Part I

Introduction to Management Accounting

- Scope and objectives of Management Accounting
- Introduction to cost terms, concepts and classifications

Colin Drury

Management and Cost Accounting, 7th edition

- Chapter 1
- Chapter 2

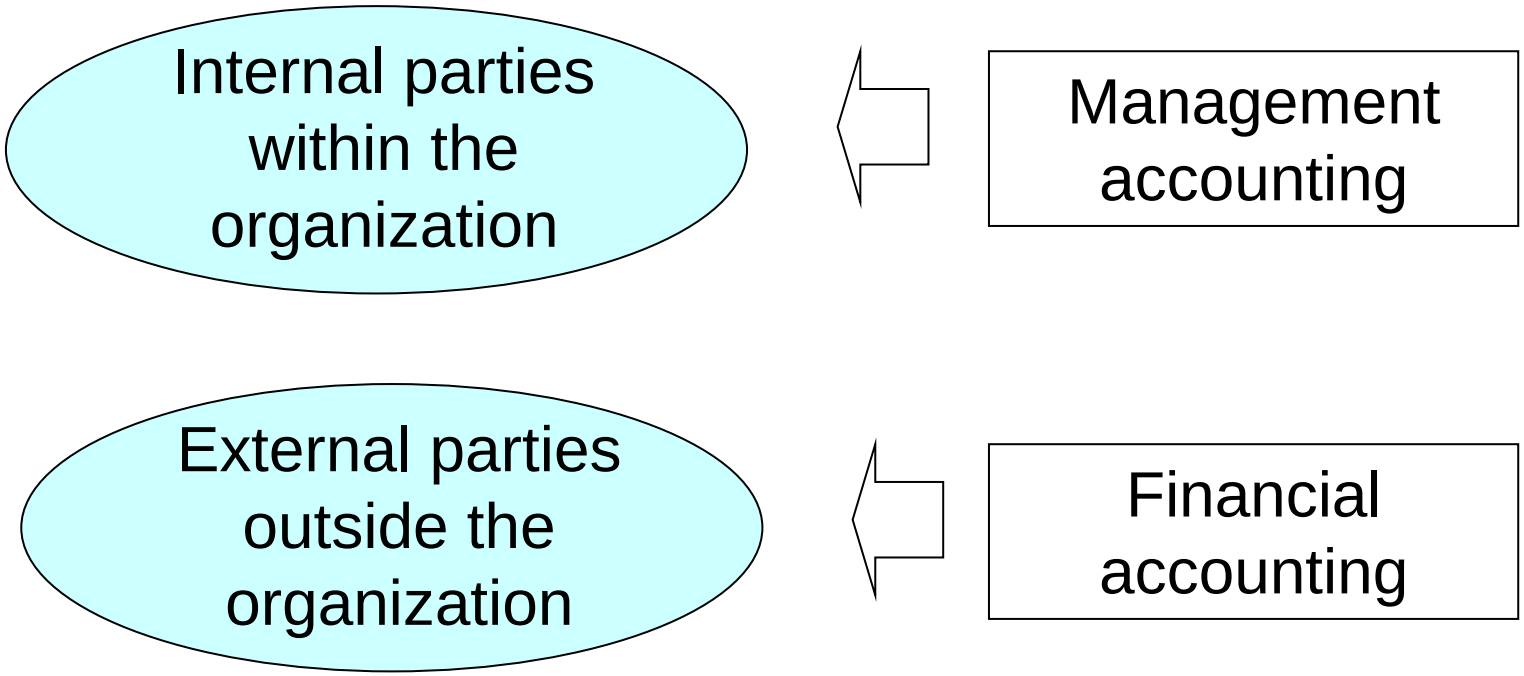
Definition of accounting

The process of identifying,measuring and communicating financial and non-financial information to help its users to make good decisions

Users of accounting information:

Internal parties within the organization

External parties outside the organization


Internal parties within the organization
Management accounting
External parties outside the organization
Financial accounting

Major differences between Financial and Management accounting:

Financial accounting

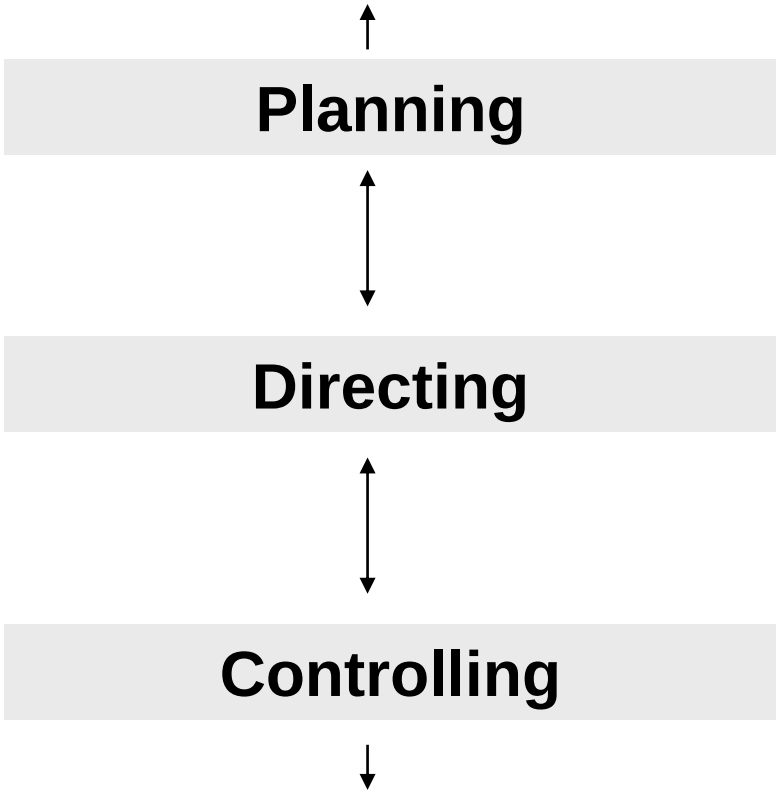
- Reports to those outside the organization
- Is legally required
- Must follow GAAP (for instance financial accounting data should be objective and verifiable)
- Prepares summarized data for the whole of the business
- Reports what has happened in the past in the organization
- Its report frequency is annual, and less detailed accounts are published semi-annually

Major differences between Financial and Management accounting (cont.):

