

Chapter 7

A closer look at overhead costs

What are overhead costs?

- s For product costing, these are indirect product costs
- s For responsibility costing, these are indirect costs of responsibility areas
- s Manufacturing overhead costs
 - Ù All manufacturing costs other than direct material and direct labour

continued

What are overhead costs?

s Manufacturing overhead costs

- Ù Incurred for a variety of products that cannot be traced to individual products
- Ù Can be traced to individual product but it is not worth the trouble
- Ù Can be traced to individual produce but where it is more appropriate to treat this cost as a cost of all output

continued

What are overhead costs

- s Manufacturing overhead includes the cost of manufacturing support departments
- s Includes the cost of indirect material and indirect labour
- s Non-manufacturing costs are all costs incurred outside of manufacturing
 - Ù May be included in product costs for use in internal product-related decisions, but not for external reporting

Allocating indirect costs: general principles

s Using cost pools

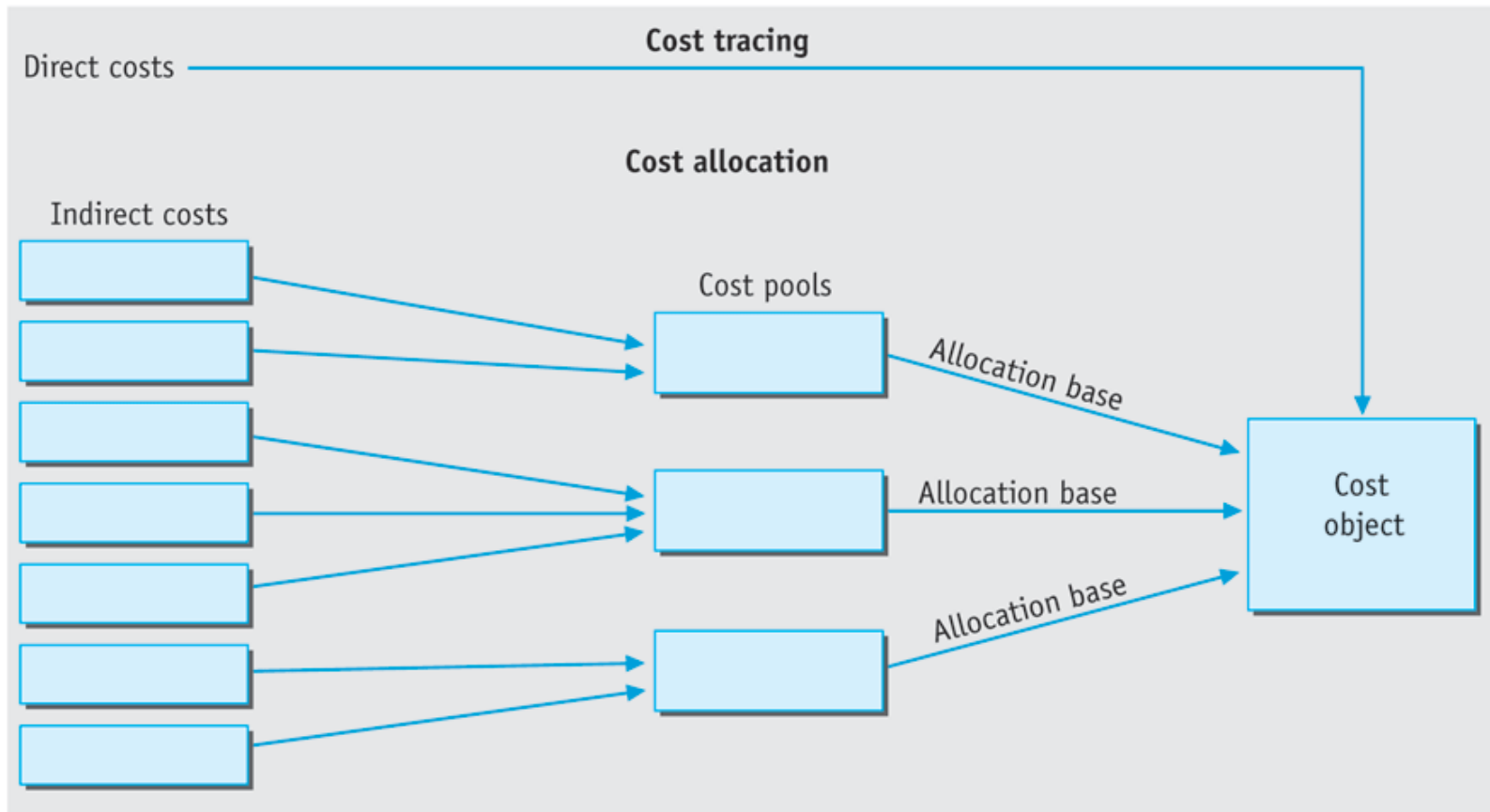
Ù Cost assignment can take two forms

- x Direct costs can be traced directly to products
- x Indirect costs cannot be traced to cost objects, so need to be allocated

