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ACCA F5

Performance Management(PM)

绩效管理

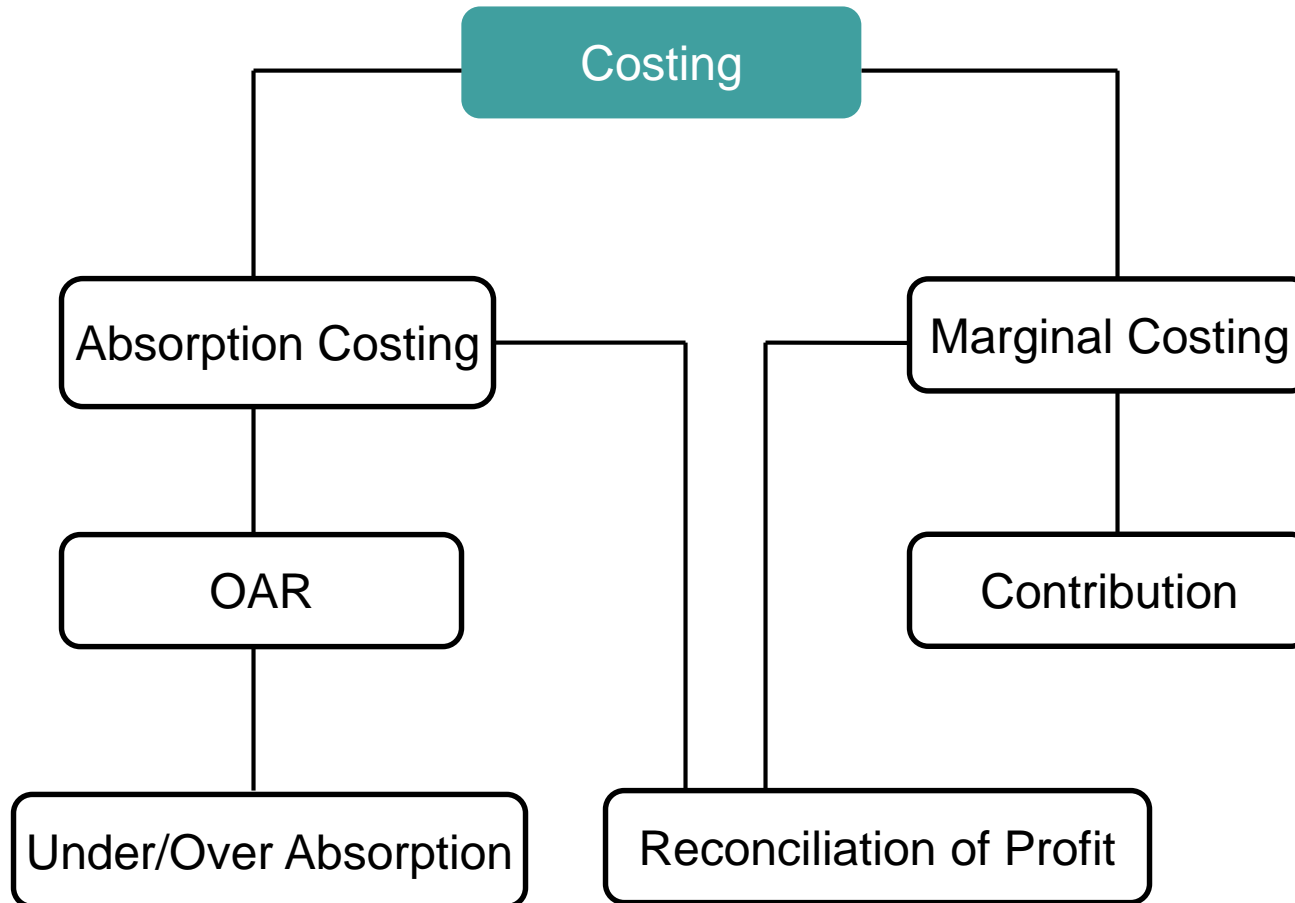
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Part A Specialist cost and management accounting techniques

Topic 1. Main costing method





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1. Absorption costing

1.1 Definition

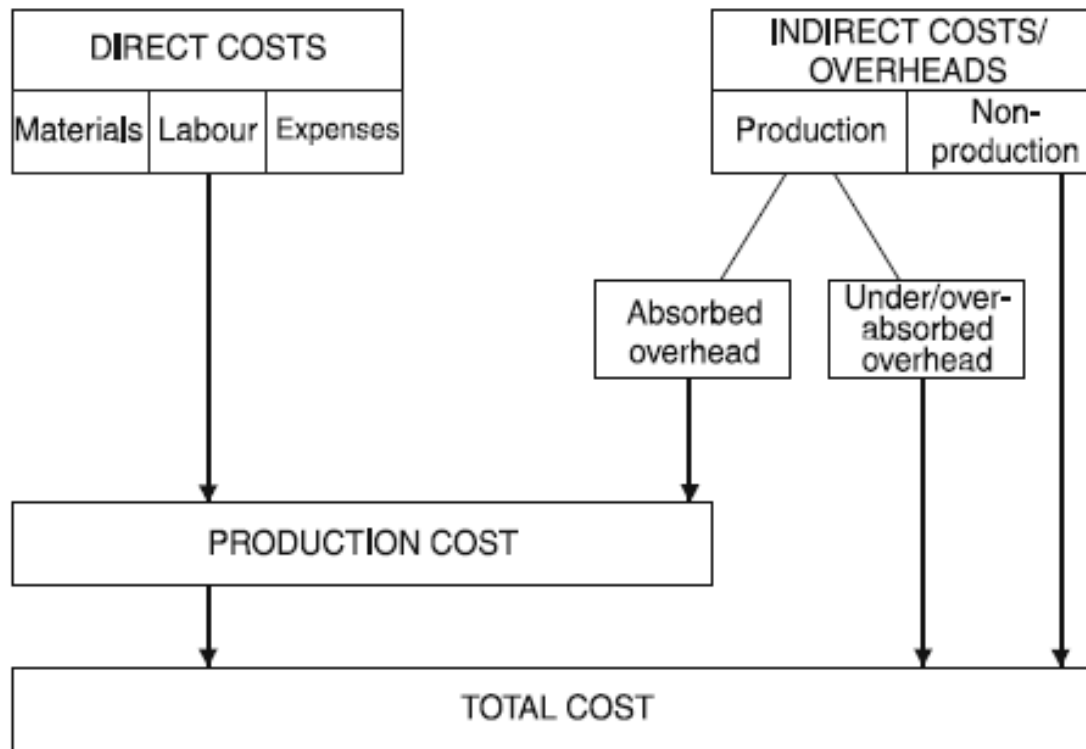
A method whereby **all** production costs are included in the costing of a cost unit, i.e. direct materials, direct labour, variable production overheads and fixed production overheads.

ISA2 requires an element of fixed production overhead to be 'absorbed' into product cost for inventory valuation purposes. All production costs are charged to units of production.