Management accounting

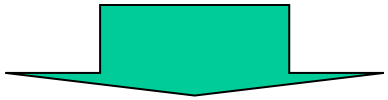
- Reports to those inside the organization
- Is entirely optional (only if benefits > costs of collecting it)
- Focuses on providing useful information to managers for decision-making, planning and control
- Prepares information on different parts of the business
- Is concerned with future, as well as past, information
- Timeliness of information is required, and, as such, daily, weekly or monthly reports are prepared

The decision-making process



Organizations have faced dramatic changes in their business environment:

- Move from protected markets to highly competitive global markets
- Deregulation
- Declining product life-cycles



Organizations have intensified cost management and developed management accounting systems to better understand their cost base and profitability of their products, customers and markets

Primary functions of Management accounting

I. To value inventory for internal and external profit reporting

- Allocate costs between:
  1. Products sold
  2. Inventories (fully and partly completed products unsold)

II. To provide relevant information for decision- making

- Profitability analysis
- Product pricing
- Make or buy (Outsourcing)

III. To provide information for planning, control and performance measurement

- Long-term and short-term planning (budgeting)
- Periodic performance reports for feedback control and performance measurement

Costs should be assembled in different ways to meet the above three requirements

Introduction to cost terms, concepts and classifications

Objectives

- To define a cost object
- To explain why it is necessary to understand the meaning of different cost concepts and classifications
- To distinguish among manufacturing companies, merchandising companies and service-sector companies
- To prepare the Profit & Loss Account by function (*Demonstração de resultados por funções)*

Cost Object

- Is anything for which a separate measurement of cost is desired (e.g. making a product, providing a service, serving a customer, operating a department)

- A cost collection system accounts for costs in two broad stages:

    1. Accumulation of costs by classifying them into certain categories (e.g.labour,materials and overheads)

    2. Assignment of costs to cost objects

Direct and indirect costs

- Cost classification for assigning costs to cost objects

  - Direct costs can be specifically and exclusively identified with a given cost object

  - Indirect costs (or overheads) cannot be specifically and exclusively identified with a given cost object

- The distinction between direct and indirect costs depends on what is identified as the cost object

- i.e. a cost can be treated as direct to one cost object and indirect to another cost object

  - Examples:
    - A supervisory's salary in the production department of a manufacturing company
    - The rental of a warehouse of finished goods

Costs by function

- Reclassification of the costs as treated in Financial Accounting (costs by nature) into costs by function (Management Accounting):

  - Manufacturing costs: monetary measure of the resources sacrified in production in a specific period

  - Selling costs: monetary measure of the resources sacrified in the sale of products and/or services

  - General and Administrative costs: monetary measure of the resources sacrified in the administrative function

  - Other operating costs: residual

  - Financial costs (net of financial revenues)

Different sectors

Merchandising-sector companies (Empresas *Comerciais*)

-Purchase and then sell products without changing their basic form

Manufacturing-sector companies (Empresas *Industriais*)

- Purchase materials and convert them into various finished goods

- Types of inventories held:

- Direct materials inventory (Matérias-primas)

- Work-in-progress inventory (Produtos em vias de fabrico)

- Finished goods inventory (Produtos acabados)

Service-sector companies (Empresas de *Serviços*)

- Provide services or intangible products to their customers

- Do not hold inventories

Profit & Loss Account by function

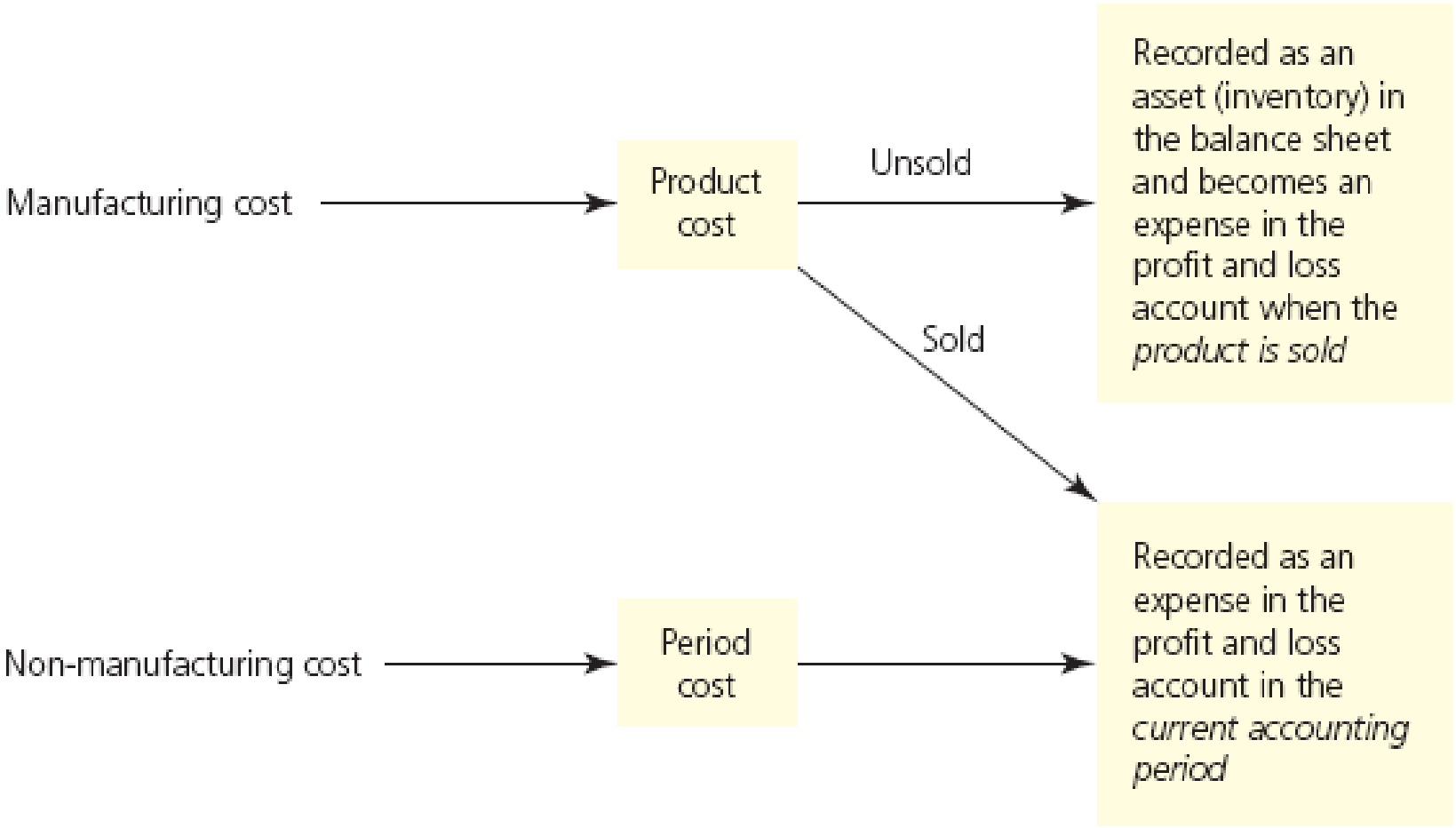
"*(DRF)*"

