ACCOUNTING FOR DECISION MAKING

June 2005
Diploma stage

MARKING SCHEME

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Question 1

(a) Real cost of capital = (1 + .08)/(1 + 0.018) – 1 = 0.061 (round to 6%).

Company 2					
	Year 0	Year 1	Year 2	Year 3	Year 4-15
Savings					
(£450k x 5%)		22,500			
(£450k x 10%)			45,000		
(£450k x 15%)				67,500	
(£450k x 20%)					90,000
Maintenance		-15,000	-15,000	-15,000	-15,000
Training		-25,000	-5,000	-5,000	-5,000
Capital	-420,000				
Total cash flow	-420,000	-17,500	25,000	47,500	70,000
Discount rate at 6%	1	0.9434	0.8900	0.8396	7.039
					(9.712-2.673)
NPV	-420,000	-16,509	22,250	39,881	492,730
NPV	118,352				
Equal annual annuity	118,352/9.712 = £12,186				
Discount rate @10%	1	0.9091	0.8264	0.7513	5.119
					(7.606-2.487)
NPV	-420,000	-15,909	20,660	35,687	358,330
NPV	-21,232				
Discount rate at 9%	1	0.9174	0.8417	0.7722	5.53
					(8.061-2.531)
NPV	-420,000	-16,055	21,042.5	36,679.5	387,100
NPV	8,766				

IRR (by interpolation) = 9% + (8,766/(8,766 + 21,232)) = 9.29%

Financial summary:	Company 1	Company 2
NPV	£70429	£118,352
Equal annual annuity	£9,569*	£12,186
IRR	8.94%	9.29%

* 70,429/7.36 = £9,569

Assumptions:

- That the life of the projects is realistic in the light of dynamic changes in IT systems.
- Proposed savings are valid to an appropriate level of certainty.
- The cost of capital and inflation rate will remain stable over the projects life.
- The systems will continue to be used for at least the next 30 years.

On financial grounds select company 2 due to the higher equal annual annuity.

Cost of capital: 1 mark, Calculation of NPV for company 2: 3 marks

Calculation of EAA 1 mark, Calculation of IRR for company 2: 1 mark
Correct selection on financial grounds: 1 mark,
Assumptions: 1 mark per point made up to a maximum of 3
(10)

(b)

Profitability index		Capital Outlay	NPV	Profitability Index	Ranking
E-documentation system		420,000	118,352	1.28 (420,000+118,352)/ 420,000	2
Energy saving for town hall		600,000	150,000	1.25	4
FE web based registration		300,000	80,000	1.27	3
Internal audit in-house		250,000	75,000	1.30	1
Prioritisation based on PI Index		Capital	NPV		
Internal audit in-house		250,000	75,000		
E documentation system		420,000	118,352		
FE Web based registration (Cannot undertake this project as ceiling of £900k would be breached).		0	0		
		670,000	193,352		

Therefore the project selection based on the profitability index technique is restricted to the internal audit being brought in-house and the e-documentation system providing an NPV of £193,352. However, the Authority has only used up £670,000 of the available £900,000 and the profitability index is only 100% certain to be optimal when all of the available funds have been used up.

An alternative project selection can be made not utilising the profitability index. We can only be sure of an optimal solution using this technique when all of the available resources are used up. An alternative should be sought using up more of the available funds the optimal on financial grounds being:

Alternative selection		Capital	NPV
Energy saving for town hall		600,000	150,000
FE web based registration		300,000	80,000
		900,000	230,000

However, projects especially in the public sector are often decided on non-financial grounds. These factors have to be built into the decision being faced. Thus we may be willing to accept a project, which is not financially optimal, yet provides greater non-financial benefits. For example, the selection below does not use up all available funds nor does it provide the optimal NPV but may be selected due to political or service related factors.

Alternative selection		Capital	NPV
Energy saving for town hall		600,000	150,000
Internal audit in-house		250,000	75,000
		850,000	225,000

A question should be raised with the Authority in relation to why they do not make more funds available in order to undertake all of the above projects since they all make a positive NPV.

Calculation and selection of optimal solution: 6 marks
Explanation and comments: 2 marks

(c) Cost of equity via the Capital Asset Pricing Model is:

Ke = 4% + ((10% - 4%) x 1.5) = 13%

Kp = 9%/1.28 = 7.03% (round to 7%)

$$Kd = \frac{7\% \times (1 - .3)}{0.82} = 6\%$$

WACC	Market value	Kc	WACC
Ordinary shares			
4 million x £1.6	6,400,000	13%	0.0729
Preference shares			
2 million x £1.28	2,560,000	7%	0.0157
Debentures			
3 million x £0.82	2,460,000	6%	0.0129
	11,420,000		0.1015

The costs of capital is thus 10% but this includes an inflationary element and the real cost of capital is calculated as follows:

Real WACC = (1 + .1)/(1 + .018) – 1 = 8.055% (round to 8%).

