000*450= Br. 4,050,000.
Peripheral Equipment= 3000*450= Br.1, 350,000.

2. Dual-rate Allocation Method

Allocation of Fixed Costs to:
Microcomputer Division = 8000/1200hrs * 3,000,000 = Br. 2,000,000/year.
Peripheral Equipment Division = 4000/12000hrs * 3,000,000 = Br. 1,000,000/year.

Microcomputer: 2,000,000 + (200*9000) = Br. 3,800,000.
Peripheral Equipment: 1,000,000 + (200*3000) = Br. 1,600,000.

II. Allocating Support Departments

Operating and Support Departments
Operating Department (Production Department) adds value to a product or service that is observable by a customer.
Support Departments (Service Department) provide the service that assists other internal departments.

Support Department creates a special cost allocation problem when they provide reciprocal support to each other as well as support to operating departments.
Methods:

1. Direct Allocation Method
2. Step-Down Allocation Method
3. Reciprocal Allocation Method

Example: ABC Engineering has two Support Departments and Two operating Departments. Costs are accumulated in each department for planning and control purposes.

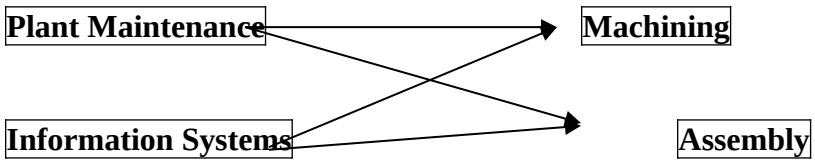
Support Departments	**Operating Departments**
Plant Maintenance	Machining
Information Systems	Assembly

The two support departments provide reciprocal support to each other as well as to the two operating departments. Costs are accumulated in each department for planning and control purpose.

	Support Departments		Operating Departments		
	Plant Main.	**Infor. Systems.**	**Machining**	**Assembly**	**Total**
Budgeted MOH cost					
Before any inter-dept					
Cost allocations	$600,000	$116,000	$400,000	$200,000	1,316,000
Support work finished					
By plant maintenance					
Budgeted labor hrs	-	1,600	2,400	4,000	8,000
Percentage	-	20%	30%	50%	100%
By Infor. System.					
Budgeted com. Hrs	200	-	1600	200	200
Percentage	10%	-	80%	10%	100%

Required: Allocate costs using the three methods.

1. **Direct Allocation Method**
   This method is the most widely used method of allocating support department costs. This method allocates each support department costs directly to the operating departments.



	Support Departments		Operating Departments		
	Plant Main.	**Infor. Systems.**	**Machining**	**Assembly**	**Total**
Budgeted MOH cost					
Before any inter-dept					
Cost allocations	$600,000	$116,000	$400,000	$200,000	1,316,000
Allocation by Plant Mai.	(600,000)		225,000	375,000	
(2400/6400, 4000/6400)					
Allocation by Inf. Syste.	0	(116,000)	103,111	12,889	
(1600/1800, 200/1800)					
Total Budgeted MOH of		**0**	**$728,111**	**$578,889**	**$1,316,000**
Operating departments					

Advantage of this method:

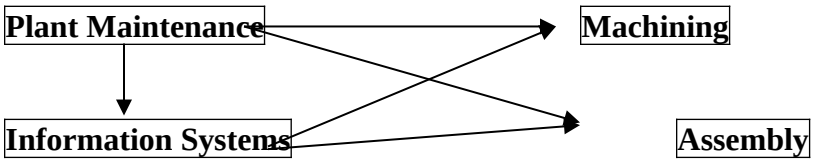
- > Simplicity
- > No need to predict the usage of support department service by other support departments.

Disadvantage

- > Failure to recognize reciprocal services provided among support departments.

2. Step-Down Allocation Method (Sequential Allocation Method)

- Allows the partial recognition of the service rendered by support departments to other support departments.
- This method requires the support departments to b ranked (sequenced) in order that the step-down allocation is to proceed. Different sequences will result in different allocation of support department costs to operating departments.
- Popular step-down begins with the support department that renders the highest percentage of its total services to other support departments and so on, ending with the support department that renders the lowest percentage of its total services to other support departments.



