

Finance Management & Planning

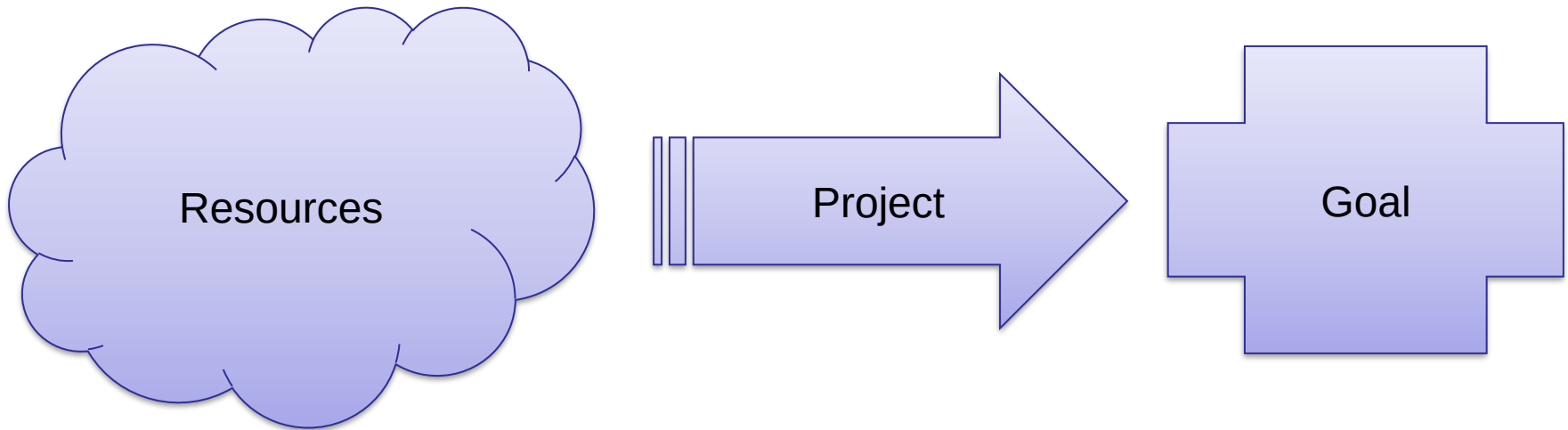
Project Appraisal – Payback Model

- Recap
- Payback Appraisal Model

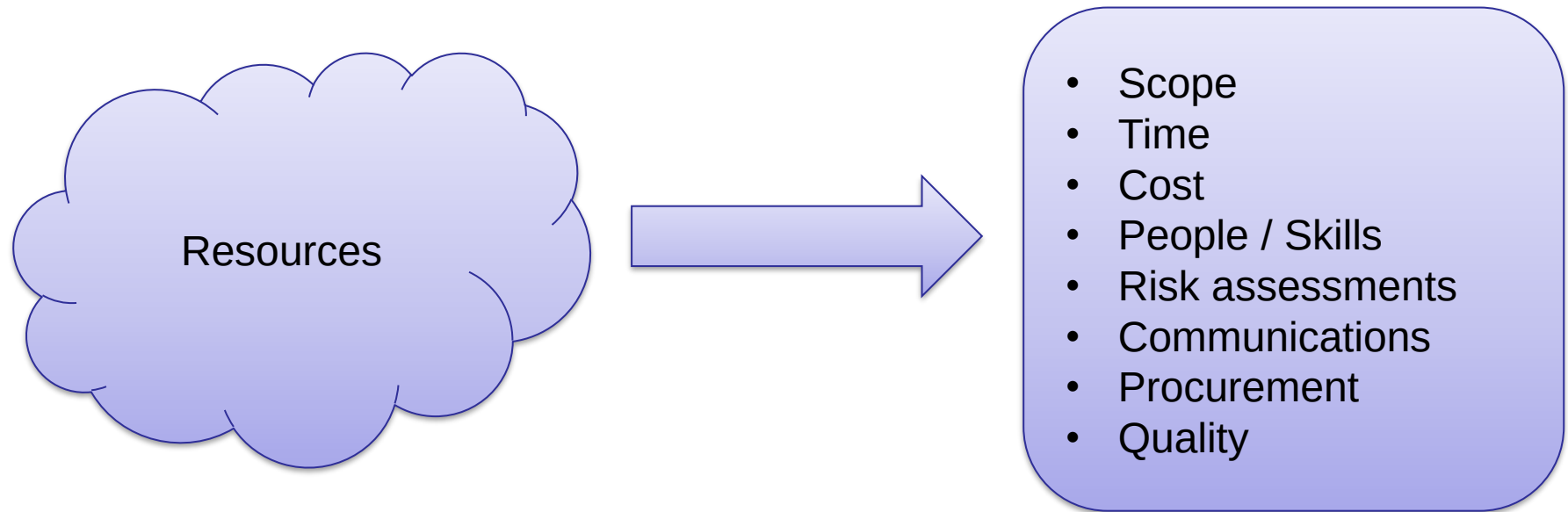
- What is a Project ?
- A **Project** is a temporary, unique and progressive attempt or endeavour made to produce some kind of a tangible or intangible result
 - a unique product, service, benefit, competitive advantage, etc.).
 - It usually includes a series of interrelated tasks that are planned for execution over a fixed period of time and within certain requirements and limitations such as cost, quality, performance, others.

