Session 11



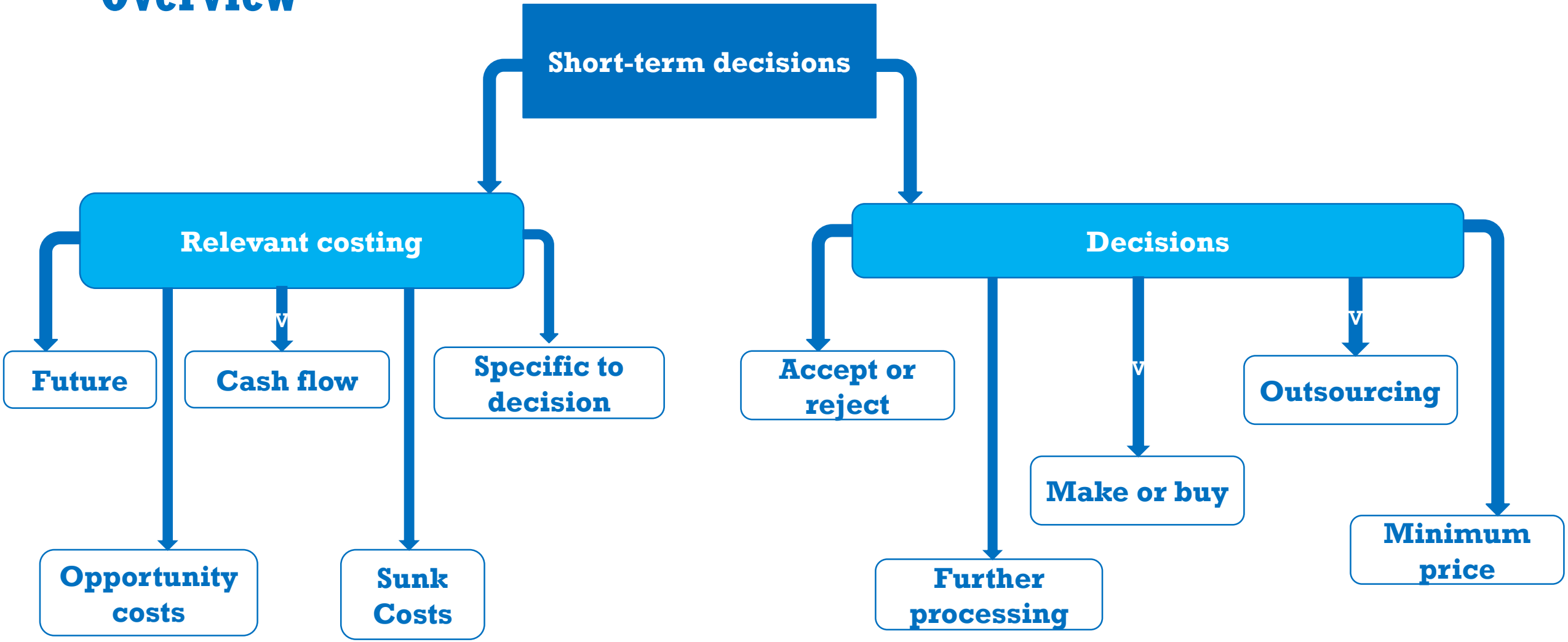
Learning Outcomes

By the end of this session you should be able to

- explain the practical issues surrounding make versus buy and outsourcing decisions
- for given data, calculate and compare 'make' costs with 'buy-in' costs
- for given data, compare in-house costs and outsource costs of completing tasks and consider other issues surrounding this decision
- for given data, apply relevant costing principles in situations involving make or
- buy, shut down, one-off contracts and joint product further processing decisions

and answer questions relating to these areas.

Overview


Short-term decisions
Relevant costing
Decisions
Future
Cash flow
Specific to decision
Opportunity costs
Sunk Costs
Accept or reject
Further processing
Make or buy
Outsourcing
Minimum price

Relevant Costs

Relevant costs

- are future costs, incremental costs and cash flows.

Avoidable costs

- are costs which would not be incurred if the activity to which they relate did not exist.