Sales revenues
Cost of goods sold (or cost of sales)
Gross profit
Other operating revenues
Distribution costs
Administrative costs
R&D costs
Other operating costs
Operating profit (EBIT)
Financial costs (net of financial revenues)
Profit before taxes (EBT)

Product and period costs

- Product costs are those that are attached to the products and included in the stock (inventory valuation)
  - Exist in both manufacturing and merchandising sector companies
  - These costs are treated as expenses (i.e. cost of goods sold) *only* when the products are sold

- Period costs are:
  - *not* included in the inventory valuation
  - treated as expenses of the period in which they are incurred


Manufacturing cost
Product cost
Unsold
Sold
Recorded as an asset (inventory) in the balance sheet and becomes an expense in the profit and loss account when the product is sold
Non-manufacturing cost
Period cost
Recorded as an expense in the profit and loss account in the current accounting period

(Drury, 2008)

Example

Product costs = €100.000

Period costs = € 70.000

60% of production for the period is sold and there are no opening inventories

Production cost (product cost)	100,000
Less closing stock (40%)	40,000
Cost of goods sold (60%)	60,000
Period costs (100%)	70,000
Total costs recorded as an expense for the period (ou seja incluido na DR)	130,000

Three important cost concepts in manufacturing companies

1. **Manufacturing Costs**
   (custo industrial da produção no período - CIP)

Direct materials (matérias directas)		XXX
Direct labour (mão-de-obra directa)		*XXX*
Prime cost (custo primo)		XXX
Manufacturing overhead (gastos gerais de fabrico)		*XXX*
Total manufacturing cost	XXX	

Nota: DL + MO = Conversion costs (Custos de transformação)

Direct materials costs include acquisition costs of direct materials (custos de aprovisionamento)

Direct labour costs include charges over salaries
(subsidios de férias e de Natal, encargos com a segurança social, etc)

Examples of manufacturing overheads (gastos gerais de fabrico)
(in a multi-product company)

- ✓ Indirect manufacturing labour (e.g. factory supervisors)
- ✓ Indirect materials
- ✓ Depreciation of factory buildings and machinery
- ✓ Rent of the factory

2. Cost of goods manufactured

(custo industrial da produção acabada - CIPA)

- Cost of goods brought to completion whether they were started before or during the current accounting period

3. Cost of goods sold (or also cost of sales)

(custo industrial da produção vendida - CIPV)

- Cost of finished goods sold during the current accounting period

Differences between CGM ("CIPA") and CGS ("CIPV")

- CGM = cost of goods manufactured and available for sale in a given period
- CGM ("CIPA") goes to the warehouse of finished goods where it joins beginning finished goods inventory (goods available for sale but manufactured in previous periods)
- Stock available for sale = Beginning finished goods inventory + CGM
- Part of the stock available for sale will be sold (CGS or CIPV) and part will remain in the warehouse of finished goods to be sold in subsequent periods (Closing finished goods inventory)
- CGS (CIPV) goes to the Income Statement to cost of sales in the P&L account by function ("custo das vendas na DRF")

Profit & Loss Account by nature in Manufacturing Companies

"***(DRN de empresas industriais)"***

Changes in work-in-progress and finished goods inventories

(variação nos inventários da produção)

Information to be provided by Management Accounting

Variable and fixed costs

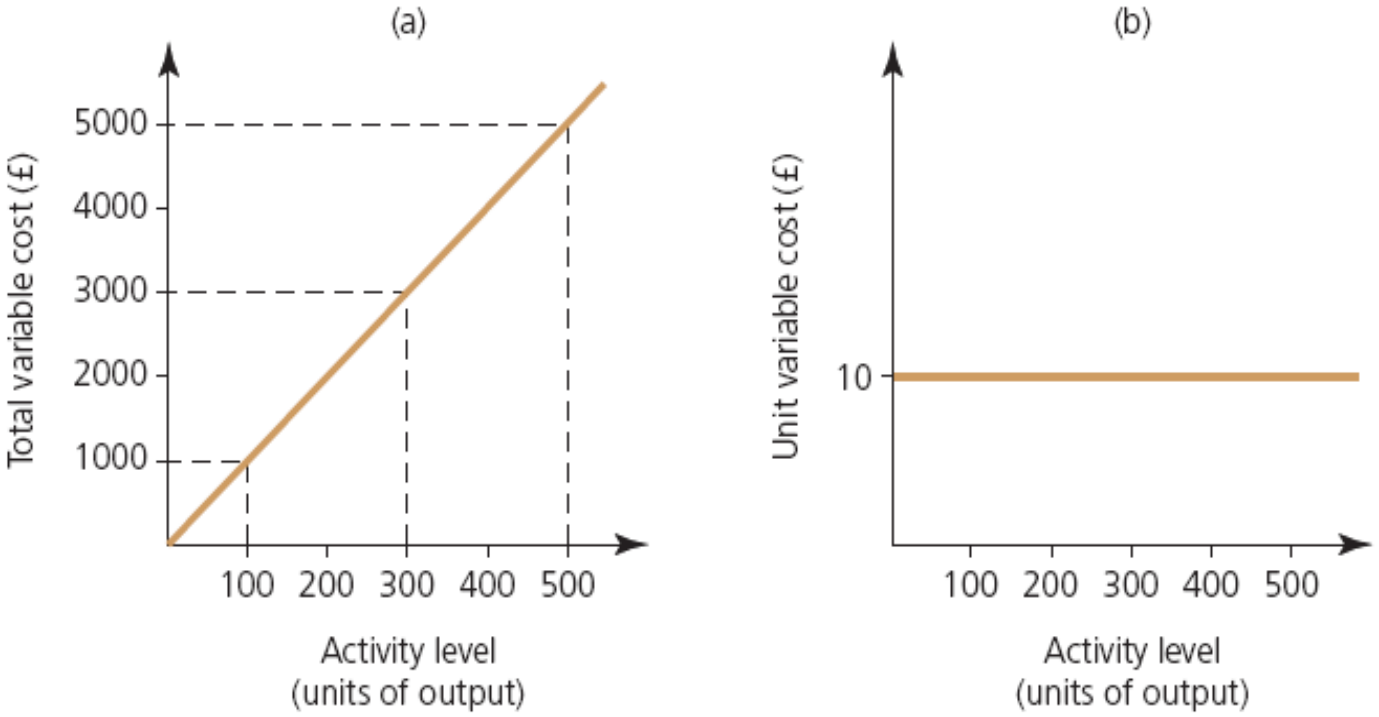
- Cost classification for predicting how costs behave