Project Appraisals

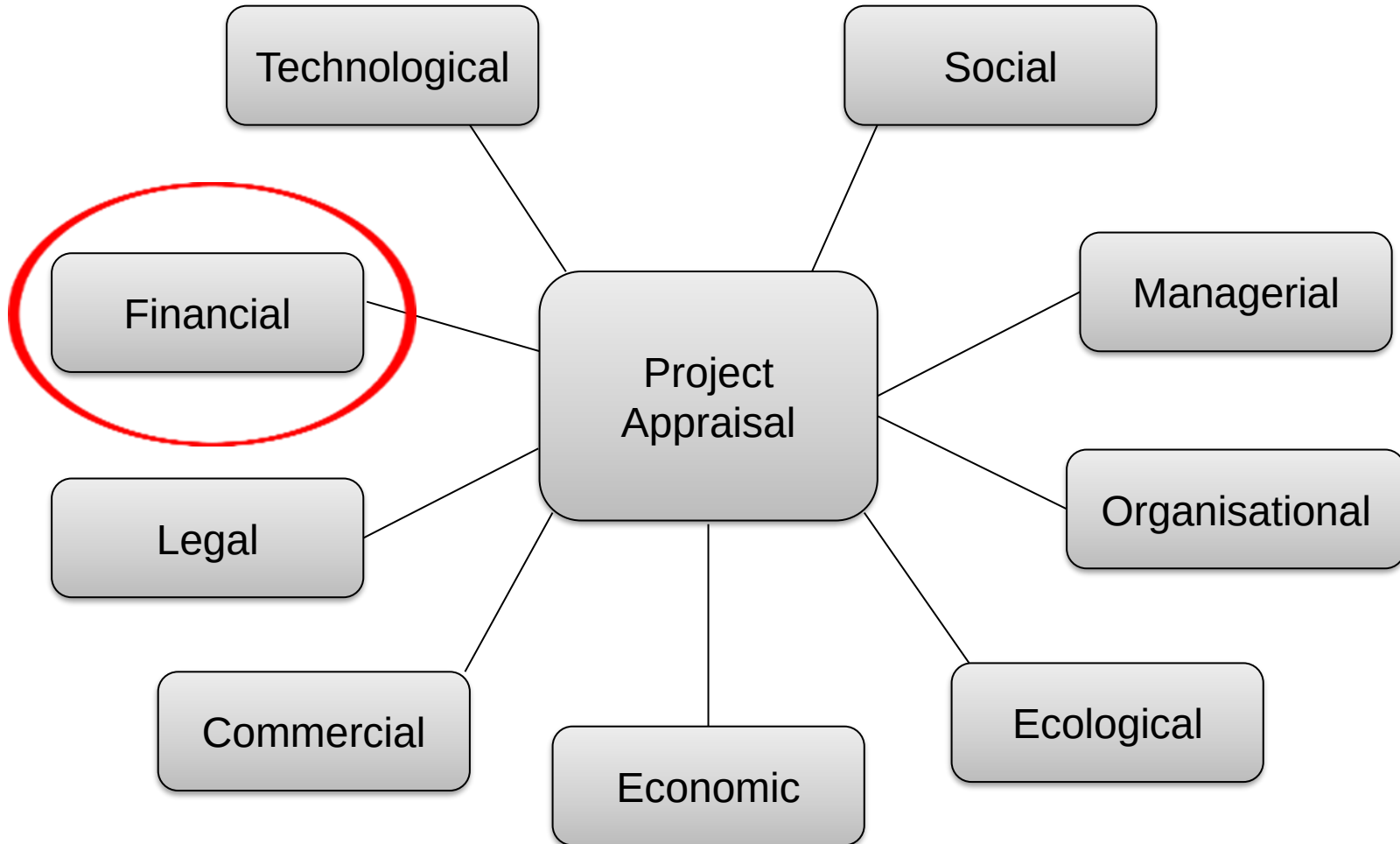
A project is a means to achieve a goal by applying a certain amount of resources.