A **differential cost**

- is the difference in total costs between alternatives.

An **opportunity cost**

- is the benefit which would have been earned, but has been given up, by choosing one option instead of another.

Relevant Costs Are:

- Future
- Cash
- Incremental

They may also be:

- Opportunity costs

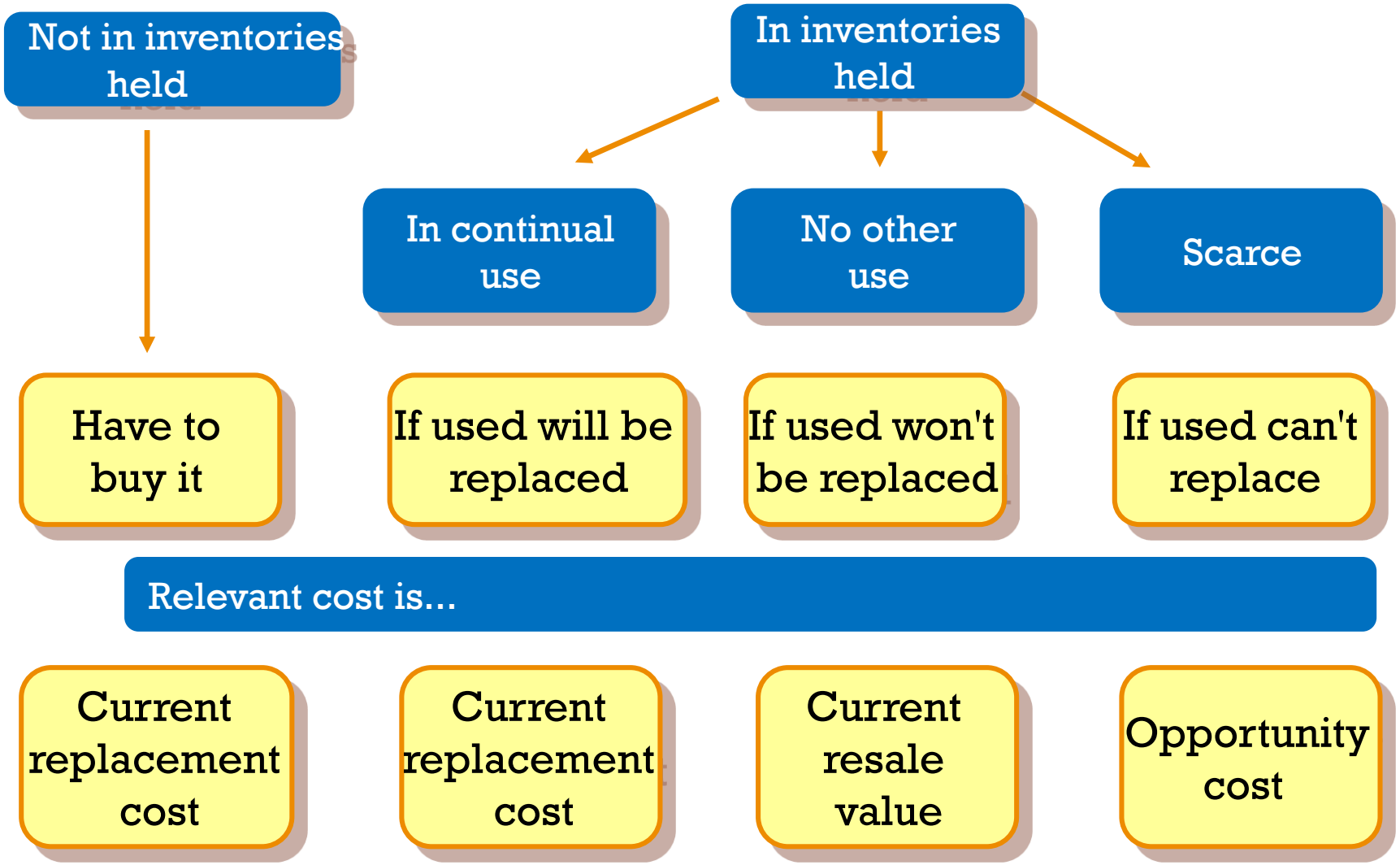
Relevant Costs Are Not:



Other costs that are not relevant:

- General overheads
- Joint costs

Relevant Costs - Materials



Question: Materials

A contract requires 400kg of X and 200kg of Y.