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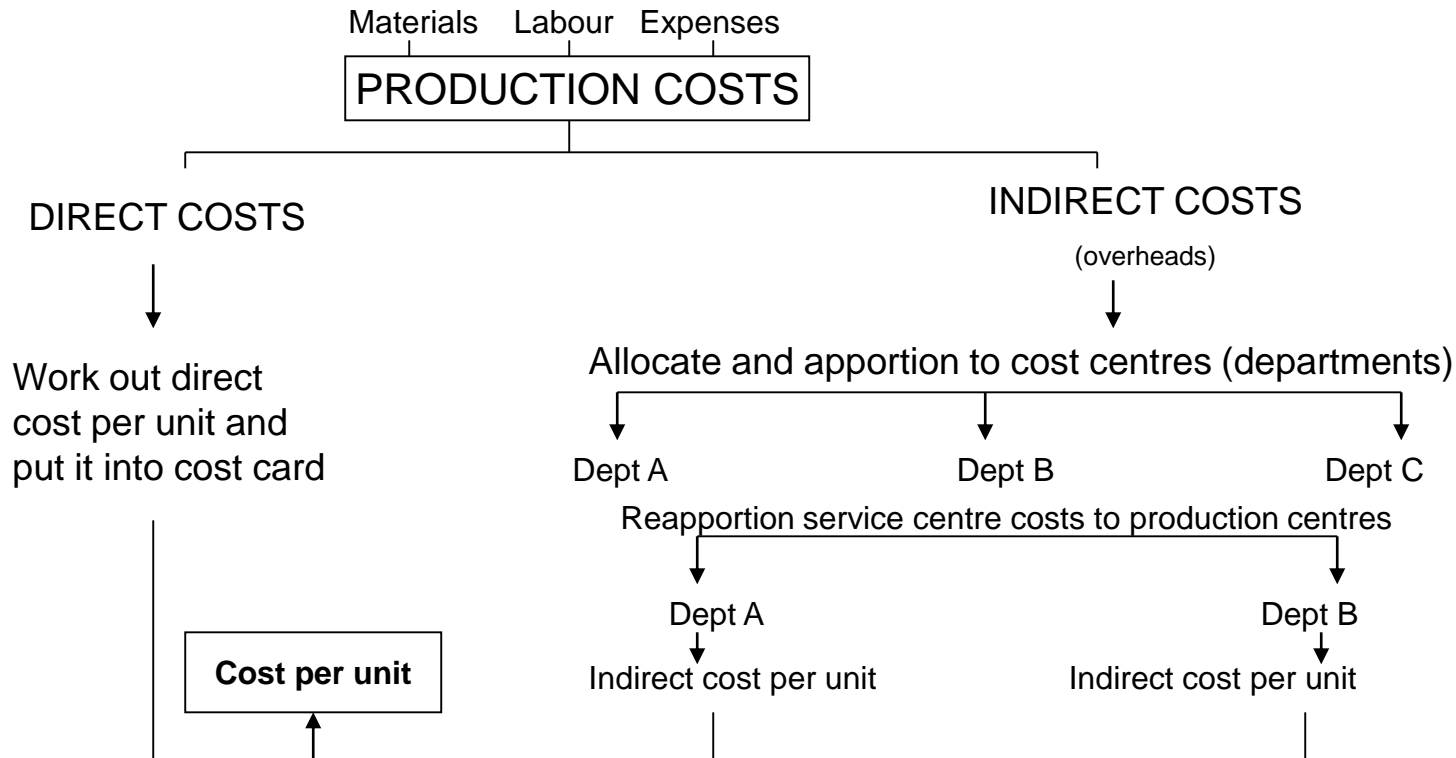
1.2 Logic of AC



Absorption costing cost accumulation system



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1.3 Application

1.3.1 Three Step Process:

- (1) Allocate/apportion overheads to cost centres
- (2) Re-apportion service centre costs to production cost centres
- (3) Absorb into production

1.3.2 OAR

$$\text{O.A.R} = \frac{\text{Estimated overhead costs}}{\text{Expected(normal)activity level}}$$



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For example:

Total overheads are \$20,000

(1) Allocate: Pressing & Packing supervisors and a chef	Total	Pressing	Packing	Canteen
	\$10,000	\$5,000	\$3,000	\$2,000
Apportion: Rent based on floor space \$10,000 across 1,000 m ²		500m ²	300m ²	200m ²
	\$10,000	\$5,000	\$3,000	\$2,000
(2) Re-apportion	Total	Pressing	Packing	Canteen
	\$	\$	\$	\$
Total production overheads	20,000	10,000	6,000	4,000
Split canteen based on No. employees (80% pressing, 20% packing)		<u>3,200</u>	<u>800</u>	<u>(4,000)</u>
	20,000	13,200	6,800	(4,000)



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	Pressing	Packing
DVD	1 hr	$\frac{1}{4}$ hr
CD	$\frac{1}{2}$ hr	$\frac{1}{4}$ hr

	Pressing	Packing
Produce 10,000 DVDs	10,000 labour hours	2,500 labour hours
Produce 10,000 CDs	<u>5,000</u> labour hours	<u>2,500</u> labour hours
	<u>15,000</u> labour hours	<u>5,000</u> labour hours

OAR

Pressing = $\$13,200 / 15,000$ labour hours = $\$0.88/\text{hr}$

Packing = $\$6,800 / 5,000$ labour hours = $\$1.36/\text{hr}$



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So,

DVD OAR:

Pressing (1hr*\$0.88) = \$0.88

Packing (1/4hr*\$1.36) = \$0.34

\$1.22

CD OAR:

Pressing (1/2hr*\$0.88) = \$0.44

Packing (1/4hr*\$1.36) = \$0.34

\$0.78



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1.4 Over-/under-absorption

1.4.1 Definition: Over- or under-absorbed overhead occurs when overheads incurred **do not equal** overheads absorbed.

Over-absorption means that the overheads charged to the cost of production or sales are **greater than** the overheads actually incurred.

Under-absorption means that **insufficient** overheads have been included in the cost of production or sales.

Over-absorption: absorbed OH > actual OH

Under-absorption: absorbed OH < actual OH

$$\boxed{\text{OAR} * \text{activity level}}$$



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OAR * actual activity

Under/Over Absorption

Actual overhead expenditure
Amount of overhead absorbed
Under/Over absorption

\$
X
(X)
X/(X)

1.4.2 Reasons for under-/over-absorption

- **Expenditure variance** – Actual overhead expenditure differed from budgeted overhead expenditure.
- **Volume variance** – Actual production activity differed from expected (normal) activity level.



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1.4.3 Statement of AC

AC			
Sales		1	
Less:			
Cost of sales		(2)	
Production/factory cost(full cost)			3
Add:openign stock(full cost)			4
Less:closing stock(full cost)			(5)
			<u>2</u>
(Under)/over-absorbed		6	
Gross profit		<u>7</u>	
Less:			
Variable non-production cost		(8)	
Fixed non-production cost		(9)	
Net profit		<u>10</u>	



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2. Marginal costing

2.1 Definition:

- **Marginal cost** is the cost of one unit of a product/service which could be avoided if that unit were not produced/provided.
- **Contribution** is the difference between sales revenue and variable (marginal) cost of sales.
- **Marginal costing** is an alternative to absorption costing. **Only variable costs** (marginal costs) are charged as a cost of sales. Fixed costs are treated as period costs and are charged in full against the profit of the period in which they are incurred.



