## Investment Appraisal - Activity

The boost in sales for Starlight Ltd's range of dark chocolates had been unexpected. The report linking dark chocolate with chemicals that protect the heart seemed to have had an unexpected benefit and turned many consumers towards the natural organic chocolate produced by the firm.

Market research suggested that this was not going to be a short-term fad and forecasts of future sales were healthy. The Board had decided to accept the recommendation of the sales and production team and invest in a new piece of equipment for the production line that would automate some of the work currently carried out by staff on the line. Those staff could be better utilised elsewhere in the plant and, in addition, it would speed up the production and help meet the expected demand.
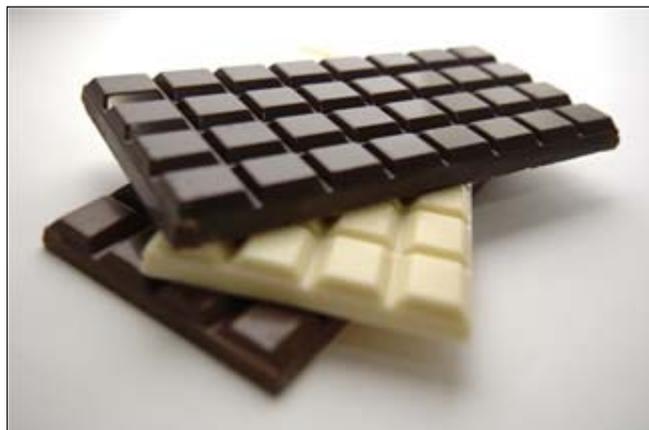
Research suggests that dark chocolate can boost heart-protecting antioxidants in the blood. © iStock.com

The investigations into the supplier of such a piece of equipment had identified four possible sources.

Machine 1:
A German firm producing a high precision piece of equipment with software allowing different production runs to be catered for.

Machine 2:
The same equipment without the software option secured from a firm in Taiwan.

Machine 3:
A different machine manufactured in Armenia - significantly cheaper!

Machine 4:
Another machine with a different specification but which is suitable for the job required, produced by a firm in the United States.

The costs associated with each machine are as follows:

	Machine 1	Machine 2	Machine 3	Machine 4
Initial Cost	£550,000	£550,000	£290,000	£460,000
Expected Cash Flow (£)				
Year 1	20,000	50,000	15,000	30,000
Year 2	75,000	175,000	80,000	95,000
Year 3	125,000	200,000	120,000	150,000
Year 4	250,000	175,000	100,000	210,000
Year 5	200,000	70,000	60,000	300,000

The firm believes that the likely discount rate will vary from between 4.5% and 6%. The discount tables for selected rates are shown below:

	Rate per cent			
Year	4.5	5.0	5.5	6.0
1	0.9569378	0.9523810	0.9478673	0.9433962
2	0.9157300	0.9070295	0.8984524	0.8899964
3	0.8762966	0.8638376	0.8516137	0.8396193

| 4 | 0.8385613 | 0.8227025 | 0.8072167 | 0.7920937 |
| 5 | 0.8024510 | 0.7835262 | 0.7651344 | 0.7472582 |

The Task:

Your task is to present an argued case for one of the machines that the firm should invest in.

You should use at least two appropriate methods of investment appraisal in your presentation and you should highlight the relative costs and benefits of each method.

Advise the Board on other factors that will need to be considered in taking the decision in addition to the quantitative analysis given above.