PROJECT 4

The Antaeus licence

Antaeus is a small, self-governing state that occupies a narrow strip of land at the southern tip of the Nereus Peninsula. It has two million inhabitants and the population is not expected increase in the foreseeable future. The economy has been growing at around 4% per annum in recent years and an OECD report suggests that this rate of growth is set to rise over the next few years. Its democratically-elected government is committed to a strategy of modernisation and has implemented a number of radical reforms in recent years, including the privatisation of state industries.

Geryon plc is the only licensed cellular telephone network business operating within Antaeus. It has been much criticised as it has proved incapable of meeting the needs of an increasingly prosperous and well-educated population. The geography of the country has led to problems in establishing a reliable network and charges for using the network are high. In order to maximise its profits, Geryon plc has focused on business users who are prepared to pay high prices.

The government of Antaeus is aware of these problems and so, to stimulate competition and to improve the level of service available, it has decided to grant a further licence to operate a cellular telephone network within the country. The licence will be put up for auction in two months time and will last for a period of five years. A review will take place at the end of this period in order to see whether the licence should be renewed for a further five years or whether a further auction should take place.

Heracles telecommunications plc is interested in making a bid for the licence. The company currently provides cellulartelephone networks throughout Western Europe. Although this has proved to be very profitable, increasing competition and a downturn in the demand for cellular telephones in a number of Western European countries has produced gloomy forecasts of future prospects. As a result, the Board of Directors is seeking more profitable geographical areas for the company’s products and services. The Special Projects Division of the company has recently produced, with the help of a number of business information agencies, information that may be useful in formulating a bid for the Antaeus licence.

The following charging structure (expressed in Antaeus dollars) is currently being adopted by Geryon plc for its Antaeus customers:

1. An annual rental charge of AN$50 per cellular telephone payable in advance.
2. An airtime charge of AN$0·50 per minute for local calls and AN$3·00 per minute for international calls.

Heracles telecommunications plc is considering undercutting these charges by offering:

1. An annual rental charge of AN$40 per cellular telephone payable in advance.
2. An airtime charge of AN$0·30 per minute for local calls and AN$2·50 per minute for international calls.

The level of ownership of cellular telephones within the country over the next five years, within various income ranges, is predicted to be as follows:

	Percentage of population owning a cellular telephone

	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	18	38	57	85	92
30,000 – 49,999	10	18	36	56	70
<30,000	8	12	25	40	50

The expected market share for Heracles telecommunications plc of customers falling within each income range is expected to be:

	Expected market share (percentage of customers)				
	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	20	35	55	68	72
30,000 – 49,999	30	40	65	75	85
<30,000	50	65	80	85	90

The percentage of population falling within each income range over the next five years is predicted to be as follows:

	Percentage of population falling within each income range				
	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	10	12	15	18	20
30,000 – 49,999	26	29	32	35	39
<30,000	64	59	53	47	41

The average usage of a cellular telephone within each income range is predicted to be as follows:

	Average usage of cellular telephone per year (minutes)				
	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	1,200	2,400	5,500	7,900	8,300
30,000 – 49,999	500	950	1,400	2,600	2,750
<30,000	100	450	750	1,100	1,200

The percentage of local calls and international calls over the next five years is predicted to be as follows:

	Percentage of local calls and international calls				
	2003	2004	2005	2006	2007
Local	95	86	82	79	77

International	5	14	18	21	23

Nearly all of the international calls are expected to be made by customers within the AN$50,000+ income range.

The following costs of establishing a new cellular network have been estimated:

1. Eight cell sites each costing between AN$200,000 and AN$250,000 will be required. The cost of these cell sites will be incurred during the first year of operations.
2. The cost of a cellular phone is AN$300, which will be borne by the company rather than the customer.
3. The cost of offices and other buildings will be AN$950,000 and will be incurred during the first year of operations. These offices will be sold soon after the end of the licence period for between AN$800,000 and AN$900,000.
4. Marketing and promotional operations will have a budget equal to 10% of sales revenue.
5. The variable costs of operating the system (excluding the marketing costs mentioned above) are expected to be 40% of sales revenue.
6. The annual fixed costs of operating the system are expected to be AN$2 million. However, this figure will rise in steps of AN$300,000 for every 10,000 customers (or part of this figure) above a customer base of 100,000.
7. Working capital is estimated at 8% of sales revenue. The working capital investment will be released soon after the end of the licence period.