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Contribution

- (a) Selling price per unit - all variable costs per unit
- (b) Fixed costs + profit

$$\begin{aligned}\text{Profit} &= (\text{sales} - \text{VC}) - \text{FC} \\ &= \text{contribution} - \text{FC} \\ \text{So, contribution} &= \text{FC} + \text{profit}\end{aligned}$$



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2.2 Statement of MC

MC		
Sales	1	
Less:		
Cost of sales	(2)	
Production/factory cost(variable cost)		3
Add:openign stock(variable cost)		4
Less:closing stock(variable cost)		(5)
		2
Variable non-production cost	(6)	
Contribution	7	
Less: Fixed cost(in full, both production and non-production)	(8)	
Net profit	9	



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3. Difference between AC and MC

Difference in net profit = **OAR * movement in inventory**

Example:

Movement in inventory of Year 1 : **0 → 200**

Inventory ↑, so AC is larger

The difference = \$2/unit * 200 units = \$400



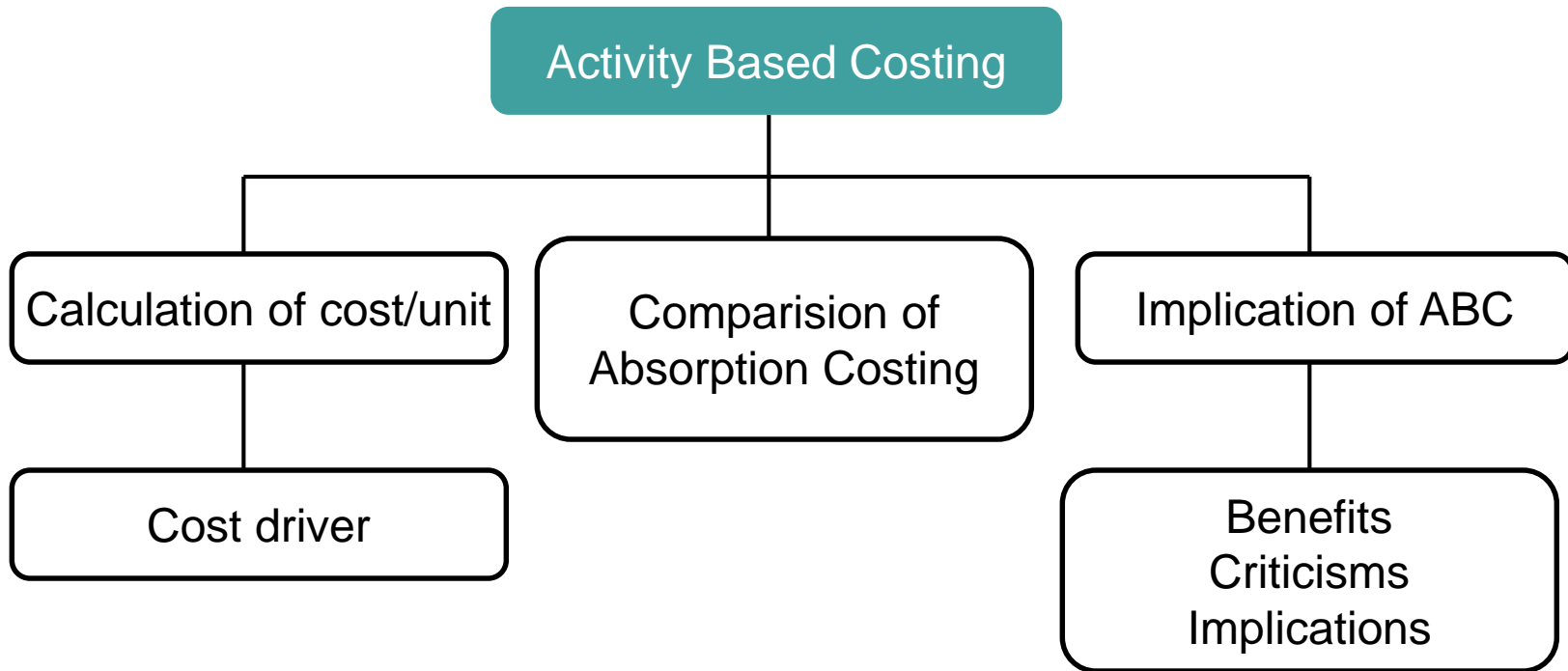
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But in the long run, total profit for a company will be the same whichever costing method is used, because in the long run total costs will be the same by either method of accounting. The different costing methods merely affect the reported profit for individual accounting periods.



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Topic 2. Activity based costing





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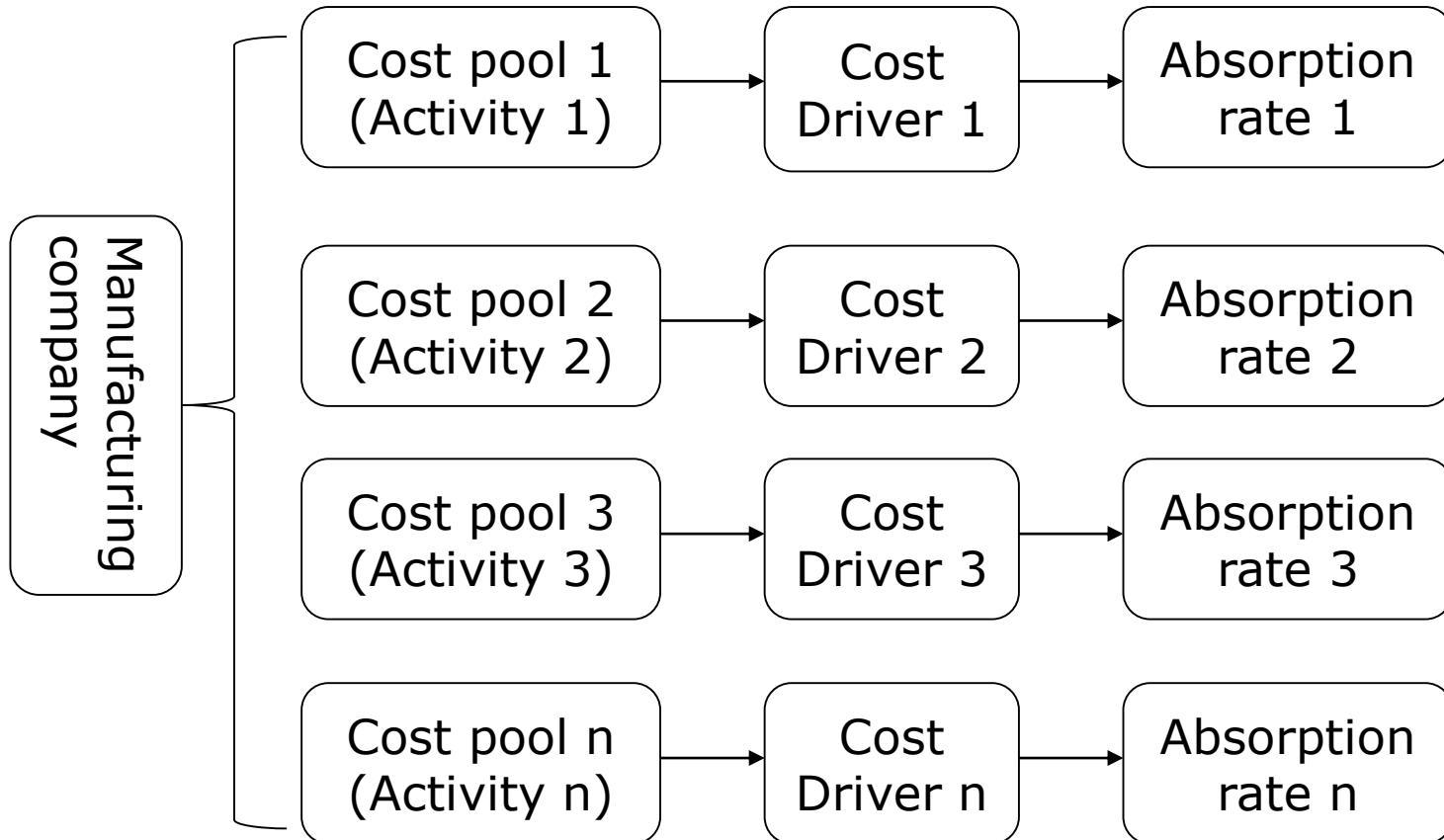
1. Definition:

Activity based costing (ABC) is an alternative to traditional absorption costing as a method of costing.

