

Lecture 2: Flow of resource costs

Cost Object: anything for which a separate measurement of costs is required, e.g. products, services, customers, projects, processes, segments of the value chain, divisions/departments, organisation as a whole

Cost measurement tasks

- **Accumulation:** recording of costs, organization into different cost categories (direct labour, direct materials, etc.)
- **Assignment:** to various cost objects
 - Trace: direct costs, more accurate, assigning by determining exact quantities used by each cost object and multiplied by the price per quantity, e.g. per haircut- cost of hairdresser labour
 - Allocate: indirect costs, less accurate, assigning by estimating using an allocation base, e.g. cost of gas, electricity, water, depreciation of equipment, per haircut- cost of hair products

Cost classification depends whether it is traced to the cost object

- **Direct cost:** includes direct materials (becomes physical part of the product) and labour (work done to produce a product)
- **Indirect cost:** includes indirect materials, labour (supervision), and others (licences, utilities, rent, depreciation)

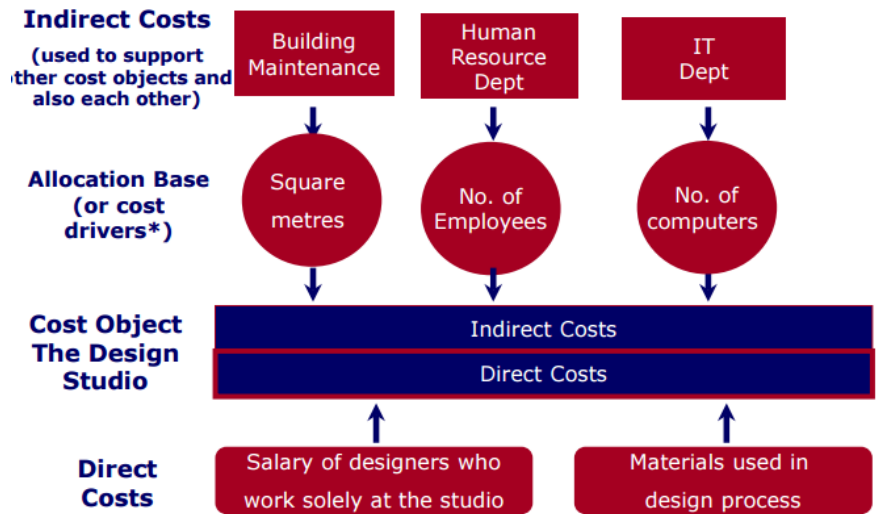
Whether a cost is traced to the cost object (and therefore is a direct cost) depends on the following factors

1. What is the cost object in question?
 - The cost object chosen affects the classification; e.g. salary of factory supervisor supervising 5 different production lines
 - Physically and economically feasible to trace if cost object is a particular production line
 - Not physically traceable if cost object = a single unit produced
2. Is the cost item physically traceable?
 - Some costs are hard to physically trace to cost object – E.g., for each loaf of bread produced: the amount of electricity, gas and equipment depreciation
3. Does it make economical sense to trace?
 - Does the cost of tracing exceed the benefits?
 - If yes, use indirect cost and determine allocation base
 - The cost of tracing hair gel used (for example) used in each haircut may exceed the benefits of doing so since the cost of hair gel is small and therefore tracing vs allocating will not make a material difference to the cost that is assigned to each haircut.
 - Therefore although it is possible to physically trace the cost of hair gel to each hair cut, it will likely be a cost that is allocated using an allocation base (i.e., an indirect cost)

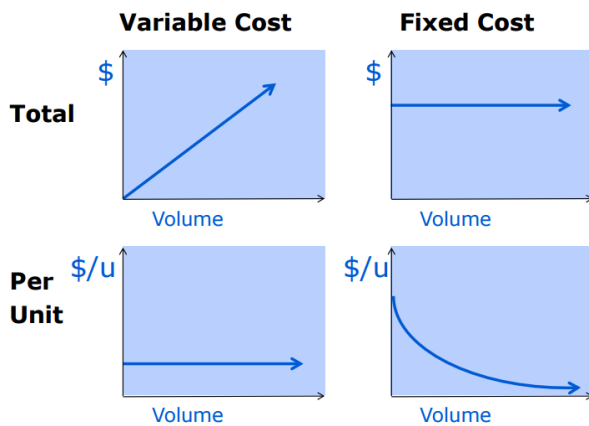
Cost object: design studio of an automobile manufacturer

Cost behaviour: How do costs change in relation to changes in the volume of the units of output?