Ù A cost pool is a collection of costs that are to be allocated to cost objects

- x Have a common allocation base
- x Often used to simplify the allocation process

EXHIBIT 7.1 Estimating the cost of a cost object



Allocating indirect costs: general principles

s Determining cost allocation bases

- Ù A cost allocation base is some factor or variable that allows us to allocate costs in a cost pool to cost objects
 - x Ideally should be a cost driver
- Ù A cost driver is an activity or factor that causes costs to be incurred
- Ù Ideally cost should increase or decrease in direct proportion to the allocation base (or cost driver)

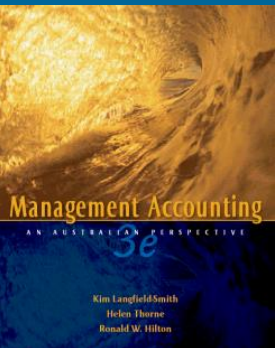


EXHIBIT 7.2 Allocation bases for indirect costs

Costs (or cost pools)	Allocation base (or cost driver)
Allocations to products	
Manufacturing overhead	Units of output Input measures, for example direct labour hours, machine hours, direct material cost
Allocations to responsibility centres	
Administration costs	Number of employees in centre
Occupancy costs	Floor area of centre
Marketing costs	Sales revenue generated by the centre
Information technology costs	Number of computer terminals in the centre Computer processing time in the centre
Human resources costs	Number of employees in the centre
Material-handling costs	Number of kilograms of material used in the centre

Allocating overhead costs to products

- s Reliable product costs are important in a range of management decisions
- s An important issue is how to allocate indirect costs to obtain a reliable estimate of a product's cost
- s Three possible approaches
 - Ù A plantwide rate
 - Ù Departmental rate, or
 - Ù Activity-based costing

continued

Allocating overhead costs to products

s Using a plant-wide rate

- Ù A plantwide rate is a single overhead rate that is calculated for the entire production plant
- Ù Identify the overhead cost driver
- Ù Calculate the overhead rate per unit of cost driver
- Ù Apply manufacturing overhead cost to product based on the predetermined overhead rate

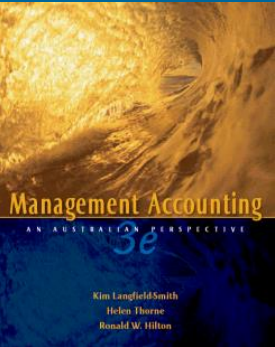
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Allocating overhead costs to products

- s Using departmental overhead rates to allocate overhead to products
- s Two-stage cost allocation for department overhead rates
 - Ù Stage one, where overhead cost are assigned to production department, and
 - Ù Stage two, overhead cost are applied to products