The following data is available:

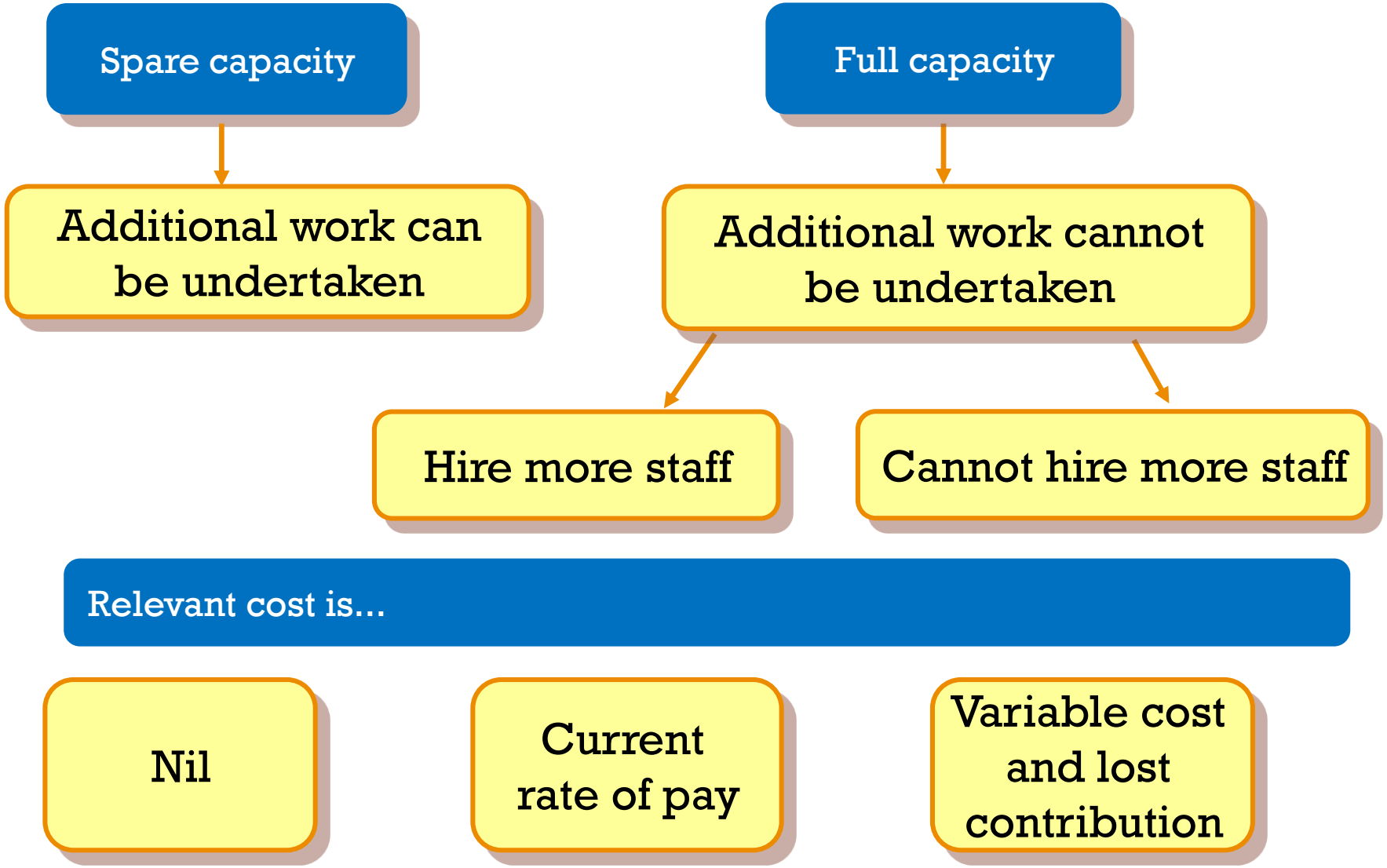
	In inventory	*Historic cost*	*Current purchase price*	*Scrap value*
X	300 kg	$2/kg	$3/kg	$2.20/kg
Y	300 kg	50c/kg	$2/kg	$1.50/kg

X is no longer used by the company; Y is regularly used for other products/purposes within the business.