ABC involves the identification of the factors (**cost drivers**) which 'cause' or 'drive' the costs of an organisation's major activities. Overheads are allocated and apportioned to activity **cost centres or 'cost pools'**. From these activity cost centres, the overhead costs are then absorbed into the product costs on the basis of their **usage of the activity**. **The absorption rate for each activity** is a rate per unit of the relevant cost driver.



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2. Steps of ABC

- identify the **major activities** that give rise to overheads (e.g. machining; despatching of orders)
- determine what causes the cost of each activity – **the cost driver** (e.g. machine hours; number of despatch orders)
- calculate the **total cost** for each activity – the cost pool (e.g. total machining costs; total costs of despatch department)
- calculate an **absorption rate** for each cost driver
- calculate the **total overhead cost** for each product manufactured
- calculate the overhead **cost per unit** for each product



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Example: (AC & MC)

Dodo Ltd manufactures 3 products, A, B and C. Data for the period just ended is as follows:

	A	B	C
Output (units)	20,000	25,000	2,000
	\$/units	\$/units	\$/units
Sales price	20	20	20
Direct material cost	5	10	10
Labour hours/unit	2	1	1
Wages paid at \$5/hr			

Total production overheads for Dodo Ltd amount to \$190,000.



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(a) Calculate the profit per unit obtained on each product if production overheads are absorbed on the basis of labour hours (Traditional Absorption Costing).

	A	B	C
	\$	\$	\$
Product cost:			
Direct materials	5	10	10
Direct labour	<u>10</u> 2 hr/unit * \$5/hr	<u>5</u> 1 hr/unit * \$5/hr	<u>5</u> 1 hr/unit * \$5/hr
	15	15	15
Overheads:	<u>5.67</u> 2 hr/unit * \$2.836/hr	<u>2.84</u>	<u>2.84</u>
Total product cost	20.67	17.84	17.84
Sales price	<u>20</u>	<u>20</u>	<u>20</u>
Profit	<u>(0.67)</u>	<u>2.16</u>	<u>2.16</u>



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Workings:

OAR= estimated overhead costs/expected (normal) activity level

$$=\$190,000/67,000\text{hrs}=\$2.836/\text{hr}$$

	A	B	C	Total
Labour hours per unit	2	1	1	
Production	<u>20,000</u>	<u>25,000</u>	<u>2,000</u>	
Total labour hours	<u>40,000</u>	<u>25,000</u>	<u>2,000</u>	<u>67,000</u>



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The following data is now also available:

	\$	
Maching	55,000	
Quality control and set-up costs	90,000	}
Receiving	30,000	
Packing	<u>15,000</u>	
	<u>190,000</u>	

These are known as cost pools

	A	B	C
Output (units)	20,000	25,000	2,000
Cost driver data			
Labour hours/unit	2	1	1
Machine hours/unit	2	2	2
No. of production runs	10	13	2
No. of component receipts	10	10	2
No. of customer orders	20	20	20



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(b) Using ABC, show the cost and gross profit per unit for each product during the period and contrast with the profit calculated using absorption costing.

Step 4: Calculate a cost per unit of cost driver

(1) Machine:

	A	B	C	Total
Machine hours per unit	2	2	2	
Production	<u>20,000</u>	<u>25,000</u>	<u>2,000</u>	
Total machine hours	<u>40,000</u>	<u>50,000</u>	<u>4,000</u>	<u>94,000</u>

Cost per unit = \$55,000/94,000 hrs = \$0.585/hrs

Machine costs	<u>23,404</u>	<u>29,255</u>	<u>2,341</u>	<u>55,000</u>
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(2) Quality control and set-up costs:

	A	B	C	Total
No. of production runs	10	13	2	25
Cost per unit = \$90,000/25 runs = \$3,600/run				
Quality control and set-up costs	36,000	46,800	7,200	90,000

(3) Receiving

	A	B	C	Total
No. of component receipts	10	10	2	22
Cost per unit = \$30,000/22 receipt = \$1,363.64/receipt				
Receiving costs	13,636	13,636	2,728	30,000



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(3) Packing

	A	B	C	Total
No. of customer orders	20	20	20	60
Cost per unit = \$15,000/60 orders = \$250/order				
Packing costs	5,000	5,000	5,000	15,000

	A	B	C
Total	\$ 78,000	\$ 94,691	\$ 17,269
Unit	20,000	25,000	2,000
Cost per unit	\$ 3.90	\$ 3.79	\$ 8.63



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Absorb activity costs into production based on usage of cost drivers

	A	B	C
	\$	\$	\$
Product cost:			
Direct materials	5	10	10
Direct labour	<u>10</u>	<u>5</u>	<u>5</u>
	15	15	15
Overheads:	<u>3.90</u>	<u>3.79</u>	<u>8.63</u>
Total product cost	18.90	18.79	23.63
Sales price	<u>20</u>	<u>20</u>	<u>20</u>
Profit	<u>1.10</u>	<u>1.21</u>	<u>(3.63)</u>



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Product	AC \$	ABC \$	Difference per unit \$	Difference in total \$
A	20.67	18.90	-1.77	-35,400
B	17.84	18.79	+0.95	+23,750
C	17.84	23.63	+5.79	+11,580



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3. Reasons for development of ABC

- product ranges: narrow→wider
- product technology: Advanced Manufacturing Technology(AMT)
- information processing cost: high→lower
- non-volume related activities: little→more



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How to expand your answer:

Q: why the ABC has been developed?

-what is ABC (and AC):

Activity based costing (ABC) is an alternative to traditional absorption costing as a method of costing.

-product ranges: narrow→wider

With the repaid changes in demand, the ranges of product has been expanded and the operation of the production has been more complex. It means that the traditional absorption costing, which only absorbed the OH on a simple base cannot represent the actual OH of a product.



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-product technology: Advanced Manufacturing Technology(AMT)

The OH costs have become a much larger proportion of total production costs with the advent of advanced manufacturing technology. This means that direct labor hours cannot provide a realistic basis for absorbing OH any more.

-information processing cost: high→lower

The falling costs of information processing have also made it possible to switch to a different and more complex system for accumulating and analysing OH and ABC is cost effective.



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-non-volume related activities: little→more

Non-volume related activities like the setting up production runs, production scheduling and inspection, are not affected by changes in production volume and they tend to vary in the long term according to the range and complexity of the products manufactured, rather than the volume of output. So the costs due to the level of non-volume related activities can not be absorbed based on the direct labor hours, which is regular in traditional absorption costing.