	Support Departments		Operating Departments		
	Plant Main.	Infor. Systems.	Machining	Assembly	Total
Budgeted MOH cost Before any inter-dept Cost allocations	$600,000	$116,000	$400,000	$200,000	1,316,000
Allocation by Plant Mai. (1600/8000, 2400/8000, 4000/8000)	(600,000)	120,000 236,000	180,000	300,000	
Allocation by Inf. Syste. (1600/1800, 200/1800)	0	(236,000)	209,778	26,222	
Total Budgeted MOH of Operating departments		**0**	**$789,778**	**$526,222**	**$1,316,000**

Note: ***The step-down method does not recognize the total services that support department provide to each other.***

3. Reciprocal Allocation Method

- Allocates cost by explicitly including the mutual services provided among all support departments.
- Conceptually the direct method and the step-down allocation method are less accurate than the reciprocal method when the support departments provide service to another reciprocally.
- The reciprocal method enables us to incorporate interdepartmental relationships fully not the support department cost allocations.
- Implementing the reciprocal allocation method requires three steps:

1. Express Support Department Costs and support department reciprocal relationships in the from of Linear Equation.

Let PM be the *completed reciprocated costs*[2] of Plant Maimtance and IS be the complete reciprocated costs to Information Systems.

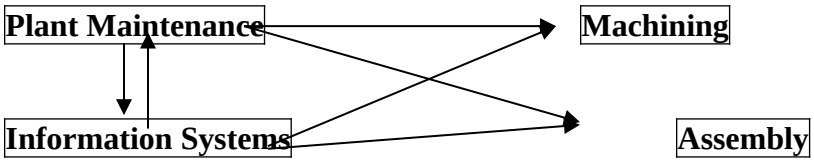
PM = $600,000 + 0.1 IS
IS = $116,000 + 0.2 PM

2. Solve the cost of linear equation to obtain the complete reciprocated costs of each support departments.

PM = 600,000 + 0.1 (116,000 + 0.2PM**)**
PM = 600,000 + 11,600 + 0.02PM
0.98PM = 616,000
PM = $624,082

IS = 116,000 + 0.2(624,082)
IS = $ 240,816

3. Allocate the complete reciprocated costs of each department to all other departments (both support department and operating departments).



[2] Complete reciprocated cost mean the support departments own cost plus any interdepartmental cost allocations.

	Support Departments		Operating Departments		
	Plant Main.	**Infor. Systems.**	**Machining**	**Assembly**	**Total**
Budgeted MOH cost Before any inter-dept Cost allocations	$600,000	$116,000	$400,000	$200,000	1,316,000
Allocation by Plant Mai. (1600/8000, 2400/8000, 4000/8000)	(624,082)	124,816	187,225	312,041	
Allocation by Inf. Syste. (200/2000 1600/2000, 200/2000)	24,082	(240,816)	192,652	24,082	
Total Budgeted MOH of Operating departments	**0**	**0**	**$779,877**	**$536,123**	**$1,316,000**

Chapter 5: Cost Allocation: Joint Products and Byproducts

Terms

- **Joint costs** are the costs of a single production process that yields multiple products simultaneously.
- The **Split-off point** is the juncture in a joint production process where one or more products become separately identifiable.
- **Separable costs** are all costs of manufacturing, marketing, distribution, and so on. Incurred beyond the split off point those are assignable to one or more individual products.

At or beyond the split off point, decisions relating to sale or further processing of individual products can be made independently of decisions about other products.
The outputs of a joint production process can be classified into two general categories- those with a positive sales value and those with a zero sales value. A product is any output that has a positive net sales value (or an output that enables an organization to avoid incurring costs).

- A joint product has relatively high sales value compared to other products yielded by a joint production process
- When a joint production process yields only one product with a relatively high sales value, the product is termed as **main product**.
- A **byproduct** has a relatively low sales value compared with the sales value of a joint or main product.

Approaches to Allocating Joint Costs

Approach 1: Allocate costs using market based data such as revenues.

- Sales value at splitoff point
- Estimated net realizable value (NRV) method
- Constant gross-margin percentage NRV method

Approach 2: Allocate costs using physical-measure-based data such as weight or volume.

Example1: Farmers Dairy purchases raw milk from individual farms and processes it until the splitoff point, where two products (cream and liquid skim) emerge. These two products are sold to an independent company, which markets and distributes them to supermarkets and other retail outlets.

- Raw milk processed 100,000 gallons. 10,000 gallons of raw milk are lost in the production process due to evaporation, spoilage, and the like, yielding 100,000 gallons of good product.

	Production	**Sales**
Cream	25,000 gallons	20,000 gallons at Br. 8/gallon
Liquid skim	75,000 gallons	30,000 gallons at Br. 4/gallon

- Inventories

	Beginning Inv	**Ending Inv**
Raw milk	0 gallons	0 gallons
Cream	0 gallons	5,000 gallons

Liquid skim	0 gallons	45,000 gallons

- Cost of purchasing 110,000 gallons of raw milk and processing it until the splitoff point to yield 25,000 gallons of cream and 75,000 gallons of liquid skim, Br. 400,000.