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A **Project appraisal** is a costs and benefits analysis of a proposed project with an objective to adjudge is feasibility.



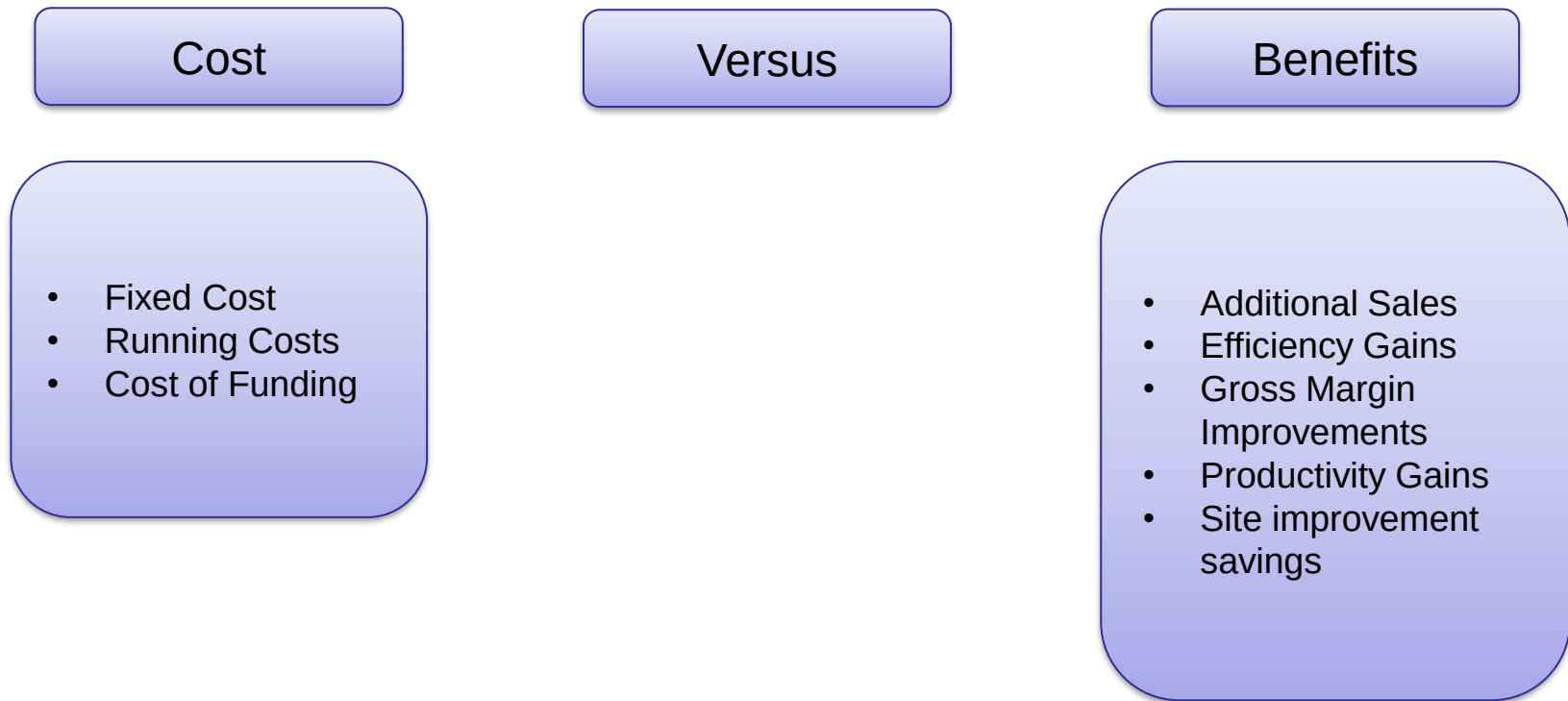
- Aims of Project Appraisal?
 - Selecting the best project
 - To assess projects credit-worthiness,
 - To assess the profitability of the project;
 - To assess the probable cost and benefit;
 - To assess the requirements of raw material;
 - To assess the fixed and working capital;
 - To anticipate a possible market of the product;
 - To assess the management's competence,
 - To find out whether the various factors of production are available,
 - Fulfilment of social objectives such as employment generation, regeneration of areas.
 - Legal requirements
 - Environmental requirements