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4. Advantages & disadvantages of ABC:

Benefits of ABC

- (1) Cost control and reduction by the efficient management of cost drivers
- (2) Better costing information used to assist pricing decisions
- (3) Re-analysis of production and output/product mix decisions
- (4) Profitability analysis (by customer, product line etc)
- (5) A more realistic estimate of costs and profits which can be used in performance appraisal

Criticisms of ABC

- (1) It is time consuming and expensive
- (2) Will be of limited benefit if overhead costs are primarily volume related
- (3) Reduced benefit if the company is producing only one product or a range of products with similar costs
- (4) Complex situations may have multiple cost drivers
- (5) Some arbitrary apportionment may still exist



Part A Specialist cost and management accounting techniques

Topic 3. Target costing

1. Definition:

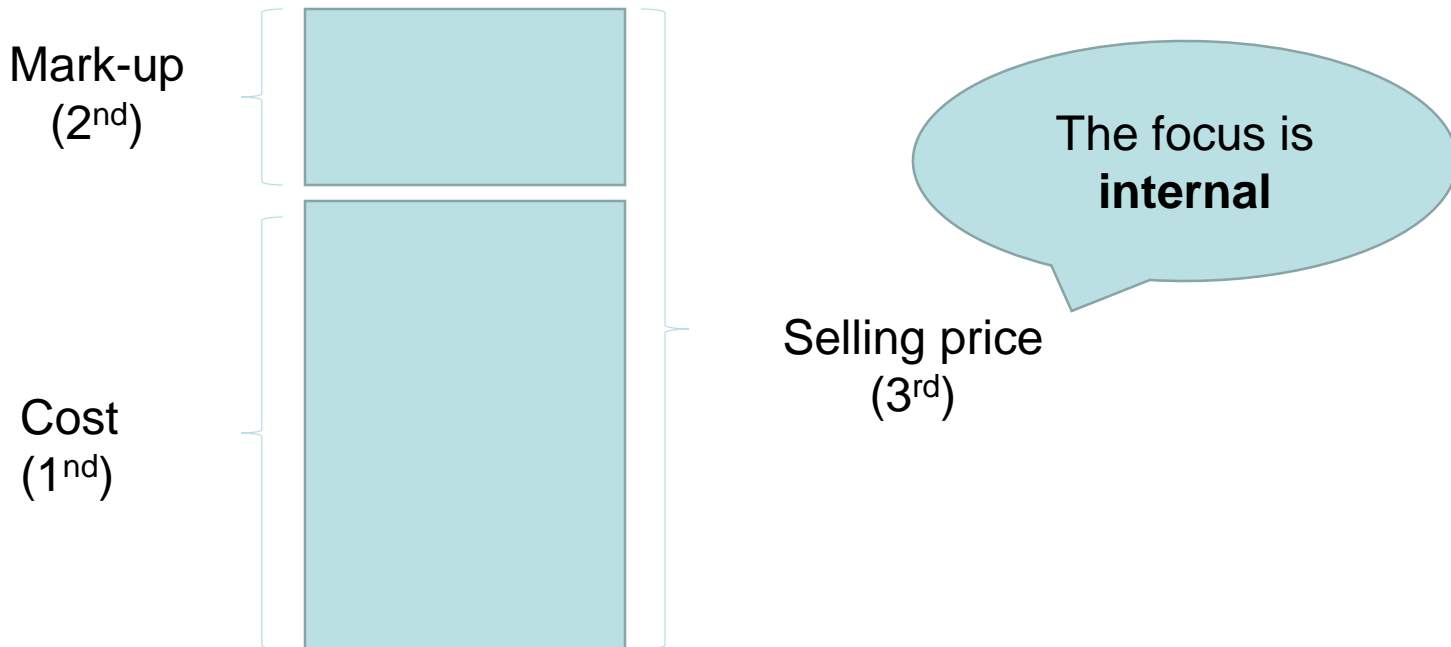
Target costing involves setting a target cost for a product, having identified **a target selling price** and **a required profit margin**. The target cost is **the target sales price minus the required profit**.



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Traditional

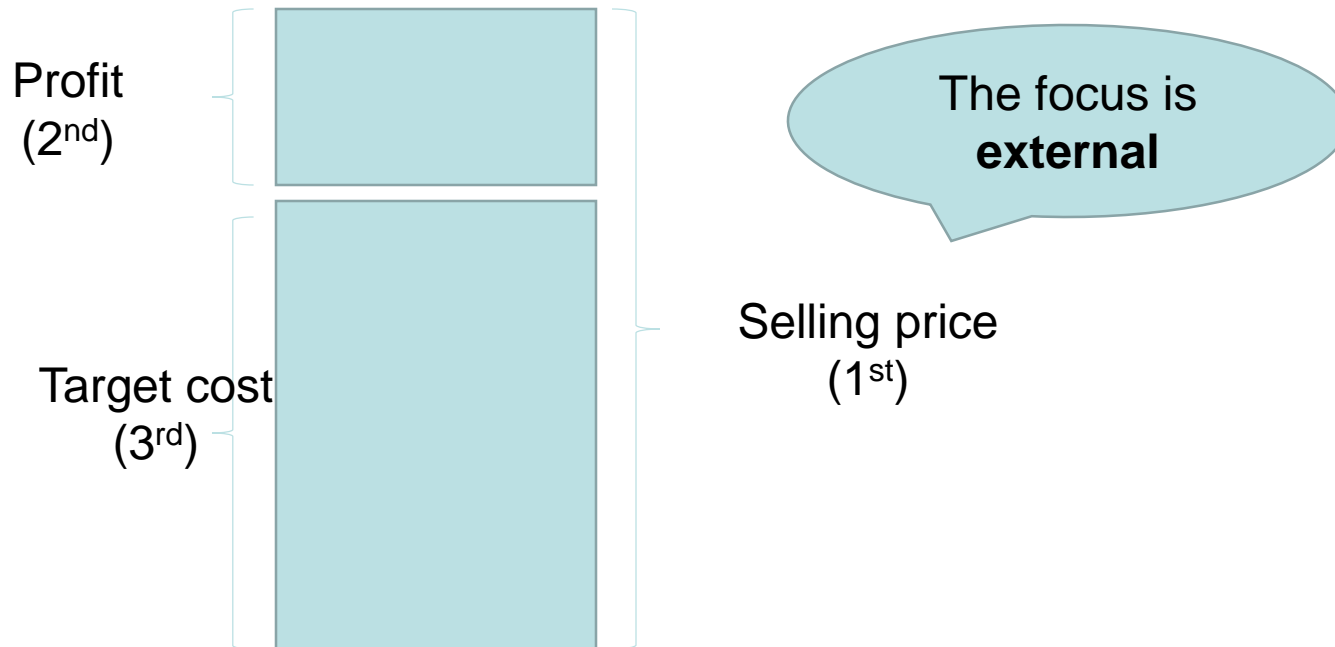
Cost plus pricing





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Target Costing





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2. Steps

- From research of the market determine a selling price at which the company expects to achieve the desired market share (the target selling price)
- Determine the profit required (e.g. a required profit margin, or a required return on investment)
- Calculate the maximum cost p.u. in order to achieve the required profit (the target cost)
- Compare the estimated actual costs with the target cost. If the actual cost is higher than the target cost then look for ways of reducing costs. If no way can be found of meeting the target cost then the product should not be produced.



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- competitive market price & expected market share
- required profit
- target cost(maximum cost)
- reduce the gap



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Target cost = Target selling price - Target profit

Target cost gap = estimated cost (projected cost) - target cost

Nowadays cost reduction is increasingly considered at the design stage of a product rather than during the production process

Mark-up 成本加成 margin 边际利润

Selling price=100, (1)margin rate=10%; (2)mark-up rate=10%

Cost? ?

$$(1)\text{cost}=100*(1-10\%)=90$$

$$(2)\text{Cost}=100/(1+10\%)=90.91$$



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3. How to Close the Cost Gap?