How much of the joint costs of Br.400,000 should be allocated to the cost of goods sold (20,000 gallons of cream and 30,000 gallons of liquid skim) and to the ending inventory (5,000 gallons of cream and 45,000 gallons of liquid skim)?

1. Sales value at splitoff point

> Allocates joint costs to joint products on the basis of a relative sales value at the splitofff point of the total production of these products during the accounting period.

	Cream	**Liquid Skim**	**Total**
1. Sales value at splitoff point (cream, 25,000 gall.*Br.8; liquid skim, 75,000 Gall.*Br.4)	Br.200,000	Br.300,000	Br.500,000
2. Weighting (Br.200,000/Br.500,000; Br.300, 000/Br.500, 000)	0.40	0.60	
3. Joint cost allocated (cream, 0.40* Br.400, 000; liquid skim, 0.60*Br.400, 000	Br.160, 000	Br.240, 000	Br.400, 000
4. Joint production cost per gallon (cream, Br.160, 000/25,000 gall; liquid skim, Br.240, 000/75,000 gall.)	Br. 6.40	Br.3.20	

Note that the method uses the sales value of the entire production of the accounting period. The reason is that the joint costs were incurred on all units produced, not just those sold in the current period.

2. Physical-Measure Method

> Allocates joint costs to joint products on the basis of the relative weight, volume, or other physical measure at the splitofff point of the total production of these products during the accounting period.

	Cream	**Liquid Skim**	**Total**
1. Physical measure of production (gall.)	Br.200, 000	Br.300, 000	Br.500, 000
2. Weighting (25,000gall/100,000 gall; 75,000gall/100,000gall)	0.25	0.75	
3. Joint cost allocated (cream, 0.25* Br.400, 000; liquid skim, 0.75*Br.400, 000	Br.100, 000	Br.300, 000	Br.400, 000
4. Joint production cost per gallon (cream, Br.100, 000/25,000 gall; liquid skim, Br.300, 000/75,000 gall.)	Br. 4	Br.4	

3. Estimated Net Realizable Value (NRV) Method

> In many cases, products are processed beyond the splitoff in order to bring them to a marketable form or to increase their value above their selling price at the splitoff point.

> The estimated net realizable value is typically used in preference to the sales value at splitoff point method only when market selling prices for one or more products at the splitoff point are available.

Eample2: Assume the same situation as in Example 1 except that both cream and liquid skim can be processed further:

- Cream → Butter cream; 25,000 gallons of cream are further processed to yield 20,000 gallons of butter cream at additional processing (separable) costs of Br.280, 000. Butter cream, sold for Br.25 per gallon, is used in the manufacture of butter-based products.
- Liquid skim → Condensed Milk; 75,000 gallons of liquid skim are further processed to yield 50,000 gallons of condensed milk at additional processing costs of Br.520,000. Condensed milk is sold for Br.22 per gallon.
- Sales during the accounting period were 12,000 gallons of butter cream and 45,000 gallons of condensed milk.

	Beginning Inventory	**Ending Inventory**
Raw milk	0 gallons	0 gallons
Cream	0 gallons	0 gallons
Liquid skim	0 gallons	0 gallons
Butter cream	0 gallons	8000 gallons
Condensed milk	0 gallons	5,000 gallons

The estimated NRV method allocates joint costs to joint products on the basis of the relative estimated NRV (expected final sales value in the ordinary course of business minus the expected separable costs) of the total production of these products during the accounting period. Joint costs would be allocated as follows:

	Butter Cream	**Condensed Milk**	**Total**
1. Expected final sales value of production (Butter cream, 20000gall.*Br.25; condensed Milk, 50,000gall*Br.22)	Br.500, 000	Br.1, 100,000	Br.1, 600,000
2. Deduct expected separable costs to Complete and sell	Br.280, 000	Br.520, 000	800,000
3. Estimated NRV at splitofff point 75,000gall/100,000gall)	Br.220, 000	Br.580, 000	Br. 800,000
4. Weighting (220,000/800,000; 580,000/ 800,000)	0.275	0.725	
5. Joint costs allocated (butter cream, 0.275* 400,000; condensed milk, 0.725*400,000)	Br.110, 000	Br.290, 000	Br.400, 000
6. Production cost per gallon (butter cream, [110, 000+280,000]/20,000 gall; condensed Milk[290,000+520,000]/50,000gall)	Br.19.50	Br.16.20	

4. Constant Gross-Margin Percentage NRV Method

- Allocates joint costs to joint products in such a way that the overall gross margin percentage is identical for the individual products. This method requires three steps:

Step 1: Compute the overall gross-margin percentage.
Step 2: Use the overall gross margin percentage and deduct the gross margin from the final sales values to obtain the total costs that each product will bear
Step 3: Deduct the expected separable costs from the total costs to obtain the joint-cost allocation.