The Board of Directors of Heracles telecommunications plc met recently to consider the licence bid and three key issues arose. FIrstly, it became apparent that the above figures do not really take account of the possibility that Geryon plc will respond to the new competition by cutting its own charges. However, the continuing problems with the reliability of the network, high operating costs and a poor reputation among customers was likely or prevent Geryon plc from responding effectively within the first three years of the new licence period. Thereafter, Geryon plc could respond by matching the prices of Heracles telecommunications plc and this could result in Geryon plc obtaining a market share of up to 50% of those customers within the AN$50,000+ range, although a more likely figure would be around 40%.

Secondly, it was by no means certain that Heracles telecommunications plc could avoid the technical problems that have dogged Geryon plc. Although the Technical Director was confident that the problems could be solved using technology developed by the company, some of his key staff did not agree. If the technology owned by the company is inadequate, new technology costing between AN$5 million and AN$6 million in the first year will have to be purchased.

Thirdly, the company has recently been approached by Antaeus Telephone Inc, which also has an interest in the forthcoming licence bid. Antaeus Telephones Inc was formed in 1997 as part of the government’s privatization programme. Although owned by private shareholders, the company enjoys a monopoly over the fixed line network that was formerly under state control. Antaeus Telephones Inc has proposed a joint bid with Heracles telecommunications plc for the new licence and, assuming the bid is successful, would expect the revenues and costs of the cellular network to be shared equally. Antaeus Telephones Inc has a reputation for being overstaffed and inefficient, however, it is trying to shed this image and now wishes to branch out into new areas of operations.

The Antaeus licence has excited much interest within the telecommunications industry and competition for the licence is expected to be stiff. Investments analysts specialising in the telecommunications sector believe that the successful bidder will have to pay between AN$ 650 – 720 million in order to secure the licence.

The Board of Directors of Heracles telecommunications plc has decided to meet in the near future to discuss the bid further. The company has a cost of capital of 12%.

Required:

Prepare a report to the Board of Directors of Heracles telecommunications plc concerning the forthcoming bid. In the report, you should:

(a) suggest, with reasons, a guide price for the licence that the directors should consider as a basis for further discussion. (33 marks)

(b) identify and discuss any significant factors that are not included in your answer to (a) above and which should be taken into account before a final decision is made. (7 marks)

(c) discuss the issues that should be taken into account when deciding upon the joint bid proposal from Antaeus Telephones Inc. (10 marks)

Notes:

1. In answering part (a) all key workings and assumptions must be clearly stated.

2. Workings should be in AN$000's and should be to one decimal place.

3. Ignore taxation.

(50 marks)

SUGGESTED ANSWERS FOR PROJECT

The Antaeus licence

The case study could be answered in various ways. The points made below should, therefore, be regarded as indicative.

(a) Suggested price

This part should include a net present value (NPV) calculation. The price paid for the licence should not exceed the net present value of the future cash flows if the wealth of shareholders is to be kept intact.

The NPV calculations set out below rest on the following key assumptions:

1. The cost of each cell site will be AN$225,000 (i.e. the middle of the range stated in the case study).

2. The offices and other buildings will be sold for AN$850,000 (i.e. the middle of the range stated in the case study) andwill be sold in the sixth year.

3. The market share of those in the income range AN$50,000+ that is retained by Geryon plc is 40% (i.e. the most likely figure) in the final two years of the licence.

4. No investment in new technology will be required (i.e. the Technical Director's judgement is correct).

5. All international phone calls are made by customers in the income range AN$50,000+.

6. There will be no benefits accruing after the five-year period of the licence.

(10 marks)