- Fixed cost: A cost item that does not change in total but changes on a per unit basis when volume of the cost object changes
- Variable cost: A cost item that does not change on a per unit basis but changes in total when volume of the cost object changes



* Cost drivers are things that cause the occurrence of costs – more in Lecture 3



COST	IN TOTAL	PER UNIT
Variable	Total variable costs change as volume changes.	Variable costs per unit remain the same over wide ranges of volume.
Fixed	Total fixed costs remain the same even when the volume changes.	Fixed cost per unit goes down as volume goes up.

Significance of clarifying costs

- Direct vs Indirect
 - For indirect costs, would need to decide the best method to assign them to the cost object
 - The method chosen to go about assigning indirect costs would then have implications on the types of information the organisation needs to track/store (more on this next week)
- Fixed vs Variable costs
 - Help organisations predict what would happen to their total costs when production volumes change
 - Needed to conduct Cost-Volume-Profit analysis (Week 7)
 - Can give organisation a sense of which costs can possibly be more easily contained

Relevant range

- Some cost items may not be fixed or variable over all possible ranges of volume.
- The following may be different when volume increases / decreases significantly:
 - Total fixed cost
 - Variable cost per unit
- Consequently, for some cost items, the behaviour classification (fixed vs variable cost) may only be valid for a particular range of volume
- We call this the “relevant range” for the behaviour of that cost

Relevant costs and revenues (when choosing between alternatives):

- Costs that will happen in the future
- Costs differ between alternatives being considered

Examples

Hotdog Factory: direct vs indirect

- Cost object: a packet of hotdogs
- Direct costs (i.e., traced to each of the different types of hotdog packets produced)
 - Meat
 - Other ingredients: pepper, salt, flavouring, preservatives, casing, packaging (because you know exact quantities that should go into a packet of hotdog)
 - Workers on the assembly line
- Indirect costs (i.e., not feasible to trace to each of the different types of hotdog packets produced)
 - Indirect materials: wood for smoking, water (both for hotdogs + for cleaning)
 - Indirect labour: Supervisory labour
 - Other overheads: factory rent, depreciation of equipment

Hotdog Factory: fixed vs variable

- Fixed costs i.e., total cost does not change when volumes of hotdog packets produced changes (within the relevant range)
 - Factory rent
 - Supervisory labour
 - Depreciation of equipment
 - Workers on the assembly line (if paid a fixed annual wage irrespective of output produced)
- Variable costs i.e., total cost changes when volumes of hotdog packets produced changes (within the relevant range)
 - Materials (meat, pepper, salt, preservatives, flavouring, wood for smoking, water)
 - Workers on the assembly line (if paid on the basis of hours worked or hotdog packets produced)

Consulting project: direct vs indirect

Cost object: This project (which is one of many projects undertaken by the consulting firm)

Direct costs (i.e., traced to each of the different projects undertaken)

- Consultant salaries
- Travel cost (if projects involve significant amount of travel e.g., international travel)

Indirect costs (i.e., not feasible to trace to each of the different projects undertaken)

- Travel costs (if projects do not involve significant amount of travel)
- Printing costs
- Equipment depreciation cost (computers, projector)

Consulting project: fixed vs variable

Fixed costs i.e., total cost does not change when volume of projects undertaken changes (within the relevant range)

- Depreciation of equipment
- Consultant salaries (if paid on fixed annual wage irrespective of number of projects undertaken)

Variable costs i.e., total cost changes when volume of projects undertaken changes (within the relevant range)

- Printing cost
- Consultant salaries (if paid based on hours worked or number of projects undertaken)
- Travel cost