Step 1:

Expected final sales value of total production during the accounting period (20,000gall.*Br.25) + (50,000gall*Br.22)	Br.1, 600,000
Deduct joint and separable costs (Br.400, 000+Br.280, 000+ Br.520, 000)	1,200,000
Gross Margin	Br. 400,000
Gross Margin percentage (400,000/1,600,000)	25%

Step 2:

	Butter Cream	**Condensed Milk**	**Total**
Expected final sales value of production During the accounting period: (butter Cream, 20000gall.*Br.25; condensed Milk, 50,000gall*Br.22)	Br.500, 000	Br.1, 100,000	Br.1, 600,000
Deduct gross margin, using overall Gross margin percentage (25%)	125,000	275,000	400,000
Cost of Goods Sold	375,000	825,000	1,200,000

Step 3:

Deduct separable costs to complete and sell	280,000	520,000	800,000
Joint costs allocated	Br.95, 000	Br.305, 000	Br.400, 000

Accounting for Byproducts

- Joint production process may yield not only joint and main products but byproducts as well. Although byproducts have much lower sales value than do joint or main products, the presence of byproducts can affect the allocation of joint costs.

Example 3: The Meatworks Group processes meat from slaughterhouses. One of its departments cuts lamb shoulders and generates two products:

Shoulder meat (the main product) – sold for Br.60 per pack.
Hock meat (the byproduct) - sold for Br.4 per pack.

Both products are sold at splitoff point without further processing. Data (number of packs) for this department in July 2001 are as follows:

	Production	Sales	Big. Inv.	End.Inv.
Shoulder meat	500	400	0	100
Hock Meat	100	30	0	70

The joint manufacturing costs of these products in July 2001 were Br.25, 000 (comprising, Br.15, 000 for direct materials and Br.10,000 for conversion costs).

Method A: Byproducts Recognized at the Time Production is Completed

- This method recognizes the byproduct in the financial statements-the 100 packs of hock meat-in the month it is produced (July 2001). The estimated net realizable value from the byproduct produced is offset against the costs of the main (or joint) products. The following journal entries illustrate this method:

1. Work in process 15,000
Account Payable 15,000
(To record direct materials purchased and used in production during July)

2. Work-in Process 10,000
Various Accounts 10,000
(To record conversion costs in the production process during July; examples include energy, manuf.supplies, all Manu. labor, and plant maintenance)

3. Byproduct Inventory-Hock Meat (100*Br.4) 400
Finished Goods –Shoulder Meat (Br.25, 000-400) 24,600
Work-in Process (Br.15, 000+10,000) 25,000
(*To record cost of goods completed during July*)

4a. Cost of Goods Sold [(400/500)*24,600 19,680
Finished Goods-Shoulder Meat 19,680
(*To record cost of the main products sold during July*)

b. Cash (Account Receivable) 400*Br.60 24,000
Revenues –Shoulder Meat 24,000
(*To record the sales of the main product during July*)

5. Cash (Account Receivable) 30*Br.4 120
Byproduct Inventory- Hock Meat 120
(To record the sales of the byproduct during July)

*This method reports the byproduct inventories of hock meat in the balance sheet at their Br.4/pack selling price [(100-30)*Br.4 = Br.280].*

Method B: Byproducts Recognized at Time of Sale

- **>** This method makes no journal entries until sale of the byproduct occurs. Revenues of the byproducts are reported as a revenue item in the income statement at the time of sale.

In the Meatworks Group example, byproduct revenues in July 2001 would be Br.120 (30*Br.4) because only 30 packs of the hock meat are sold in July (of the 100 packs produced). The journal entries would be:

1 and 2: Same as for Method A.

3.	Finished Goods-Shoulder Meat	25,000	
	Work-in Process		25,000
	(*To record cost of goods completed during July*)		
4a.	Cost of Goods Sold [(400/500)*Br.25, 000	20,000	
	Finished Goods-Shoulder Meat		20,000
	(*To record cost of the main products sold during July*)		
4b.	Same as for Method A		
5.	Cash (Account Receivable)	120	
	Revenues- Hock Meat		120
	To record the sales of the byproduct during July)		

Method B is rationalized in practice primarily on grounds that the dollar amounts of byproducts are immaterial. However, this method permits managers to "manage" reported earnings by timing when they sell byproducts.

III. Allocating Common Costs

A common cost is a cost of operating a facility, activity, or like cost object that is shared by two or more users.