- Important to know how costs and revenues will vary with different levels of activity

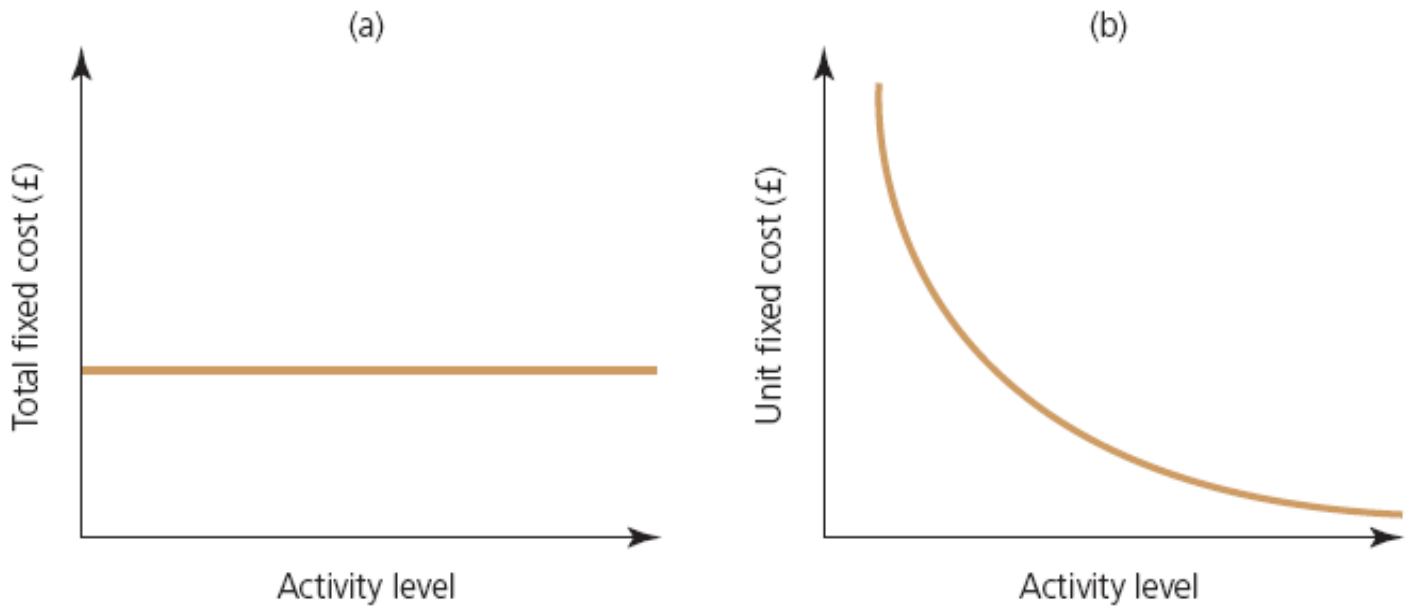
    - Variable costs vary in direct proportion with activity

    - Fixed costs remain unchanged in total for a given time period, despite changes in related level of activity

Note that the classification of costs depends on the time period involved. In the short term some costs are fixed, but in the long term all costs are variable.


(a)
Total variable cost (£)
5000
4000
3000
2000
1000
100 200 300 400 500
Activity level
(units of output)
(b)
Unit variable cost (£)
10
100 200 300 400 500
Activity level
(units of output)

(Drury, 2008)


(a)
Total fixed cost (£)
Activity level
(b)
Unit fixed cost (£)
Activity level

(Drury, 2008)

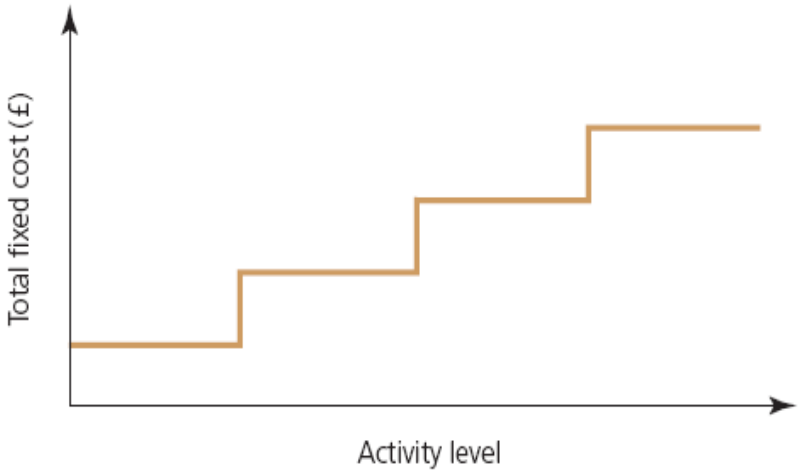
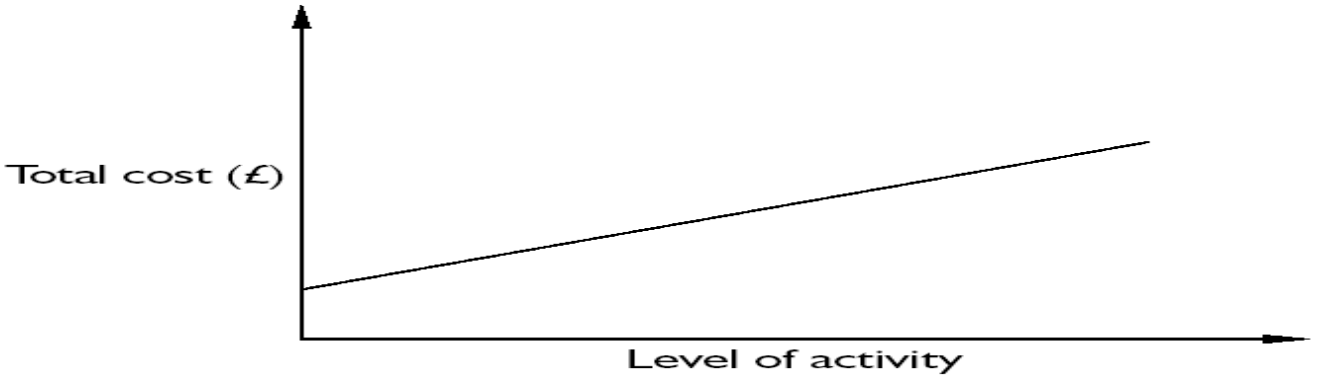