Required

What is the relevant cost of X and Y to be included in the contract cost?

Relevant Costs - Labour



Answer: Relevant Cost

Material X – 400kg needed

Inventory has no other use

Relevant cost = opportunity cost

Buy remaining 100kg

Relevant cost = current purchase price

300 × $2.20	660
100 × $3.00	300
	$960

Material Y – 200kg needed
Inventory is regularly used
Relevant cost = current purchase price

	$
200 × $2.00	400

Question: Labour Cost

A plc is deciding whether to undertake a new contract.

15 hours of labour are required for the contract. Labour is currently at **full capacity** producing X.

Cost card for X		$/unit
Direct materials	(10 kg @ $2)	20
Direct labour	(5 hrs @ $6)	30
		50
Selling price		75
Contribution		25

Required

What is the cost of using 15 hours of labour for the contract?

Answer: Labour Cost

Full capacity

Relevant cost is variable cost and lost contribution.

	$
Lost contribution:	
15 hours are needed so cannot make 3 units of X	75
Variable cost	
Labour (15 hours @ $6)	90
	165

Deprival Value

Deprival Value is an Opportunity Cost.

- This means that it only applies when the NCA is already at full utilization, and has no spare capacity available. (i.e. Machine X is used in regular production, and is running at full capacity).



First Comparison: NRV V EV

1) NRV is basically the net cash inflow if the NCA is sold.

2) EV is the benefit from the work that the NCA is being used on now (and for the foreseeable future).

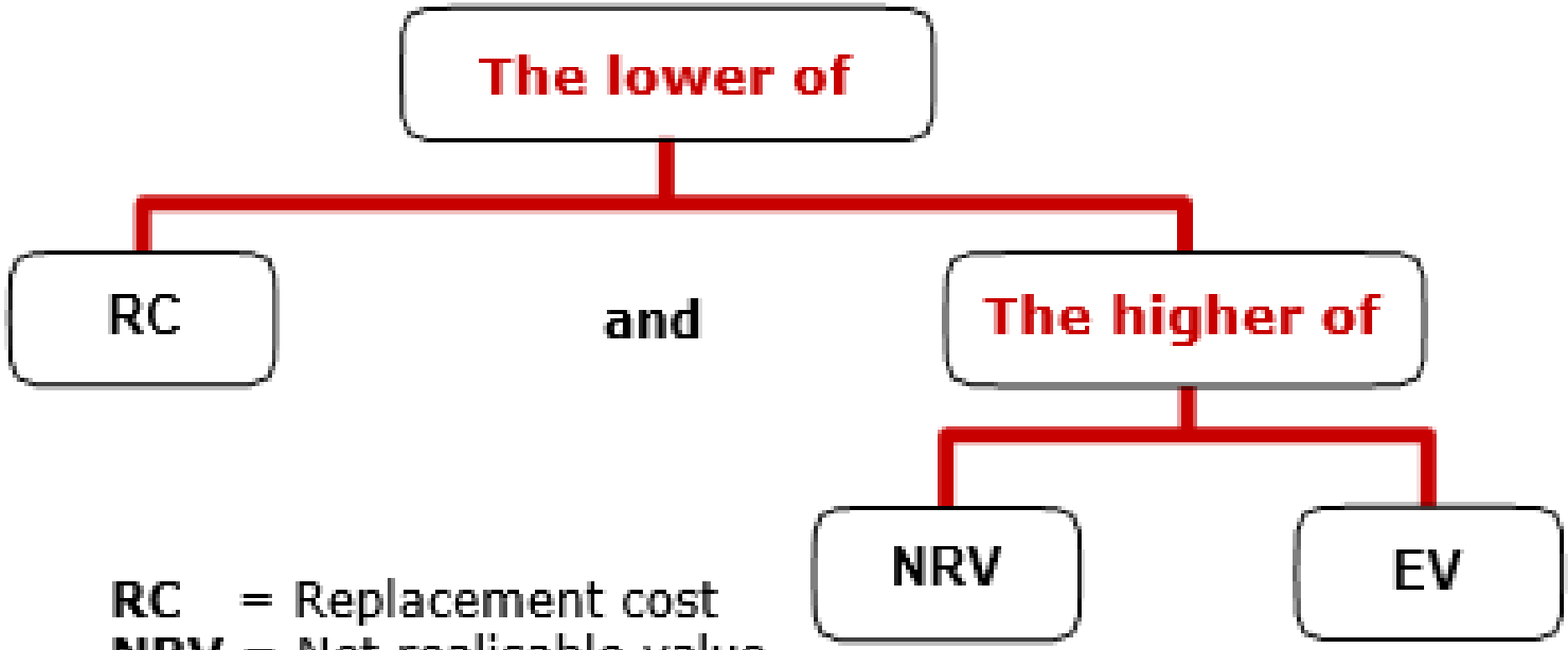
3) Logically, if the NRV of an NCA is more than the EV, it would make sense to sell the NCA rather than continue to do work with it.