continued

Allocating overhead costs to products



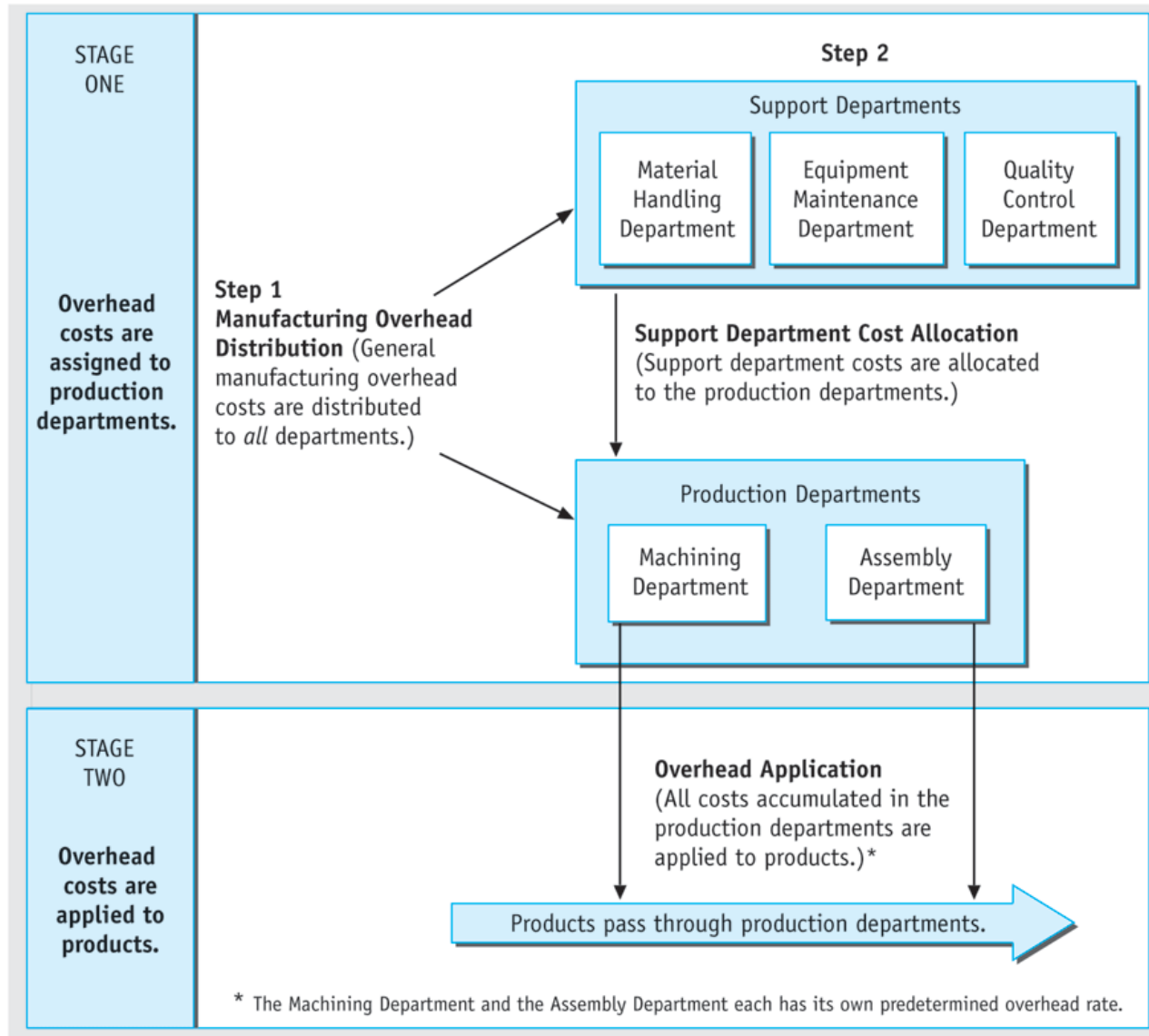
$$\text{Predetermined manufacturing overhead rate} = \frac{\text{Budgeted manufacturing overhead}}{\text{Budgeted level of cost driver}}$$

$$\text{Applied overhead} = \text{Predetermined overhead rate} \times \text{Quantity of cost driver consumed by the product}$$

Departmental overhead rates

- s Two-stage cost allocation process
 - Ù Overhead costs allocated to products via departments
 - x Overhead costs assigned to production and support departments
 - x Overhead costs applied to products
 - Ù Separate manufacturing overhead rates are calculated for each production department, using different cost drivers