FIGURE 2.4
Step fixed costs

Semi-variable costs



(Drury, 2008)

Example:

Based on the classification for predicting cost behaviour, how usually each of the following costs is classified:

a) Depreciation of machinery
b) Piecework labour
c) Sales representatives' salaries
d) Salaries of supervisors
e) Advertising

Relevant and irrelevant costs

- Cost classification for decision-making

  - Relevant costs (and revenues) are those future costs (and revenues) that will be changed by a decision, whereas irrelevant costs (and revenues) are those that will not be changed by a decision

Note that the notion of sunk cost *(custo afundado)* is also important for decision-making, but not all irrelevant costs are sunk costs

Example

Materials previously purchased for £100 have no alternative use other than being converted for sale at a cost of £200. The sale proceeds after conversion would be £250.

	Do not Convert £	Convert £	
Materials	100	100	Irrelevant
Conversion costs	–	200	Relevant
Revenue	–	(250)	Relevant
Net cost	100	50	

Note that in the short term not all costs may be relevant for decision-making.

(Drury, 2008)

Opportunity cost

- Cost that measures the opportunity that is lost or sacrificed when the choice of one course of action requires that an alternative course of action be given up

- Vital for decision-making

Example
To produce product A requires that an order that yields €10.000 contribution to profits is rejected.

The lost contribution of €10.000 represents the opportunity cost of producing product A.

Incremental costs (revenues)

• Incremental costs (revenues) are the additional costs (revenues) from the production (or sale) of a *group* of additional units

Job and process costing systems

(relacionados com regimes de produção)

• A job costing system (*método de custeio por obra*) applies where each unit of product or service produced is unique (*regime de produção descontínua)* so that the cost of each unit must be calculated separately

• A process costing system (*método de custeio por processo*) applies in those situations where masses of identical units are produced (*regime de produção contínua)* so that it is unnecessary to assign costs to individual units of output

Part II

Inventory Valuation and Profit Measurement

- Cost assignment

Colin Drury

Management and Cost Accounting, 7th edition

- Pages 47 to 62 and 68 to 71 (in chapter 3)
- Pages 221 to 231 (in chapter 10)
- Chapter 4
- Pages 99 to 106 (in chapter 5)

Cost assignment

Objectives

- To distinguish between cause-and-effect and arbitrary cost allocations
- To distinguish between single and multiple overhead rates
- To compare traditional and activity-based costing systems

Assignment of direct and indirect costs

• As direct costs can be specifically/exclusively identified with a given cost object (e.g. a product), they can be accurately traced to cost objects

• Indirect costs cannot be directly traced to a cost object; therefore they are assigned to cost objects by the use of cost allocations

• Cost allocation = process of assigning costs to cost objects that involves the use of allocation bases (or cost drivers) rather than direct measures

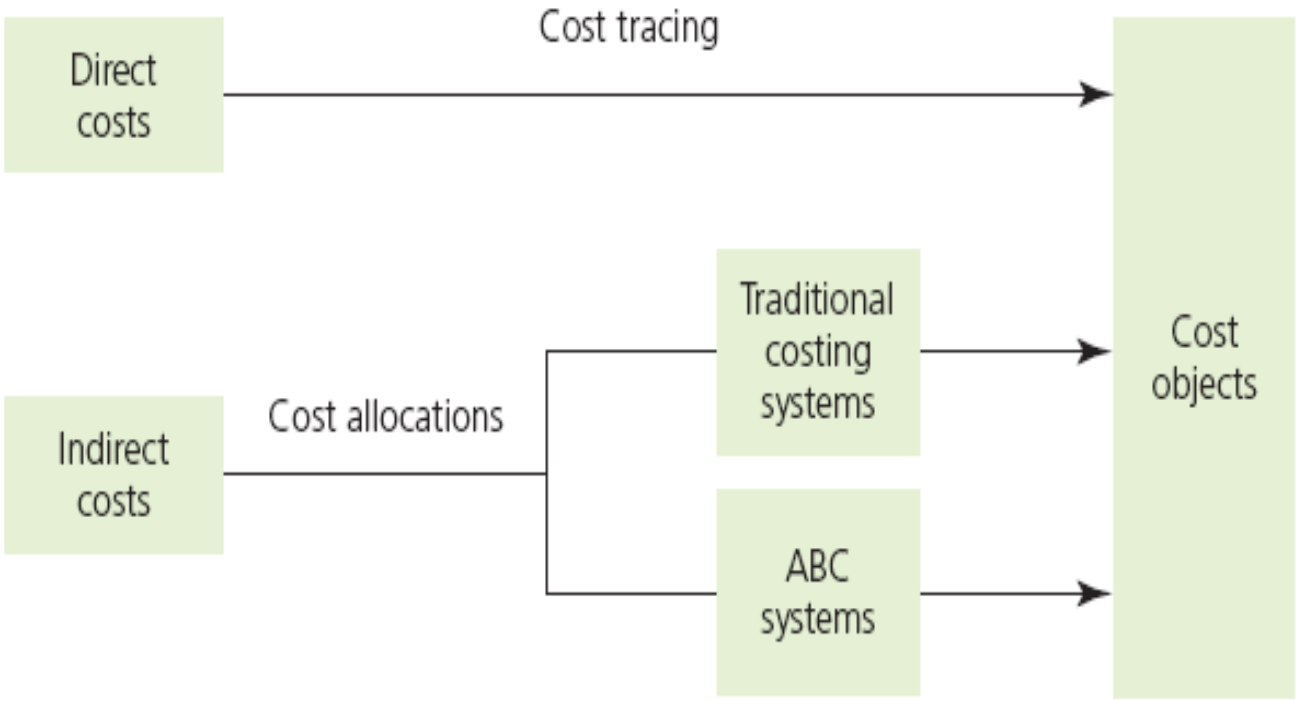
⇒ Cause-and-effect allocations

- Allocation bases are significant determinants of the costs
- Result in accurate cost assignment
- *Example*: the number of material receipts per product to allocate cost of receiving materials to products

versus

⇒ Arbitrary allocations

- Allocation bases are not significant determinants of the costs
- Result in inaccurate cost assignment