- Choose a cheaper material without compromising quality
- Reduce labor cost without affecting quality
- Improve productivity
- Eliminate non-value added activities
- Automation



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4. Target costing in service industry

The characteristic of service industry

- Intangibility
- Inseparability / Simultaneity
- Variability / heterogeneity
- Perishability
- No transfer of ownership



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- S company is a manufacturer of multiple products and uses target costing. It has been noted that Product P currently has a target cost gap and the company wishes to close this gap. Which of the following may be used to close the target cost gap for Product P?
B
- A Use overtime to complete work ahead of schedule
- B Substitute current raw materials with cheaper versions
- C Raise the selling price of P
- D Negotiate cheaper rent for S Company' s premises



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- Paul considers producing a new range of toys. He believes he can sell for \$30 by demanding a margin of 25% on sales.
- cost of material:
- cotton-good quality of cotton is essential-Paul acquires this at cost of \$5
- Fabric-1m² of fabric at a cost of \$15,one toy needs half of m²
- labor-one toy takes 1.5 hours. Labor is paid at the rate of \$5/hour
- Variable overhead-these will be incurred at the rate of \$2.5per labor hour
- *Required:*
- Calculate the target cost of the new range of toy and identify the cost gap



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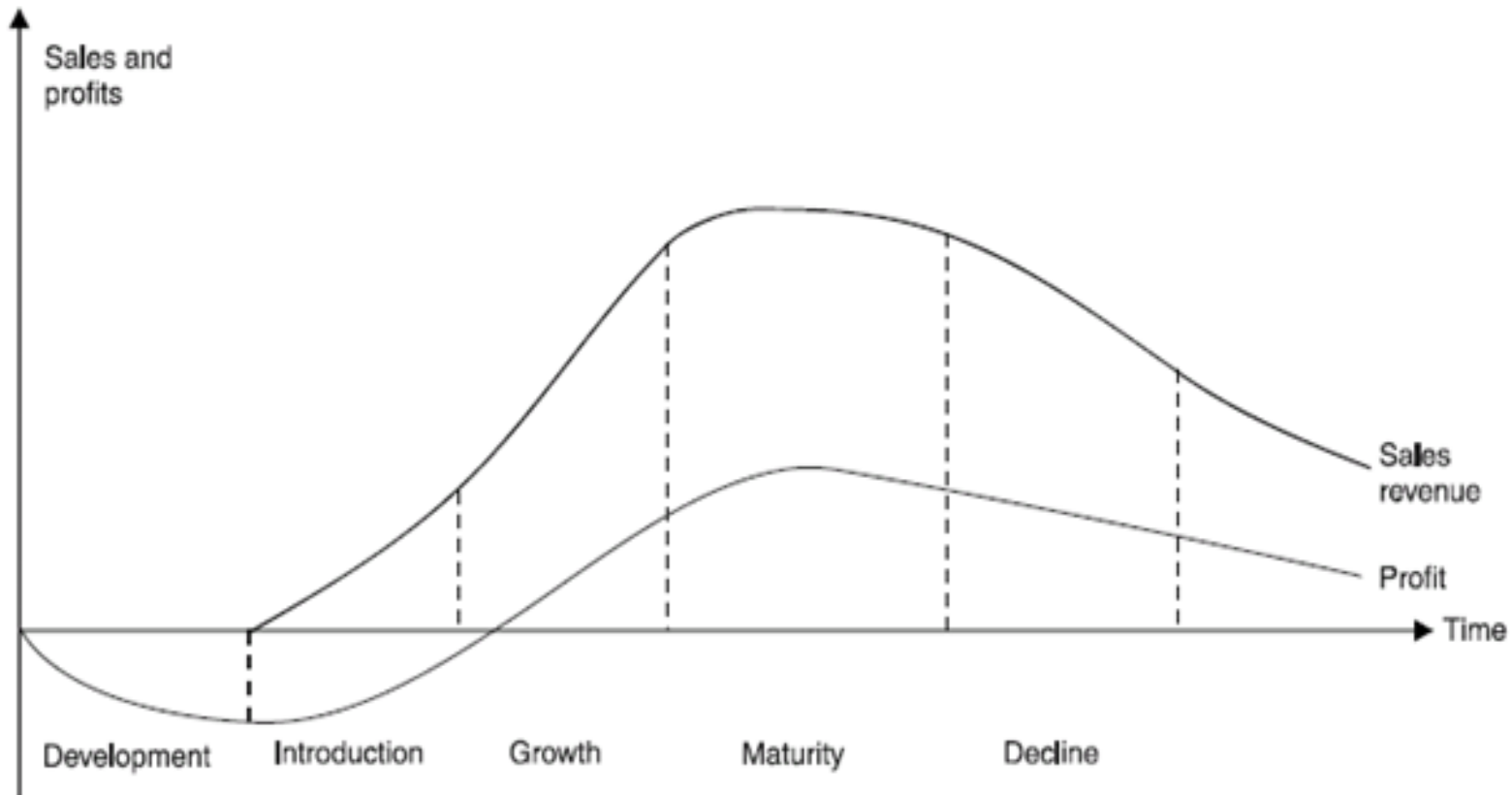
- Target cost = $\$30 * (1 - 25\%) = 22.5$
- Estimated cost = $5 + 15/2 + 1.5*5 + 2.5*1.5 = 23.75$
- Gap = $23.75 - 22.5 = 1.25$



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Topic 4. Life-cycle costing

1. Definition:





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Stage	Sales Volume	Costs
Development	None	Research&development
Introduction	Very low levels	Very high fixed costs, e.g., fixed (non-current) assets, advertising
Growth	Rapid increase	Marketing cost continue Unit costs decrease as fixed costs are recovered over greater sales volume
Maturity	Stable High volume	Primarily variable costs
Decline	Falling demand	Marketing cost cut R&D for new model of function Decommissioning cost



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2. Maximizing return over the product life cycle

- 1) Design costs out of products → Careful design to keep cost to a minimum over the life cycle
- 2) Minimize the time to market → The quicker, the longer
- 3) Minimise breakeven time (BET) → The shorter, the sooner
- 4) Maximizing the length of the life span → Find the product's other uses or markets/entry into different markets



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3. Advantages of life cycle costing

- Consider **external factors** throughout a product's expected life
- Consider **all costs** incurred on a product, and therefore lead to cost reduction
- Very useful in the **modern competitive environment**, in which products often have a short life cycle and when a large portion of costs will be committed prior to product commencing
- Life cycle thinking can promote **long-term** rewarding in contrast to short-term profitability rewarding
- Promotes **maximization of return** over the product life cycle



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The following costs arise in relation to production of a new product:

- (i) research and development costs
- (ii) design costs
- (iii) testing costs
- (iv) advertising costs
- (v) production costs

D

In calculating the lifetime costs of the product, which of the above items would be EXCLUDED?

- A (i), (ii), and (iii) only
- B (ii) and (iii) only
- C (iv) and (v) only
- D none of the above



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- Co X are in a high tech industry and are often first to market with new technological advances. They have recently spent \$500,000 designing and developing a new product. The new product is expected to have an eighteen month lifecycle. The anticipated performance of this product is as follows:

	introduction	growth	maturity	decline
Sales volume (units)	4,000	9,000	30,000	10,000
Per unit (\$)				
Selling price	599	549	449	349
Variable cost	249	249	199	149
overhead	100	100	60	75

Required : calculate the profitability of the new product.