NPV calculations

	2003 AN$000's	2004 AN$000's	2005 AN$000's	2006 AN$000's	2007 AN$000's	2008 AN$000's
Rental charges	2,960·0	6,628·8	18,232.4	31,888·0	42,156·0	
Airtime charge	7,418·4	70,904·7	470,622·7	1,440,023·3	1,992,830·3	
	10,378·4	77,533·5	488,855·1	1,471,911·3	2,034,986·3	
Cell sites	(1,800·0)					
Phones	(22,200·0)	(49,716·0)	(136,743·0)	(239,160·0)	(316,170·0)	
Buildings	(950·0)					850·0
Marketing (10% sales)	(1,037·8)	(7,753·4)	(48,885·6)	(147,191·1)	(203,498·6)	
Variable costs (40% sales)	(4,151·4)	(31,013·4)	(195,542·0)	(588,764·5)	(813,994·5)	
Fixed costs	(2,000·0)	(4,100·0)	(12,800·0)	(23,000·0)	(30,800·0)	
Working capital	(830·3)	(5,372·4)	(32,905·7)	(78,644·5)	(45,046·0)	162,798·9
	(32,969·5)	(97,955·2)	(426,876·3)	(1,076,760·1)	(1,409,509·1)	163,648·9
Net cash flows	(22,591·1)	(20,421·7)	61,978·8	395,151·2	625,477·2	163,648·9
Disc. Rate 12%	0·89	0·80	0·71	0·64	0·57	0·51
PV	(20,106·1)	(16,337·4)	44,004·9	252,896·8	356,522·0	83,460·9
NPV	700,441·1					

The NPV figure above represents the maximum amount that should be paid. Candidates may suggest a lower price supported by reasons. However, if the views of investment analysts are to be believed, a figure close to the NPV figure may have to be paid for the bid to stand a chance of success. **(23 marks)**

Workings

The workings necessary for the above NPV analysis will include the following:

1. The predicted population numbers falling within each income range are:

	Population within each income range				
	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	200,000	240,000	300,000	360,000	400,000
30,000 – 49,999	520,000	580,000	640,000	700,000	780,000
<30,000	1,280,000	1,180,000	1,060,000	940,000	820,000

2. The predicted population numbers owning a cellular telephone are:

	Population owning a cellular telephone falling within each income range (000’s)				
	2003	2004	2005	2006	2007
Income range (AN$)					
50,000+	36,000 (18% x 200,000)	91,200 (38% x 240,000)	171,000 (57% x 300,000)	306,000 (85% x 360,000)	368,000 (92% x 400,000)
30,000 – 49,999	52,000 (10% x 520,000)	104,400 (18% x 580,000)	230,400 (36% x 640,000)	392,000 (56% x 700,000)	546,000 (70% x 780,000)
<30,000	102,400 (8% x 1,280,000)	141,600 (12% x 1,180,000)	265,000 (25% x 1,060,000)	376,000 (40% x 940,000)	410,000 (50% x 820,000)

3. The expected market share for the company is:

	Expected market share (population 000’s)				
	2003 000’s	2004 000’s	2005 000’s	2006 000’s	2007 000’s
Income range (AN$)					
50,000+	7,200 (20% x 36,000)	31,920 (35% x 91,200)	94,050 (55% x 171,000)	183,600 (60% x 306,000)	220,800 (60% x 368,000)
30,000 – 49,999	15,600 (30% x 52,000)	41,760 (40% x 104,400)	149,760 (65% x 230,400)	294,000 (75% x 392,000)	464,100 (85% x 546,000)
<30,000	51,200 (50% x 102,400)	92,040 (65% x 141,600)	212,000 (80% x 265,000)	319,600 (85% x 376,000)	369,000 (90% x 410,000)

4. The cost of cellular telephones are:

2003	2004	2005	2006	2007
AN$000’s	AN$000’s	AN$000’s	AN$000’s	AN$000’s
22,200 [AN$300 x (7,200 + 15,600 + 51,200)]	49,716·0 [AN$300 x (31,920 + 41,760 + 92,040)]	136,743·0 [AN$300 x (94,050 + 149,760 + 212,000)]	239,160 [AN$300 x (183,600 +294,000 + 319,600)]	316,170 [AN$300 x (220,800 +464,100 + 369,000)]

5. Fixed costs are calculated as follows:

2003	2004	2005	2006	2007
AN$000’s	AN$000’s	AN$000’s	AN$000’s	AN$000’s
2,000·0	4,100·0	12,800·0	23,000	30,800

	[AN$2,000 + (AN$300 x 7)]	[AN$2,000 + (AN$300 x 36)]	[AN$2,000 + (AN$300 x 70)]	[AN$2,000 + (AN$300 x 96)]