Direct costs
Cost tracing
Indirect costs
Cost allocations
Traditional costing systems
ABC systems
Cost objects

(Drury, 2008)

Some firms assign indirect costs to the products using a single overhead rate (i.e. blanket) for the organization as a whole

Example

Total overheads	=	£900 000
Direct labour (or machine hours)	=	60 000
Overhead rate	= £15 per hour	

This is the most simplistic traditional costing system

(Drury, 2008)

Review problem

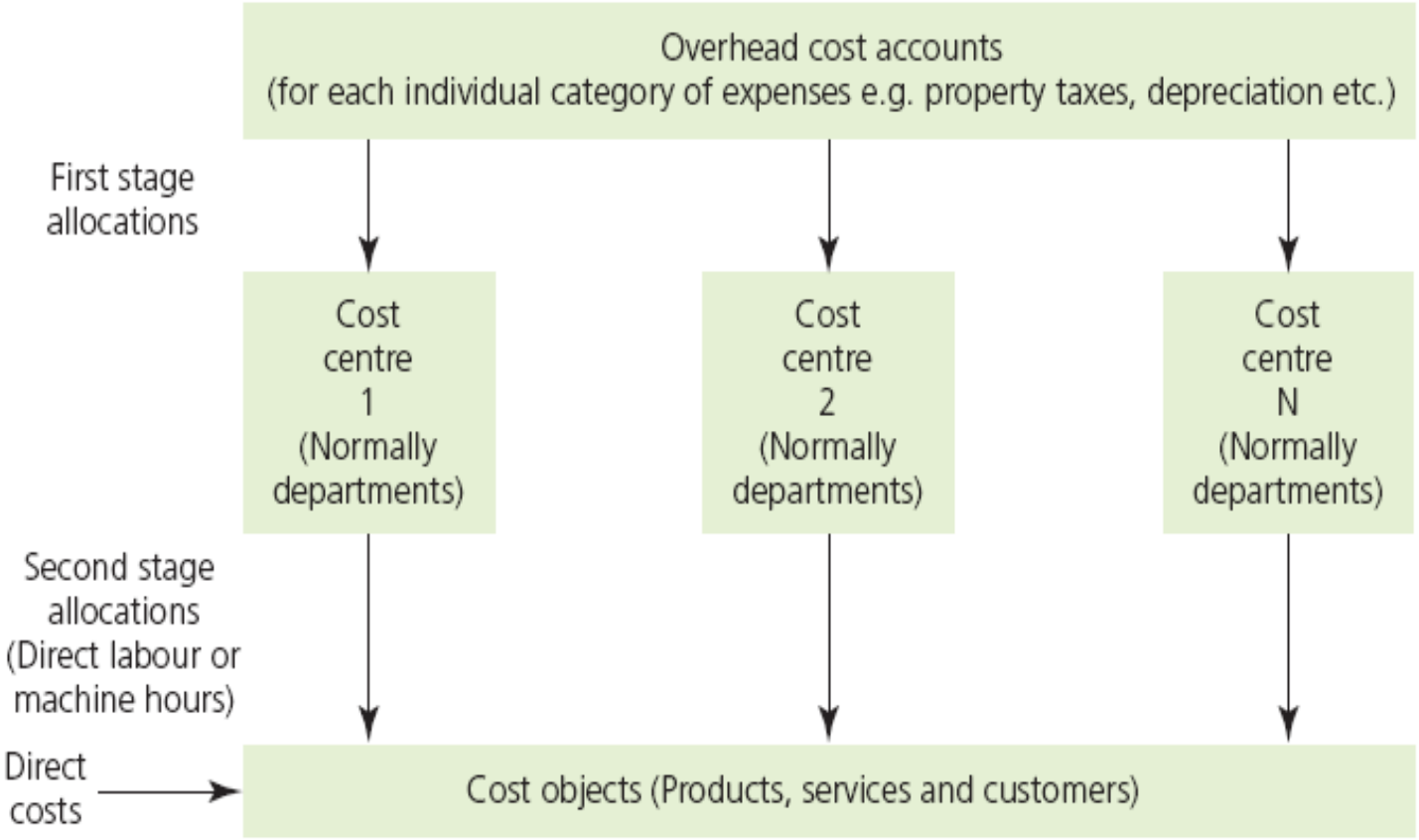
Imagine a company that operates a job costing system and allocates manufacturing overhead at the rate of 8,50€ per machine hour. In order to allow for non-manufacturing overhead and profit, 50% of prime cost is added to the manufacturing cost when the company prepares price estimates. The requirements of job number 808 are as follows:

Direct materials	10 000€
Direct labour	3 260€
Machine hours	140

1) Cost job number 808

2) Estimate the price notified to the customer for job number 808

(a) Traditional costing systems



(Drury, 2008)

• Assume that the same company has 3 separate departments, and costs and hours are analysed as follows:

	Dept. A	Dept. B	Dept. C	Total
Overheads	£200 000	£600 000	£100 000	£900 000
Direct labour hours	20 000	20 000	20 000	60 000
Overhead rate per DLH	£10	£30	£5	£15

• Product Z requires 20 hours (all in department C)

Blanket overhead rate charge	= £300 (20 hrs × £15)
Separate departmental overhead rate charge	= £100 (20 hrs × £5)

Separate departmental rates should be used since product Z only consumes overheads in department C.