4) The opposite applies, if the EV of the NCA (meaning the value of the work the NCA is doing) is worth more than the NCA's NRV.

Second Comparison: RC Vs NRV Or EV

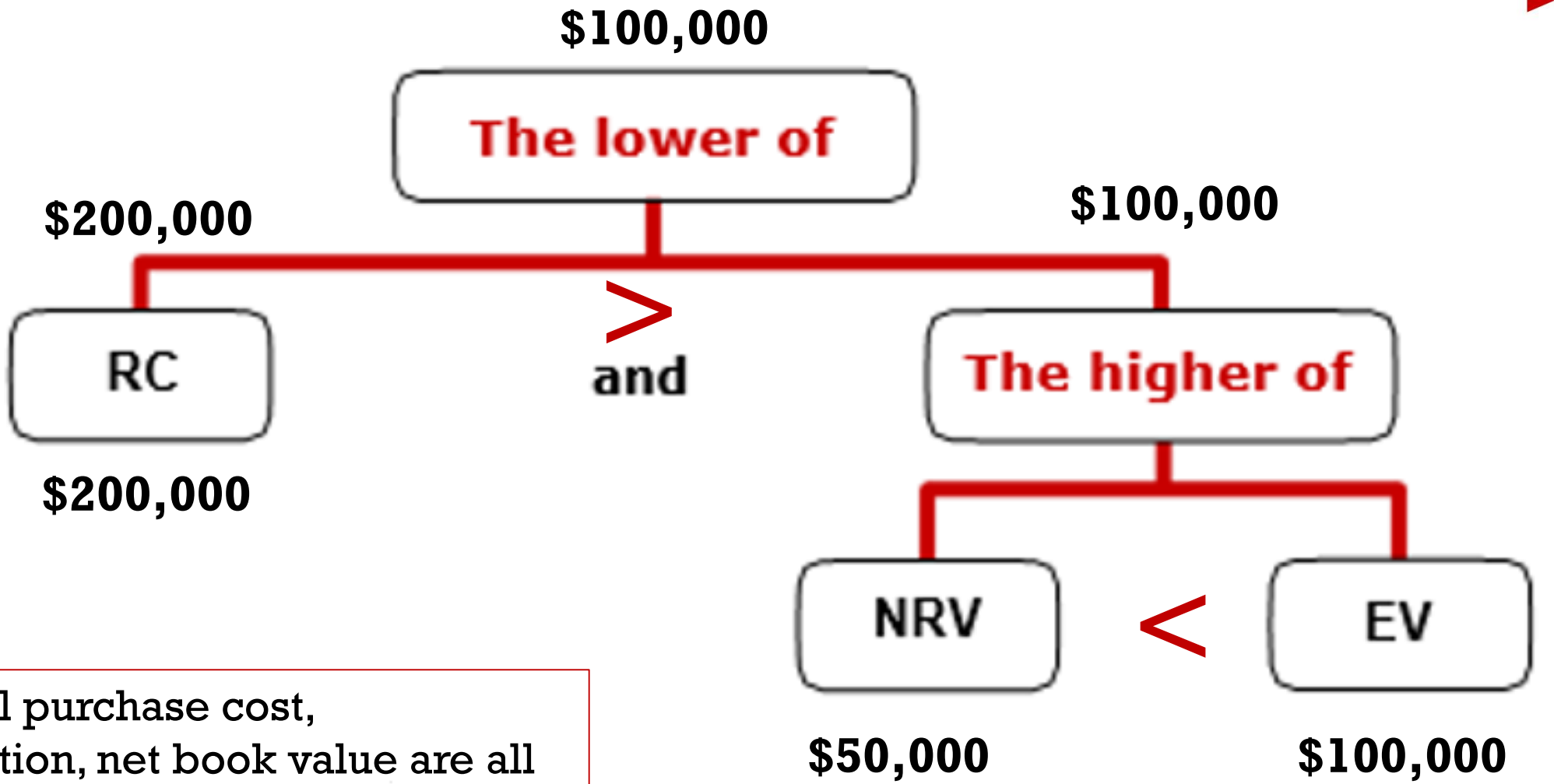
- After we have identified the higher of NRV or EV, we need to compare it with RC.
- If the NCA is used in a project, the company is deprived of NRV or EV (whichever is higher).
- So the next thing to think about, is whether it is worthwhile for a the company to buy a replacement machine, to earn that NRV or EV.
  - If RC < (NRV or EV), this means that the company will transfer the machine to the project, and buy a replacement machine to earn the NRV or EV; therefore, the relevant cost is the cost of the replacement machine.
  - If RC > (NRV or EV), this means that the company will transfer the machine to the project; however, it is not worthwhile to buy a replacement machine, so will have to take a loss from NRV or EV forgone; the relevant cost is the higher of NRV or EV.