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- Introduction
- Contribution = $599 - 249 - 100 = 250/\text{unit}$
- $250 * 4,000 \text{ units} = 1,000,000$
- Growth = 1,800,000
- Maturity = 5,700,000
- Decline = 1,250,000
- $1,000,000 + 1,800,000 + 5,700,000 + 1,250,000 - 500,000 = 9,250,000$



Part A Specialist cost and management accounting techniques

Topic 5. Throughput accounting

1. Why we use throughput accounting?

-The theory of constraints (TOC)

-It is an approach to production management which aims to maximize sales less material costs. It focuses on bottlenecks which act as constraints to the objective.

Profit per unit → throughput per limiting factor



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Theory of constraints (TOC) is an approach to production management which aims to maximize sales revenue less material cost. It focuses on bottlenecks which act as constraints to the maximization of throughput.

Throughput is the money generated from sales minus the cost of the materials used in making the items sold.

Bottleneck resource or binding constraint is an activity which has a lower capacity than preceding or subsequent activities, thereby limiting throughput.



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2. Main concepts in throughput accounting

Concept 1-In the short run, all costs in the factory (**with the exception of materials costs**) are fixed costs.

These fixed costs include **direct labor costs**. It is useful to group all these costs and call them “Total Factory Costs (TFC)” .

Concept 2-In a **JIT environment** then we should be attempting to eliminate inventories. Use of a limited resource in production of inventories should be avoided and therefore any **work-in-progress** should be valued at only the material cost.



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Concept 3-Profitability is determined by the rate at which 'money comes in at the door' (that is, sales are made) and, in a JIT environment, this depends on how quickly goods can be produced to satisfy customer orders. **The bottleneck resource slows the process of making money. Making money means maximizing throughput.**



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3. Ranking the operations for multi-products

Step1-Identify the bottleneck.

Step2-Calculate the throughput per unit for each product.

Step3-Calculate the throughput per unit of the bottleneck resource for each product.

Step4-Rank the products in the order of the result from step3.

Step5-Allocate resources using this ranking.



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Example:

WR Co manufactures three products, A, B and C. Product details are as follows:

	Product A(\$)	Product B(\$)	Product C(\$)
Sales price	2.80	1.60	2.40
Material cost	1.20	0.60	1.20
Direct labour cost	1.00	0.80	0.80
Weekly sales demand	4,000units	4,000units	5,000units
Machine hours per unit	0.5hours	0.2hours	0.3hours



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Machine time is a bottleneck resource and maximum capacity is 4,000 machine hours per week. Operating costs including direct labour costs are \$10,880 per week. Direct labour workers are not paid overtime and work a standard 38 hour week.

Requirements:

Determine the optimum production plan for WR Co and calculate the weekly profit that would arise from the plan.



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- Step1: bottleneck is machine hours

	A	B	C
● Step2: Throughput	1.6 (2.80-1.2)	1	1.2
● Step3: Throughput/Bottleneck(machine hours)	3.2 (1.6/0.5)	5	4
● Step4:rank	3rd	1st	2nd



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- Step5: Allocate

	A(3rd)	B(1st)	C(2rd)
4,000 machine hrs	$4,000 - 800 - 1,500 = 1,700\text{hrs}$	$0.2 * 4,000 = 800\text{hrs}$	$5,000 * 0.30 = 1,500\text{hrs}$
units	3,400	4,000	5,000
Throughput	5,440	$4,000 * 1$	$5,000 * 1.2 = 6,000$

$$5,440 + 4,000 + 6,000 - 10,880 = \text{profit} = 4,560$$



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4. Formula in throughput accounting

$$\begin{aligned} \text{Throughput} &= \text{sales revenue} - \text{material cost} \\ \text{Total factory costs} &= \text{all production costs except materials} \\ \text{Return per factory hour} &= \frac{\text{Throughput}}{\text{Time on key resource}} \\ \text{Cost per factory hour} &= \frac{\text{Total factory cost}}{\text{Total time available on key resource}} \\ \text{Throughput accounting ratio} &= \frac{\text{Return per factory hour}}{\text{Cost per factory hour}} \end{aligned}$$



Part A Specialist cost and management accounting techniques

-If $TPAR > 1$, it suggests that throughput exceeds operating costs so the product should make a profit. Priority should be given to the products generating the best ratios.

-If $TPAR < 1$, it suggests that throughput is insufficient to cover operating costs, resulting in a loss.



Part A Specialist cost and management accounting techniques

Example:

Company A produces a single product which selling price is \$50 per unit. The materials cost for each unit is \$15. Total operating expenses are \$250,000 each month.

Labour hours are limited to 25,000 hours each month. Each unit product takes 5 hours to assemble.

Requirement:

Calculate the throughput accounting ratio.



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- Throughput per factory hour
- = $\frac{50-15}{5}$
- Throughput cost per factory hour
- = $\frac{250,000}{25,000}$



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5. How to improve the TPAR?

- Increase the sales price for each unit sold, to increase the throughput per unit.
- Reduce material costs per unit to increase the throughput per unit.
- Reduce total operating expenses, to reduce the cost per factory hour.
- Improve the productivity of the bottleneck, to reduce the time required to make each unit. Hence to increase throughput per factory hour.



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6. Limitations of TPAR (from the assumptions)

-It concentrates on the **short-term decision making**. The bottleneck and labor costs are largely fixed. However, it is not realistic for a business to produce on the short term only.

-It is more difficult to apply throughput accounting concepts to the longer term **when all costs are variable**. The company should consider this long term view before rejecting products with a $TPAR < 1$.



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Topic 6. Environmental management accounting

1. Definition

Environmental management accounting (EMA) is the generation and analysis of both **financial and non-financial** information in order to support internal environmental management processes.

Environmental management accounting (EMA) focuses on the efficient use of resources, and the disposal of waste and effluent.



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2. Why we need environmental accounting?

- Environmental **costs** are becoming **huge** for some companies. Once identified, environmental costs can be controlled and reduced.
- There is increasing worldwide **regulation** and a need for regulatory reporting of environmental costs.
- Ethical** issues — businesses should be aware of how their production methods will affect the environment.
- Improved **brand image**— ‘green’ ways of doing business can be a selling point.
- Associating environmental costs with individual products will lead to more accurate pricing and improved **profitability**.



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3. Environmental costs:

- (a) **Conventional costs**, such as raw materials and energy costs, have an impact on the environment.
- (b) **Potentially hidden costs** are relevant costs that are captured within accounting systems but may be 'hidden' within 'general overheads'.
- (c) **Contingent costs** are costs that will be incurred at a future date as a result of discharging waste into the environment, such as clean-up costs.
- (d) **Image and relationship costs** are costs incurred to preserve the reputation of the business; for example, the costs of preparing environmental reports to ensure compliance with regulatory standards.



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4. Accounting for environmental cost

4.1 inflow/outflow analysis

This approach balances the quantity of resources that is input with the quantity that is output either as production or as waste.

Measuring these in physical quantities and in monetary terms forces the business to focus on environmental costs.