Consider Ayele, a senior student in Addis Ababa University who has been invited to an interview with an employer in Mekele. The round trip Addis-Mekele airfare costs

Br.1, 200. A week prior to leaving Ayele is also invited to an interview with an employer in Dessie. The Addis-Dessiee round trip airfare costs Br. 800. Ayele decided to combine the two recurring trips into an Addis-Mekele-Dessie trip that will cost $1,500 in airfare. The Br1, 500 is a common cost that benefits both prospective employers.
Two methods of allocating this common cost are:

1. **Stand-Alone Cost-Allocation Method**
   This method uses information pertaining to each user of a cost object as a separate entity to determine the cost-allocation weights.
   For the common cost $1,500, information about the separate (stand alone) round-trip airfares ($1200, and $800) is used to determine the allocation weights.

   Mkele employer: $\frac{\$1,200}{\$1,200 + \$\ 800} * 1,500 = 0.60*1,500 = \$900$

   Dessie employer: $\frac{\$800}{\$800 + \$1,200} * 1,500 = 0.4 * 1,500 = \$600$

Advantage: Fairness occurs because each employer bears a proportionate share of total costs in relation to their individual stand-alone costs.

2. **Incremental Cost Allocation Method**
   - This method ranks the individual users of a cost object and then uses this ranking to allocate costs among those users.
   - The first ranked user of the cost object is termed the *primary user*. The second ranked user is termed the *incremental party* and is allocated the additional cost that arises from there being two users instead of only the primary user.

   Assume in the example the Mekele fight is viewed as the primary party. Ayele's rational is that he had already committed to go to Mekele before accepting the invitations to interview in Dessie. The cost allocation would be:

Party	**Cost Allocated**	**Costs remaining to be Allocated to other parties**
Mekele (primary)	$1,200	$300 ($1,500 - $1,200)
Chicago (incremental)	300	0

   Had the Dessie employer been chosen as the primary party, the cost allocations would have been Dessie $800 and Mekele $700(1500-800).

   Under the incremental method, the primary party typically receives the highest allocation of the common costs. Most users in common cost situations propose themselves as the incremental party.

Exercise 1:
Computer Horizon budgets the following amounts for it's to central corporate support departments (legal and personnel) in supporting each other and the two manufacturing divisions- the Laptop Division (LTD) and the Work Station Division (WSD):

		Budgeted Capacity			
To be supplied by	**Legal**	**Personnel**	**LTD**	**WSD**	**Total**
Legal (hours)	-	250	1,500	750	2,500
Percentages	-	10%	60%	30%	100%
Personnel (hours)	2,500	-	22,500	25,000	50,000
Percentages	5%	-	45%	50%	100%

Details on actual usage are as follows:

		Actual usage by			
To be supplied by	**Legal**	**Personnel**	**LTD**	**WSD**	**Total**
Legal (hours)	-	400	400	1,200	2,000
Percentages	-	20%	20%	60%	100%
Personnel (hours)	2,000	-	26,600	11,400	40,000
Percentages	5%	-	66.5%	28.5%	100%

Total costs were:

	Legal	**Personnel**
Fixed	$360,000	$475,000
Variable	$200,000	$600,000

Fixed costs are allocated on the basis of budgeted capacity. Variable costs are allocated on the basis of actual usage.

Required: *What amount of support department costs for legal and personnel will be allocated LTD and WSD using:*

a. *The Direct Method*
b. *The Step-Down Method (allocating the Legal Department First).*
c. *The Reciprocal Method*

Exercise 2:

Phoenix consulting provides outsourcing services and advice to both government and corporate clients. For costing purposes Phoenix classifies its departments into two support departments (Administrative/Human Resources and Information Systems) and two operating departments (Government Consulting and Corporate Consulting). For the first quarter of 2000, Phoenix incurs the following costs in its four departments:

Administrative/Human Resource (A/H) $600,000

Information Systems (IS)	$2,400,000
Government Clients (GOVT)	$8,756,000
Corporate Clients (CORP)	$12,452,000

The actual level of support relations among the four departments for the first quarter of 2000 was:

		Used by		
Supplied by	**A/H**	**IS**	**GOVT**	**CORP**
A/HR	-	25%	40%	35%
IS	10%	-	30%	60%

The Administrative/Human Resources support percentages are based on headcount. The Information Systems support percentages are based on actual computer times used.

Required:

Allocate the two support department's costs to the two operating departments using the following methods:

1. *Direct Method*
2. *Step-down method (allocate A/H first)*
3. *Step-down method (allocate IS first)*
4. *Reciprocal Method.*