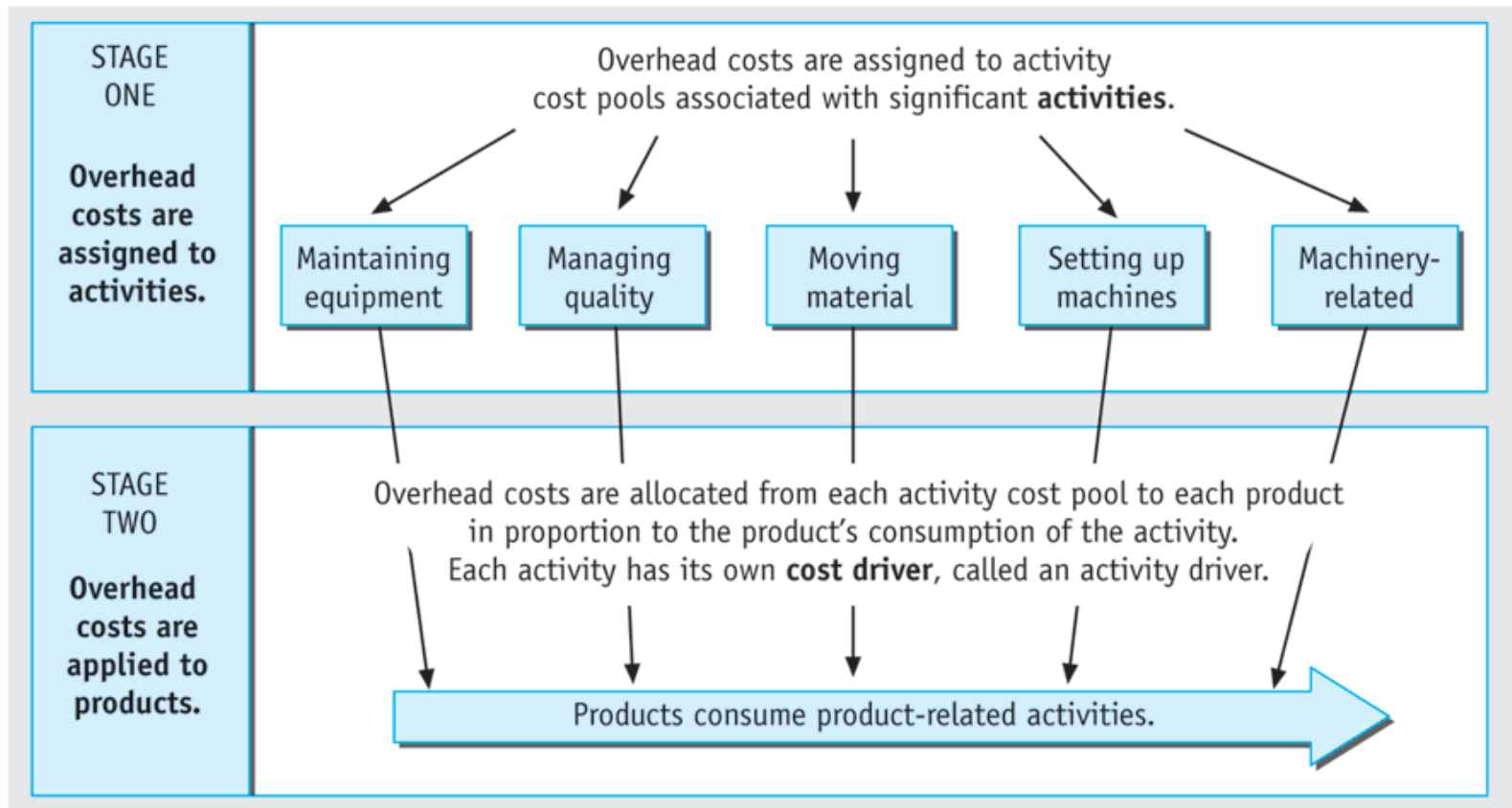
EXHIBIT 7.4 Developing departmental overhead rates using two-stage allocation



Activity-based costing to assign overhead costs

- s Focuses attention on the costs of activities required to produce a product or service
 - ↳ Overhead costs are assigned to activities
 - ↳ Activity costs are applied to products using a rate, based on the activity cost per unit of cost driver
- s Activities
 - ↳ A unit of work performance within the organisation

EXHIBIT 7.6 Activity-based costing for assigning overhead costs to products



Activity-based costing vs. two-stage allocation

s Departmental

- Ù Stage 1: allocation bases used are ideally determined by causal relationships

- Ù Stage 2: one cost driver per department, with cost drivers being measures of production

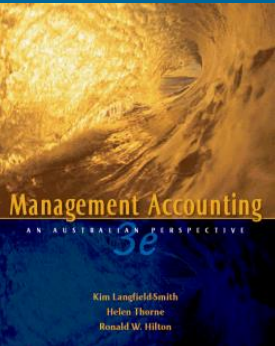
s Activity-based costing

- Ù Focuses on costs of activities

- Ù Many cost drivers which may be volume or non-volume related

Costs and benefits of alternative approaches

- s Plantwide and departmental overhead costing systems tend to overcost high-volume relatively simple products and undercost low-volume complex products
- s ABC systems are more complicated and costly to operate, but produce more accurate information for decision making