Opportunity Cost: the value of the best alternative forgone

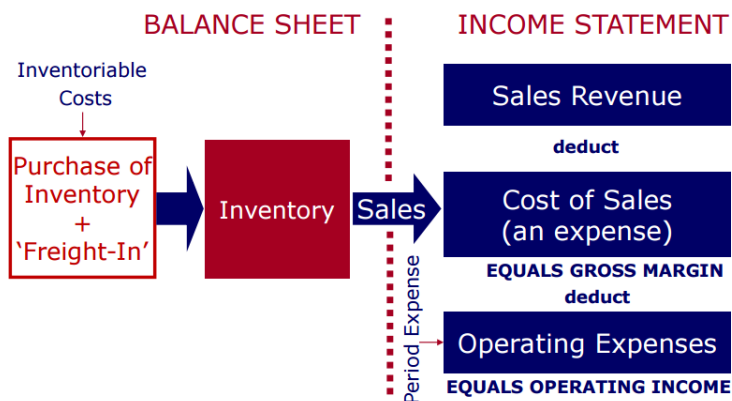
- Usually difficult to measure objectively; for example:
 - Company spends \$100,000 to purchase Machine A.
 - Scenario 1: If next best alternative is to save the money, the opportunity cost of buying Machine A = \$100,000.
 - Scenario 2: If next best alternative is to spend \$100,000 on Machine B (which has a value of \$130,000 based on a subjective calculation of the present value of future cash inflows), then the opportunity cost for buying Machine A is the value of Machine B = \$130,000.
- Accountants will record the cost of Machine A of \$100,000 under both scenarios, while economists will argue that the true (estimated) cost of Machine A is \$130,000 under Scenario 2.
- Note that although opportunity costs are usually not captured in the financial statements, we would still need to take it into account when making decisions as it is a relevant cost - more on this in Week 8 (Short term Decisions)

Types of organizations

- **Service** ⇔ No Inventory
- **Merchandising** ⇔ Only "Finished" Goods inventory
 - Costs of purchase = Net purchases + Freight-in

- **Manufacturing** \Leftrightarrow Stages of Production
 - Raw Materials inventory
 - Work-in-Progress inventory
 - Finished Goods inventory
 - Costs of purchase = Net purchases + Freight-in
 - Costs of conversion = Direct labour + Manufacturing overheads
- Accounting for the valuation of inventory is the main role that cost accounting fulfills for financial accounting
- Income depends on what costs are included in inventory (cost of goods sold is an expense)

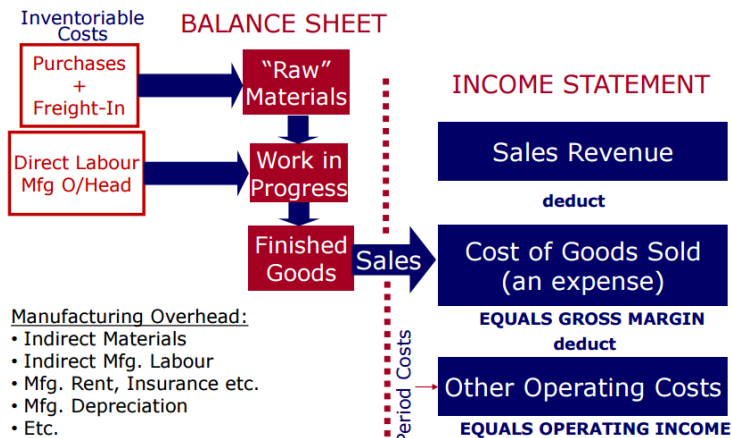
Cost flow: merchandising organizations



Cost flow: manufacturing organisations

Under Mfg OH: indirect materials (purchases + freight in), indirect mfg labour, other (factory rent, equipment depreciation)

Non-inventoriable cost: head office rent, marketing expense, design cost, head office equipment depreciation



Cost classification: inventoriable vs. non-inventoriable costs

- This classification depends on what the accounting standard (AASB 102) allows to be included in the cost of inventory
- For a manufacturing firm, **inventoriable** cost include direct materials, direct labour, fixed and variable production overhead costs.
- Production overheads are indirect costs that are incurred in the conversion of materials into finished goods. Production overheads are also known as factory overheads, manufacturing overheads, indirect manufacturing cost.
- Cost of the rest of the value chain, e.g. R&D, Design, Marketing, selling and administrative expenses are not inventoriable cost
 - Total Cost \neq Inventoriable Cost

- Inventoriable cost = cost that make up the value of inventory in the financial statements
- However full value chain product cost is important for certain (i.e., long run) pricing and product mix decisions

Service organisations have no inventory

- But cost accounting is still relevant in service companies for internal decision making purposes
 - Law firm: How much did it cost to represent Client Y
 - Audit firm: How much did it cost to audit Client Z?

Stocks and flows

- Stocks are measured a specific point in time and represent an existing quantity.
- Flows measure of changes in qty over a time period
- Example below is for a manufacturing firm in 2013

Beginning stock - e.g., finished goods inventory as at
1/1/20XX

Plus additions (flow) – e.g., finished goods transferred in from
factory during the year 20XX

Equals total available – e.g., goods available for sale

Less ending stock – e.g., finished goods inventory as at
31/12/20XX

Equals quantity used or deductions (flow) – e.g., COGS