Financial Appraisals of Projects

The appraisal of the financial aspects involves scrutiny of the following;

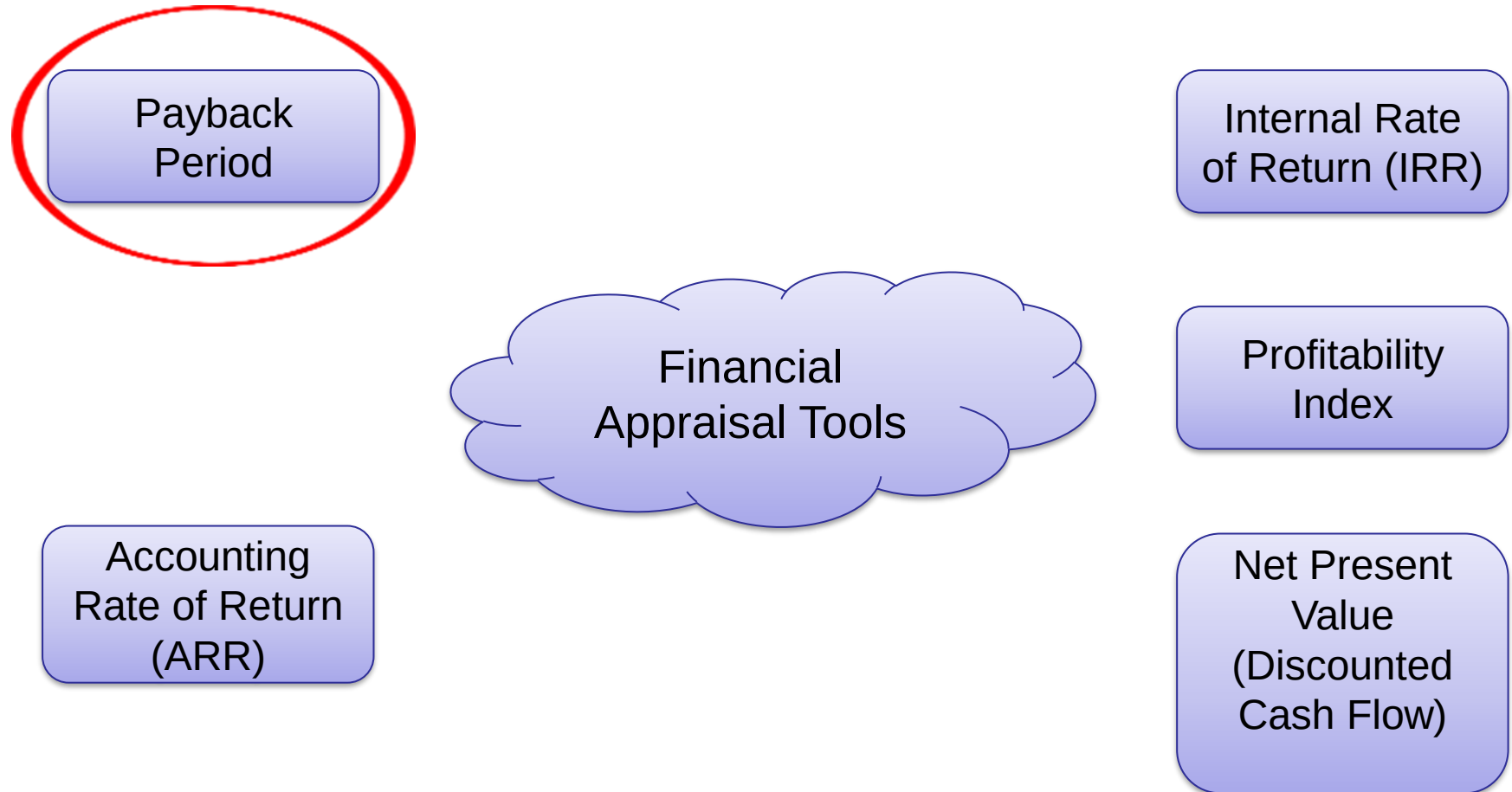
- Cost of the project & means of financing
- Cash flow estimates
- Projected balance sheets.

Financial Appraisals



Remember your analysis is only as good as the strength of your data

Financial Appraisals Tools



Financial Appraisals Tools

Payback Period

- The payback period refers to the amount of time it takes to recover the cost of an investment or how long it takes for an investor to reach a breakeven position.
- Shorter paybacks mean more attractive investments, while longer payback periods are less desirable.
- The payback period is calculated by dividing the amount of the investment by the annual cash flow / benefits from the project.

How long does it take to recoup our investment in the project

Why do you think this is important ?

Payback Period

- Example

	Project A	Project B
• Project Investment	£100,000	£50,000
• Net Cash Flow per year	£ 25,000	£10,000
• Payback Period	4 years	5 Years

- Which project should proceed ?

Payback Period

- Example

	Project A	Project B
• Project Investment	£10,000	£500,000
•Net Cash Flow per year	£ 1,000	£50,000
•Payback Period	10 years	10 Years

- Which project should proceed ?

- What other factors should we take into account ?

Payback Period

- Exercise - Project X (Option A)
- Project X has an £300,000 investment in Machinery to increase capacity.
- Production will increase by 5,000 units per year with an expected gross margin of £25 per unit.
- To calculate the payback periods for this project, we need to know the following? .
- Investment
- Future Benefit per year

5,000 units at £25 per unit = £125,000 per annum

Payback Period

- Exercise

Project X has an investment in Machinery to increase capacity of £300,000 , Production will increase by 5,000 units per year with an expected gross margin of £25 per unit.