Issues in estimating overhead rates

- s Identifying overhead cost drivers
 - Ù What major factor causes manufacturing overhead to be incurred?
 - Ù To what extent does the overhead cost vary in proportion with the cost driver?
 - Ù How easy is it to measure the cost driver?

continued

Issues in estimating overhead rates

- s Volume-based cost drivers
 - Ù Include output and input drivers
 - Ù Need to select a cost driver that is common to all products
- s Non-volume-based cost drivers
 - Ù Need to be careful in assigning volume based cost driver to fixed costs
 - Ù Activity-based costing recognises both volume-based and non-volume-based cost drivers

continued

Issues in estimating overhead rates

- s Dual overhead rates: fixed and variable
 - U Helps managers understand their behaviour
 - U Variable costing: allocates only variable overhead costs to products
 - U Product costs will not differ if volume-based cost drivers are used to allocate both fixed and variable overhead overheads to products

Issues in estimating overhead rates

- s Budgeted vs. actual overhead rates
 - Ù Issue of timeliness and accuracy
 - Ù Budgeted: calculated prior to the commencement of the current year
 - Ù Actual: calculated after the end of the year

continued

Issues in estimating overhead rates

- s Over what period should overhead rates be set?
 - Ù Generally a year, as monthly rates tend to fluctuate too much with price changes and seasonal factors
 - Ù A normalised overhead rate smooths out fluctuations in overhead rates and product costs

continued

Issues in estimating overhead rates

- s Estimating the amount of cost driver: the effects of capacity
 - Ù Denominator volume: an estimate of the quantity of cost driver used to determine overhead rates
 - Ù Expected use: budget volume or normal volume
 - Ù Expected supply: theoretical capacity or practical capacity

Allocating indirect costs to responsibility centres

s Levels of cost allocation

- Û Corporate level: some head office costs are allocated to business units
- Û Within business units: administrative costs of business units may be allocated to operating units
- Û In the manufacturing plant: indirect manufacturing costs may be allocated to production departments

continued

Allocating indirect costs to responsibility centres

s Reasons

- Ù Helps managers understand the economic effects of their decisions
- Ù Encourages a particular pattern of resource usage
- Ù Supports the product costing system

continued

Allocating indirect costs to responsibility centres

s General principles

- Ù Ideally allocation bases will be cost drivers with clear and direct relationships between the amount of cost and the level of activity, other criteria include
 - x Benefits received
 - x Ability to bear
- Ù Using allocation bases that are not cost drivers needs to be handled with extreme caution

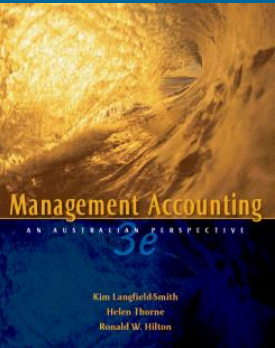
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Allocating indirect costs to responsibility centres

- s Using budgeted, not actual, allocation data will
 - Ù Minimise the possibility that the activities of one department will affect the costs allocated to other departments
 - Ù Provide better information for managers to plan and control their use of indirect resources

Support department costs to production departments

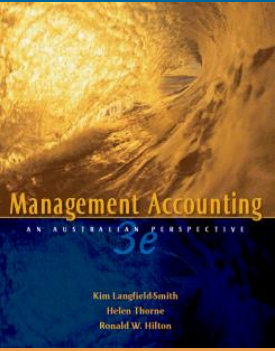
- s To inform users of the costs of using services, to assist in planning and control activities
- s To form part of the predetermined overhead rates used to cost products



Support department costs to production departments

s Allocation methods include

- Ù Direct: support departments costs are allocated directly to production departments
- Ù Step-down: partially recognises services provided by one support department to another
- Ù Reciprocal services: fully recognises the provision of services between support departments



Support department costs to production departments

s Which allocation method is best?

Ù Costs versus benefits

- x Consider allocation bases and their accuracy
- x Beware of arbitrary and inaccurate cost allocation

Ù Where reciprocal relationships are strong, the reciprocal services method may be more appropriate

continued

Support department costs to production departments

s Other issues

- Ù In service organisations there is no need to distinguish between production and non-production areas in determining the costs of service outputs
- Ù In flexible manufacturing systems individual products are performed within the one defined work area, so the need to allocate indirect production costs to products declines