(Drury, 2008)

- A single overhead rate can only be justified if all products consume departmental overheads in approximately the same proportions

- If a diverse range of products are produced consuming departmental resources in different proportions, separate departmental overheads rates should be established

Homogeneous Cost Pool Method as a sophisticated traditional costing system

"(*Método das Secções Homogéneas)"*

A cost centre* is callled an homogeneous cost pool whenever

- Its activities/tasks are homogeneous
- An individual is held responsible for its performance
- A unit of work (unidade de obra) of its activities can be identified for control and allocation of its costs to cost objects
  - if not possible, a unit of allocation *(unidade de imputação)* must be defined

* Normally a department

The allocation process for a traditional costing system*

Step 1 – Assign all manufacturing overheads to production and service cost centres**

Step 2 – Reallocate the costs assigned to service cost centres to production cost centres (*reembolsos*) through one of the following three methods:

1. Direct allocation method (*método de distribuição directa*)
2. Sequential allocation method (*método de distribuição sequencial*)
3. Repeated distribution/simultaneous equation method (*método das prestações recíprocas*)

* Such as the *Método das Secções Homogéneas* (see previous slide)

** Production cost centres = *secções industriais principais;* Service cost centres or also known as support departments = *secções auxiliares*

The allocation process for a traditional costing system* (cont.)

Step 3 – Computing separate overhead rates for each production cost centre

Step 4 – Assigning cost centre overheads to products or other chosen cost objects

* Such as the *Método das Secções Homogéneas* (MSH)

The allocation process for a traditional costing system(cont.)

Methods to reallocate the costs assigned to service cost centres to production cost centres (step 2)

1. Direct allocation method (*método de distribuição directa*)
   Costs of the service cost centres reallocated only to production cost centres

2. Step-down allocation method (*método de distribuição sequencial*)
   The service cost centre that renders the highest percentage of its total services to other service cost centres is closed first, and so on

3. Reciprocal allocation/simultaneous equation method (*método das prestações recíprocas*)
   Allocates costs by explicitly including the mutual services provided among all service cost centres

Example (adapted from Drury, 2008)

A company has three production departments and two service departments. The overhead analysis sheet provides the following totals of the overheads analyzed to production and service departments:

		(€)
Production department	A	48.000
	B	42.000
	C	30.000
Service department	1	14.040
	2	18.000
		152.040

The expenses of the service departments are apportioned as follows:

	Production departments			Service departments	
	A	B	C	1	2
Service department 1	20%	40%	30%		10%
Service department 2	40%	20%	20%	20%	

Use the simultaneous equation method (método das prestações recíprocas) to reallocate the costs assigned to service cost centres to production cost centres

Simultaneous equation method: example
(adapted from Drury, 2008)