6. Predicted airtime income is:

	2003	2004	2005	2006	2007
	AN$000's	AN$000's	AN$000's	AN$000's	AN$000's
Income range					
AN$50,000+ Local	2,462·4 (1,200 x 0·95 x 7,200 x AN$0·30)	19,764·9 (2,400 x 0·86 x 31,920 x AN$0·30)	127,249·7 (5,500 x 0·82 x 94,050 x AN$0·30)	343,754·3 (7,900 x 0·79 x 183,600 x AN$0·30)	423,339·8 (8,300 x0·77x 220,800 x AN$0·30)
AN$50,000+ International	1,080·0 (1,200 x 0·05 x 7,200 x AN$2·50)	26,812·8 (2,400 x 0·14 x 31,920 x AN$2·50)	232,773·8 (5,500 x 0·18 x 94,050 x AN$2·50)	761,481·0 (7,900 x 0·21 x 183,600 x AN$2·50)	1,053,768·0 (8,300 x0·23 x 220,800 x AN$2·50)
AN$30,000–49,999	2,340·0 (500 x 15,600 x AN$0·30)	11,901·6 (950 x 41,760 x AN$0·30)	62,899·2 (1,400 x 149,760 x AN$0·30)	229,320·0 (2,600 x 294,000 x AN$0·30)	382,882·5 (2,750 x 464,100 x AN$0·30)
<AN$30,000	1,536·0 (100 x 51,200 x AN$0·30)	12,425·4 (450 x 92,040 x AN$0·30)	47,700 (750 x 212,000 x AN$0·30)	105,468·0 (1,100 x 319,600 x AN$0·30)	132,840·0 (1,200 x 369,000 x AN$0·30)
Tota	l 7,418·4	70,904·7	470,622·7	1,440,023·3	1,992,830·3

7. Predicted rental income:

	2003	2004	2005	2006	2007
	AN$000's	AN$000's	AN$000's	AN$000's	AN$000's
Income range					
AN$50,000+	288·0 (AN$40 x 7,200)	1,276·8 (AN$40 x 31,920)	3,762·0 (AN$40 x 94,050)	7,344·0 (AN$40 x 183,600)	8,832·0 (AN$40 x 220,800)
AN$30,000–49,999	624·0 (AN$40 x 15,600)	–1,670·4 (AN$40 x 41,760)	5,990·4 (AN$40 x 149,760)	11,760·0 (AN$40 x 294,000)	18,564·0 (AN$40 x 464,100)
<AN$30,000	2,048·0 (AN$40 x 51,200)	3,681·6 (AN$40 x 92,040)	8,480·0 (AN$40 x 212,000)	12,784·0 (AN$40 x 319,600)	14,760·0 (AN$40 x 369,000)
Total	2,960·0	6,628·8	18,232·4	31,888·0	42,156·0

8. Working capital investment:

	2003	2004	2005	2006	2007
	AN$000's	AN$000's	AN$000's	AN$000's	AN$000's
Working capital requirement (8% sales)	(830·3)	(6,202·7)	(39,108·4)	(117,752·9)	(162,798·9)
Incremental investment	(830·3)	(5,372·4)	(32,905·7)	(78,644·5)	(45,046·0)

(b) Before a final decision is made, various factors should be taken into account including:

– The extent to which forecasts can be relied upon. (In particular, the extent to which figures have taken account of changes in technology).
– The level of risk associated with the venture, including the prospect that the Antaeus government will grant further network licences over the next five years.
– The likelihood of renewing the licence after the five-year period.
– The resource (human, financial, technological) implications of undertaking the project.
– Other options available to the company. **(7 marks)**

(c) Potential benefits of the joint bid include:

– The sharing of risk
– The sharing of the financing and operational costs
– Access to specialised knowledge about local conditions
– The possibility that a local partner will enhance the chances of a successful bid
– Reduction in potential competition for the bid

Some of the problems may include:

– The lack of technological and management know-how of the partner in the cellular market
– The quality of management of Antaeus Telephones Inc
– The poor image of the potential partner among the population
– The nurturing of a potential rival for a future licence bid
– The risk of disputes with the partner
– The sharing of profits
– Restrictions on the ability to make changes to earlier plans

(10 marks)