Deprival Value



RC = Replacement cost
NRV = Net realisable value
EV = Economic value (i.e. the PV of expected future earnings which the asset will generate)

Example



Historical purchase cost, depreciation, net book value are all *irrelevant!*

Exercise

Case	Replacement Cost	NRV	EV	Deprival Value
1	500	600	550	???
2	700	600	550	???
3	700	600	650	???

- Apply the deprival value approach and identify what is the relevant cost.
- Remember that deprival value only applies to an NCA that is being used and full capacity.

Answer

Case	Replacement Cost	NRV	EV	Deprival Value
1	500	600	550	500
2	700	600	550	600
3	700	600	650	650

Decision Making Scenarios

(a) Accept or reject

(b) Make or buy

(c) Outsource

(d) Shutdown

(e) Minimum price of an order/job/contract

(f) Further processing decisions

Accept Or Reject?

Accept projects with positive return. Reject those which are negative.

However, negative projects may be accepted in order to:

- Undercut a competitor
- Gain market share
- Attract a new customer

Make Or Buy Decisions

- A make or buy problem is a decision about whether a company should make a product/carry out an activity with its own internal resources

or

- Whether it should pay another organisation to make the product/carry out the activity.

If no scarce resource:

- The relevant costs of the decision are the **differential costs** between making and buying.

Other Key Considerations

Buy in if cost effective.

- Quality of bought in product
- Reliability of supplier
- Possibility of becoming dependent on supplier
- Likelihood of future price increases
- How to use spare capacity
- Confidentiality issues

With Scarce Resources

- If an organisation has to subcontract because of insufficient in-house resources to produce everything that it needs, then the decision is not whether to make or buy. Instead, it is which items to make.
- Total costs are **minimised** if:
  - The units bought have the lowest **extra variable cost** of buying (compared with making) per unit of scarce resource saved by buying.