x = Total overhead of service department 1

y = Total overhead of service department 2

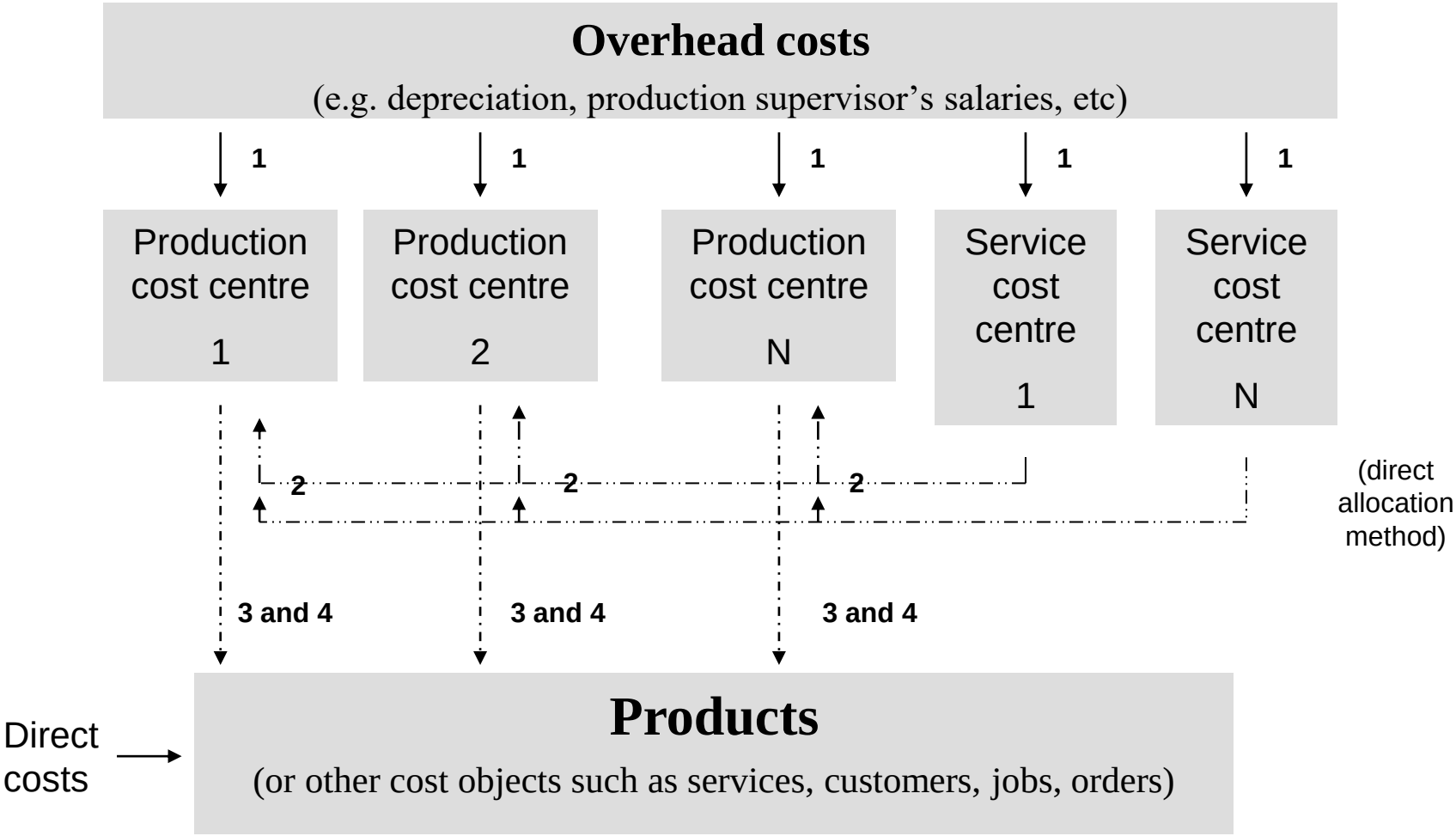
$$x = 14\,040 + 0{,}2\,y$$

$$y = 18\,000 + 0{,}1\,x$$

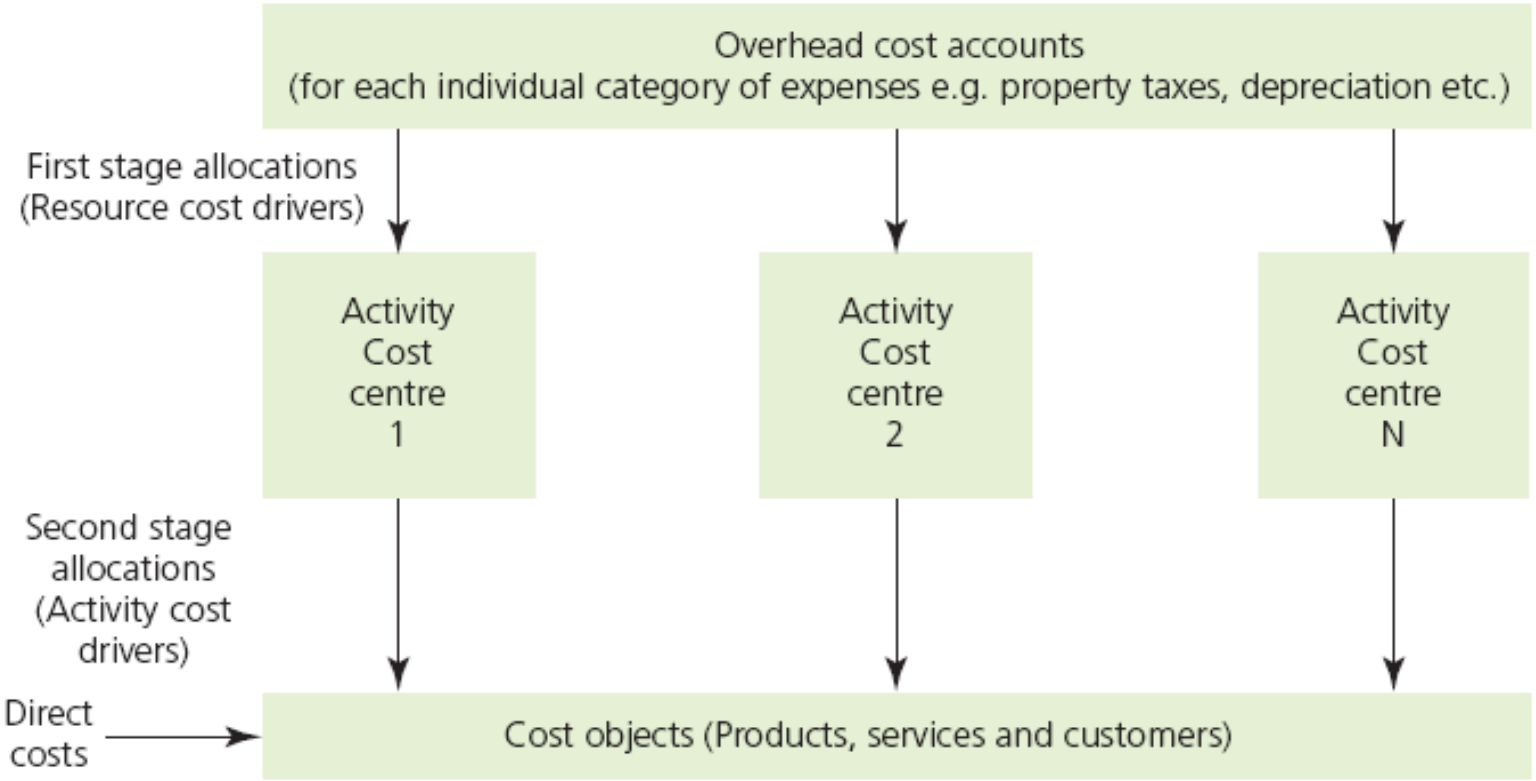
Thus, x = 18 000 and y = 19 800; then, we apportion these values to the production departments in the agreed percentages, as follows:

	Production departments			
	A	B	C	total
Allocation as per overhead analysis	48.000	42.000	30.000	120.000
Allocation of service department 1	3.600	7.200	5.400	16.200
Allocation of service department 2	7.920	3.960	3.960	15.840
total	59.520	53.160	39.360	152.040

In sum, traditional costing systems assign:



(b) Activity-based costing systems



(Drury, 2008)

Cost drivers = *geradores de custo*

A comparison of ABC and Traditional costing (TC) systems

- ✓ Both use a two-stage allocation process

- ✓ But ABC allocates overhead (indirect) costs to activities rather than departments, which normally represent cost centres with TCS
  - – Examples of activities: set-up machines, purchase materials, process customer orders

- ✓ Within the production process, activities cost centres are often identical to the cost centres used by TC systems
  - - Yet, ABC systems will normally have a greater number of cost centres

A comparison of ABC and TC systems (cont.)

- ✓ TC systems trace overheads to products using allocation bases which are often volume based (e.g. direct labour and machine hours)

- ✓ ABC systems use a greater number and variety of cost drivers
  - i.e. volume-based and non-volume-based second stage cost drivers
  - TC systems use arbitrary allocations to a significant extent whereas ABC systems rely mainly on cause-and-effect allocations

A comparison of ABC and TC systems (cont.)

- ✓ In TC systems, only manufacturing overheads are normally allocated to cost objects

- ✓ In ABC systems, both manufacturing and non-manufacturing overheads are assigned to cost objects

  - This is particularly useful for analysing product (client, etc) profitability

Traditional costing systems were adequate when:

1. Direct costs were the dominant costs in most companies
2. Overhead costs were relatively small
3. Information processing costs were high
4. There was no intense global competition
5. Most companies manufactured a narrow range of products

Designing ABC systems

1. Identifying the major activities taking place in an organization

2. Assigning (resources) costs to activity cost centres

3. Determining the cost driver for each major activity

4. Assigning the cost of activities to products (or other cost objects such as services, clients, etc)

ABC is a complex system; its implementation requires:

- ✓ Top management support
- ✓ Availability of adequate resources
- ✓ A multidisciplinary team
- ✓ Clear and consensual objectives
- ✓ Advanced information technology
- ✓ Selection of activities and cost drivers

Criticisms of ABC

- ✓ Significant cost and time of implementation
- ✓ ABC systems are expensive if very detailed
- ✓ ABC systems have to be regularly updated
- ✓ ABC results might not differ significantly from those produced by more simplistic costing systems, which are less expensive to operate

ABC in merchandising and service-sector organizations