Year	0	1	2	3	4	5
Investment	300,000					
Benefits		125,000	125,000	125,000	125,000	125,000

Net Benefit	-300,000	-175,000	-50,000	75,000	200,000	325,000
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- Breakeven point is between 2 and 3 year
- 2 years plus 50/125 so 2.4 years

Payback Period

- Option B
- Project X has an £350,000 investment in Machinery to increase capacity.
- Production will increase by 7,000 units per year with an expected gross margin of £25 per unit.
- To calculate the payback periods for this project, we need to know the following? .
- Investment
- Future Benefit per year

7,000 units at £25 per unit = £175,000 per annum

Payback Period

- Exercise

Project X has an investment in Machinery to increase capacity of £300,000 , Production will increase by 5,000 units per year with an expected gross margin of £25 per unit.

Year	0	1	2	3	4	5
Investment	375,000					
Benefits		175,000	175,000	175,000	175,000	175,000
Net Benefit	-375,000	-200,000	-25,000	150,000	325,000	500,000



- Breakeven point is between 2 and 3 year
- 2 years plus $25/175$ so 2.14 years

Payback Period

- Example

	Option A	Option B
• Project Investment	£300,000	£375,000
• Net Cash Flow per year	£125,000	£175,000
• Payback Period	2.4 years	2.14 years

- Which project should proceed ?

- What other factors should we take into account ?

Payback Period

- Exercise
- Project Y has an £400,000 investment in Machinery to improve efficiency.
- Improved efficiency will save £0.25 per unit on an estimated production level of 500,000 units Production.
- To calculate the payback periods for this project, we need to know the following? .
- Investment
- Future Benefit per year

500,000 units at £0.25 per unit = £125,000 per annum

Payback Period

- Exercise
- Project Y analysis

Year	0	1	2	3	4	5
Investment	400,000					
Benefits		125,000	125,000	125,000	125,000	125,000

Net Benefit	-400,000	-275,000	-150,000	-25,000	100,000	225,000
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- Breakeven point is between 3 and 4 years
- 3 years plus $25/125$ so 3.2 years

Payback Period

- Exercise summary

	Project X	Project X	Project Y
• Project Investment	£ 300,000	£375,000	£400,000
•Net Cash Flow per year	£ 125,000	£175,000	£125,000
•Payback Period	2.4 years	2.14 years	3.2 Years

- Which project should proceed ?

- What other factors should we take into account ?

Payback Period

- Exercise
- Project A has an investment in Solar panels for a factory of £150,000 , the current monthly bill of £3,000 per month for energy and the expected savings after installation is 40% of the current energy bill. (ignoring current COL / Utility changes)
- Project B has an investment in a new production line of £1,000,000 to cope with a demand for additional capacity for a new customer, this will allow additional sales of 12,000 units per year and a margin benefit of £20 per unit
- Project C has an investment of £50,000 on improved tooling on a current line which produces 5,000 units per year. This improvement will increase capacity by 1000 units per year with a cashflow increase of £22.50 per extra item produced.
- Calculate the payback periods for each of the projects .

Payback Period

- Exercise

	Project A	Project B	Project C
• Project Investment	£150,000	£1,000,000	£ 50,000
•Net Cash Flow per year	£ 14,400	£240,000	£ 22,500
•Payback Period	10.41 years	4.16 years	2.22 years

- Which project/s should proceed ?

- Your company will only consider Projects that have a payback of less than 3 years before performing more in depth project appraisals , which projects should proceed to the next stage ?

- What other factors should we take into account ?

Payback Period

- **Strengths**

- Simple calculation
- Offers a quick evaluation
- Highlights liquidity within the calculation

- **Weaknesses**

- Ignore the future value of money
- Concentrates on liquidity and can overlook profitability

Next Week

Project Appraisal (3)

- Time Value of Money
- NPV / DCF model
- IRR

Further Reading on Payback appraisal model

[Investment Appraisal Techniques | Payback, ARR, NPV, IRR, PI \(efinancemanagement.com\)](http://efinancemanagement.com)