Costs	year 0	year 1	year 2-10
Software development	-200,000		
Hardware costs	-150,000		
Maintenance		-14,000	-14,000
Training		-12,000	-5,000
Total direct costs		26,000	-19,000
Share of overhead (12.5% of direct costs)			
12.5% = 50% x 25%		-47,000	-2,375
Income			
System purchase	400,000		
Maintenance		25,000	25,000
Training		20,000	5,000
Net cash flow	50,000	-28,000	8,625
Taxation at 30%		-8,400	-2,587.5
Net cash flow	-15,000	-19,600	6,037.5
Discount at 8%	1	0.9259	5.784
			(6.710-.926)
NPV	35,000	-18,148	34,921
Total NPV	51,733		

The company would be willing to let the NPV drop by £51,733 before it would decide not to bid. Therefore the reduction in the annual maintenance charge would be:

£51,733/6.71 = £7,718.

Adjust for tax giving (7,718/0.7) = £11,022
This is a reduction of 44%

Kp ½
Kd ½
CAPM 2
WACC 1
- *Direct Cash flows 2*
Overheads 1
Tax 1
NPV calculation 1
Sensitivity analysis 2
Conclusion 1

(d) Inherent in investment appraisal is the need to evaluate all the costs and benefits relating to a project. The Green Book (Economic Appraisal in Central Government HMSO 1991) states "where costs and benefits can be valued, the basis for valuation should be their economic cost ie their opportunity cost given, near enough, by market values".

Enumeration of the broader social costs and benefits obviously causes difficulty as this is a subjective area. Before attempting to enumerate these costs and benefits there is a need to recognise and define what costs/benefits arise. Projects are seen to have wide ranging effects both directly impacting on the area close to the operating of the project but also affecting indirectly other areas. Monetary costs and benefits may be self evident eg the software and training costs in the above example. However, public sector projects often have wider social costs and benefits. For example, the impact on staff of retraining on the new systems (negative and stressful to some and positive to others).

Cost benefit analysis attempts to place a value on all of the factors affecting a project. Thus decision-makers will have placed in front of them all factors each with a financial value placed against it eg a value on the informational benefits of the system. This will be looked at in more detail below when the evaluation of benefits is discussed. The difficulty in using this method in practice is that it requires a large investment in time and effort and has therefore been restricted to very large projects. Therefore it is unlikely that it would be used on such a small project as given in this question.

A further system that has evolved for making decisions within the public sector is a form of **points scoring system** not dissimilar to a style of balanced scorecard. Within this process a number of criteria are set for the objectives of a project (often referred to as desiderata). For example, in the above scenario each of the systems could be evaluated in relation to its flexibility of adding on additional elements in the future. One of the criteria may well be financial and could be in net present value form. When options have been identified for a project each alternative is scored as to how that option meets each of the individual criteria.

The different criteria could then be weighted in relation to their importance in achieving the objectives of the organisation and then the best option selected. The decision makers often take the form of a multi-disciplinary team in which the management accountant may be a team member. This team would agree: what the goals of the project are (leading to a statement of the desiderata), what

weightings should be given to each goal, and the scores to be given for each of the criteria on each alternative. Obviously there is the potential for conflict within the team regarding the definition and identification of criteria as well as how weights and scores are assigned. It is imperative that no individual or interest group dominates the proceedings to the detriment of the others.

There are a number of benefits to the above system. The inclusion of non-financial factors is an advantage whilst the multi-disciplinary team gives breadth of knowledge. It is seen to be a cost-effective method of project appraisal whilst not being a cumbersome process.

A further method of appraising investments is that of **cost effectiveness studies**. In this type of evaluation monetary values are only given to those costs elements for which a monetary value can be assigned. Those elements for which it is regarded as too difficult to record a value are not ignored but rather recorded in a narrative form. Thus decision-makers can use their judgement based on all of the facts including those that have been evaluated in monetary terms and those which have not.

1 mark per point made up to a maximum of 6 for the techniques
1 mark per non-financial factor up to a maximum of 4

(40)

Question 2

(a) Analysis of information

1) Residential Care

- Customer satisfaction for Briagh is very low in relation to the other two authorities and deteriorating between 2003 and 2004.
- Briagh could use the Best Practice reading as a target to be achieved within a number of years.
- In terms of cost for residential care Briagh's costs have increased from £7.5k to £8.5k per resident up 13.3% when inflation barely rose by 2% which needs to be investigated. Also Besti manages to achieve high customer satisfaction despite a lower cost per resident. This could be investigated.
- The number of care workers is higher than the other authorities (67% higher than Deah) which is incongruous with the poor satisfaction feedback re the quality of provision. It also may explain why the costs per resident are so high.
- The average waiting time for residents is the weakest of all of the authorities by far (260% higher than Besti) and should be investigated as regards whether it is due to ineffective administration or a lack of building capacity.