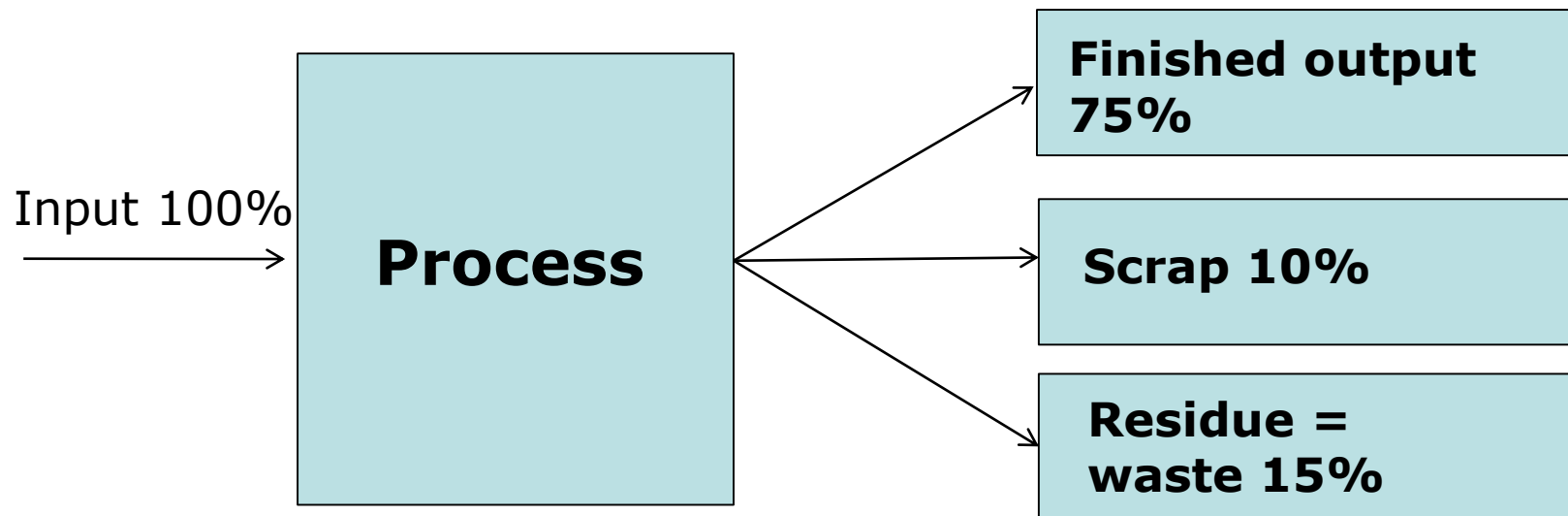
(Resources includes not simply raw materials but also energy and water. i.e. all resources)



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The material inflows are recorded and balanced with outflows.

This means what comes in, must go out.





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4.2 Flow cost accounting

This is really inflow/outflow analysis (as described above) but instead of applying simply to the business as a whole, it takes into account the organizational structure. Resources input into the business are divided into three categories:

- **Material**: the resources used in storing raw materials and in production;
- **System**: the resources used in (for example) storing production and quality control;
- **Delivery and disposal**: resources used in delivering to the customer and in disposing of any waste.



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4.3 Activity-based costing

In an environmental accounting context, it distinguishes between environment-related costs which attributed to joint cost centers, and environment-driven costs which tend to be hidden within general overheads.

Its application to environmental costs is that those costs that are environment-related (e.g. costs related to a sewage plant) are attributed to joint environmental cost centres.



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4.4 Life-cycle costing

Life cycle costing within the context of environmental accounting requires the full environmental consequences. So the costs are considered from the design stage right up to the end of a product's life cycle.

The relevance to EMA is that it is important to include environmentally driven costs such as the costs of disposal of waste. It may be possible to design-out these costs before the product is launched.



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	Part A					
	ABC	Target costing	life-cycle costing	TQM	throughput	EA
2016.Jun						
2015.Dec		Q1ab				
2015.Jun	Q1ab					
2014.Dec					Q2ab	
2014.Jun	Q1abc					
2013.Dec					Q2abc	Q1c
2013.Jun			Q3a			
2012.Dec	Q5c					
2012.Jun		Q2acd		Q4b		



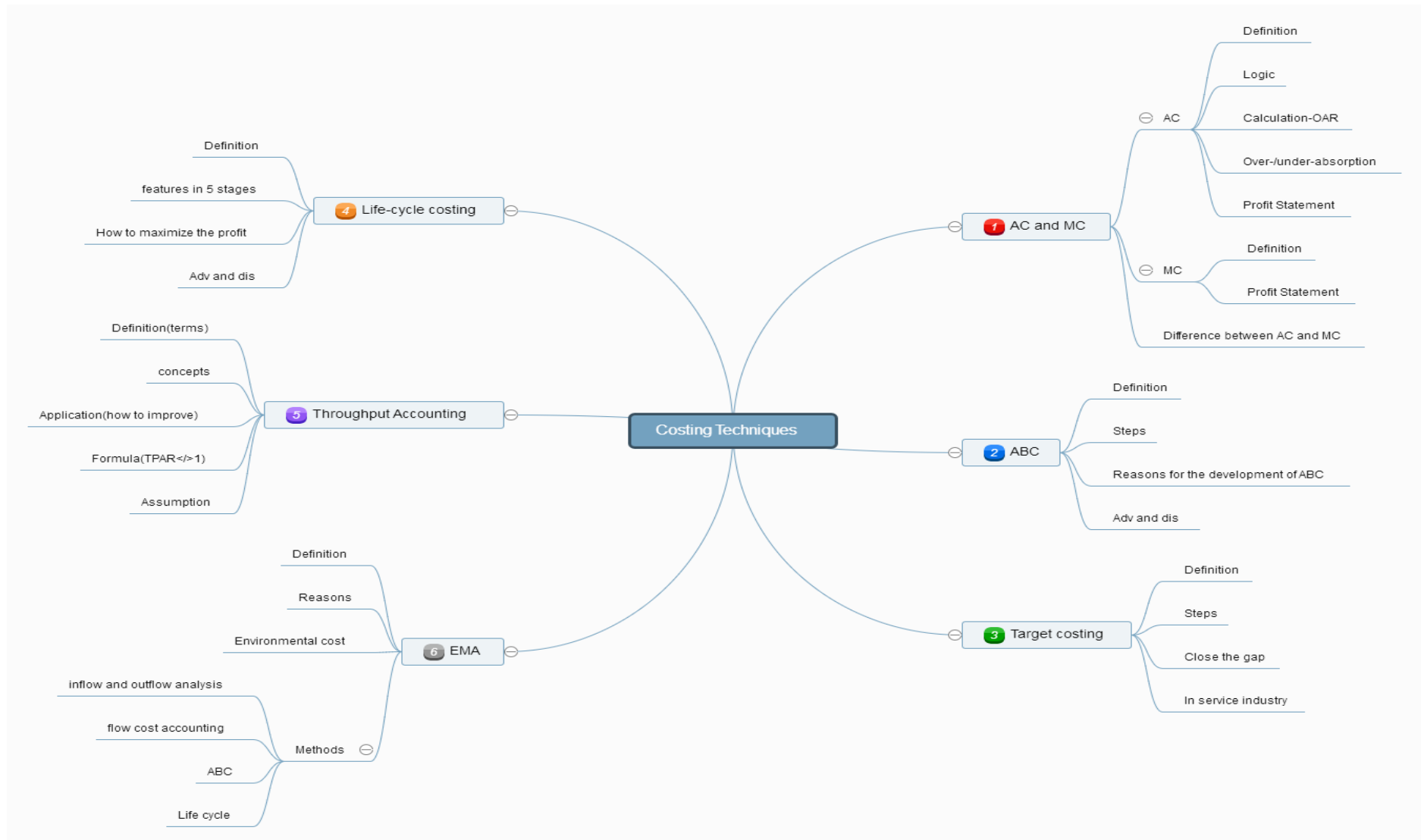
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