Example

Example – limited labour hours

	A	*B*
Variable cost of making	$16	$14
Variable cost of buying	$20	$19
Extra variable cost of buying	$4	$5
Labour hours saved by buying	2	2
Extra variable cost of buying per hour saved	$2	$2.50
Priority for making in-house	2nd	1st

Outsourcing

- The use of external suppliers for finished products, components or services

Advantages of outsourcing

- Superior quality and efficiency
- Capital is freed up
- Greater capacity and flexibility to cope with changes in demand
- Useful if not enough work to keep internal staff fully occupied

Disadvantages Of Outsourcing

- Reliability of supplier
- Loss of control and flexibility
- Effect on existing workforce

Note that decisions about outsourcing are a form of 'make or buy' decision and basic principles are the same.

Further Processing and Shutdown

Further processing decisions

- Decision is whether to sell **joint product** at split-off or processed further before selling.
- A **joint product** should be processed further past the split-off point if **additional** sales revenue exceeds the relevant further processing costs.
- The apportionment of joint processing costs is **irrelevant** to the decision.
- Any short-term decision must consider qualitative factors related to the impact on employees, customers, competitors and suppliers.

Question: Further Processing

Product	*Output*	*Selling price at separation*	*Selling price after separation*	*Post separation costs*
X	2,500	3	5	10,000
Y	1,500	5	10	8,000
Z	2,000	8	15	12,000

Joint processing costs are $20,000.
Required

Which products should be processed further?

Answer: Further Processing

	Incremental revenue/unit	Inc revenue	Further costs	Incremental benefit/ (cost)	Process further?

Answer: Further Processing

	Incremental revenue/unit	Inc revenue	Further costs	Incremental benefit/ (cost)	Process further?
X	2	5,000	10,000	(5,000)	No
Y	5	7,500	8,000	(500)	No
Z	7	14,000	12,000	2,000	Yes

Steps in Shutdown

- Calculate what is earned by the process at present (perhaps in comparison with others).
- Calculate what will be the **financial consequences** of closing down (selling machines, redundancy costs etc).
- Compare the results and act accordingly.
- Some fixed costs may no longer be incurred if the decision is to shutdown and they are therefore **relevant** to the decision.

Question: Shutdown

Lewis Co manufactures three products, the Kyle, the Lucy and the Gareth. Forecasted statements of profit or loss for next year are as follows:

	K	*L*	*G*	*Total*
	$'000	$'000	$'000	$'000
Sales	600	300	200	1,100
Cost of production				
Materials	200	60	30	290
Labour	95	20	10	125
Variable overhead	75	10	5	90
Fixed overhead	200	50	80	330
Gross margin	30	160	75	265
Selling costs	40	20	15	75
Net margin	(10)	140	60	190

The directors are considering the closure of the Kyle product line, due to the losses incurred. You obtain the following information.

(1) Fixed production overheads consist of an apportionment of general factory overheads, based on 80% of direct materials cost. The remaining overheads are specific to the product concerned.

(2) Selling costs are based on commission paid to sales staff.

Required

(a) Determine if the Kyle product line should be closed down.
(b) Suggest other factors that should be considered prior to a final decision.

Answer: Shutdown

		$'000
Lost revenue		600
Saved:		
Materials	200	
Labour	95	
Variable overheads	75	
Fixed overheads (20%)	40	
Selling costs	40	450
		150

Kyle should not be closed.

Alternatively

	$'000
Loss forecast	(10)
Fixed overheads (80%)	160
Net relevant contribution from Kyle	150

Kyle should not be closed.

Answer: Shutdown (Cont'd)

Other factors

- Product interdependencies
- Over 54% revenue lost – impact on customers and costs
- Capital costs such as asset write offs
- Redundancy costs
- Opportunity costs – are other decisions feasible such as altering commissions or purchases from suppliers
- Timing of decision

Joint Costs And Products

Joint costs are sunk.
They are not relevant when considering whether to process further.

Joint costs can be apportioned based on:

a) Quantities

b) Sales value

c) Net realisable value

Relevant Technical Article

Click on the link below

https://www.accaglobal.com/gb/en/student/exam-support-resources/fundamentals-exams-study-resources/f5/technical-articles/relevant-costs.html