2) Home Care

- There is no information available regarding customer satisfaction and this should be sought (even if there are no comparators for the other authorities).
- There are fewer senior citizens receiving home care for Briagh. This may be explained for the comparison with Besti due to the authorities being so different as to be non-comparable. However, Deah is comparable and appears to offer a greater service to the clientele. Is this due to a stiffer regime in selecting those for receiving assistance or poor administration in processing requirements? However, there has been a slight improvement between the years for Briagh.
- The weekly home care hours are 20% higher than Deah but 17% lower than Besti. However, perhaps there are differences in the environ of Besti compared with Briagh Authority making this non-comparable.
- The Unit cost for home care is again significantly higher for Briagh (and increasing over the years). Briagh is currently 31% higher than Besti and has increased by 6.25% over the year when inflation was only 2%. This should be investigated regarding the staffing levels, overhead costs etc.

3) Community Meals

- Customer satisfaction for Briagh is very low in relation to the other two authorities.
- The unit costs of the meals are higher for Briagh despite the quality not meeting the satisfaction expectations of the recipients. Briagh is currently 16% higher than Deah and the costs have risen by 7.4% over

the year when inflation is only 2%. Is the high cost due to staffing levels, procurement inefficiency, overheads?

- The number of senior citizens receiving the service is low compared to the other authorities. In comparing with a like authority (Deah) we are only marginally lower (though seemingly improving each year).

4) General

- There appears to be a problem regarding the take up of the service by ethnic minority groups. These clients should be asked as to why they do not wish the service: are their racial problems in the approach of staff?
- There appears to be significant delays in the processing of requirements from the point of first contact (and deteriorating) with 17% taking more than 6 weeks (as opposed to 0% for the best practice authority).
- Once processed the actual proposed start dates have only been met for 70% of the clients (deteriorating from 75% the previous year). This is well below Deah who register 85% and significantly below best practice of 97%.

1 mark per point made up to a maximum of 12
(maximum of 5 for each service area)

(b) Strengths and Weaknesses

Benchmarking can be defined as a systematic and continuous measurement process, continually comparing and measuring an organisation's business processes against business leaders. The overall aim of the technique is to gain information that will help the organisation take action to improve its performance.

Benchmarking looks at all aspects of an organisation. It does not limit itself to cost factors but also considers procedures and processes.

The outcomes from the benchmarking process may be:

- The identification of opportunities not previously identified.
- Finding the solution to an existing problem.
- Identifying best practice within areas of significance to the organisation which we can attempt to emulate.
- Improving the entity's understanding of the external environment (customers and competitors).
- Learning from others successes and mistakes.
- Improving in areas where the organisation has been criticised eg references made by external auditors.

However, there are weaknesses and limitations in benchmarking exercises including:

- It may be difficult to obtain information on competitors/other providers.
- It may also be difficult to obtain information on certain types of highly sensitive information eg pricing strategies.

- Merely copying other organisations may be dangerous as no two organisations are identical having different resources, skills etc. Before making any decisions to change an organisation's practices it is imperative that a clear rationale for the change is made.
- Sufficient resources need to be allocated to the benchmarking process.
- They focus on process not outcome (for example administration of care may be shorter but the identification of care required may be less accurate).
- They do not necessarily compare like with like (there may be different caseload, local profile etc).
- They may be based on inaccurate data (problems with data collection/timeliness of data) eg:
  - Were the questionnaires used for the customer satisfaction surveys the same for each authority.
  - Were the indices worked out in a comparable manner eg Besti v Briagh re the cost per resident.
- Often the indicators are only pointers with further investigation needed.

1 mark per point made up to a maximum of 8

(20)

Question 3

(a)

Income (80%) 80% x £25 x 20 x 365	146,000	146,000	146,000
VC 80% x £5 x 20 x 365	-£29,200	-£29,200	**-£29,200**
FC	-120,000	-100,000	**-90,000**
	-3,200	16,800	**26,800**
Income (70%)	127,750	**127,750**	127,750
VC	-£25,550	**-£25,550**	-£25,550
FC	-120,000	**-100,000**	-90,000
	-17,800	**2,200**	12,200
Income (60%)	**109,500**	109,500	109,500
VC	**-£21,900**	-£21,900	-£21,900
FC	**-120,000**	-100,000	-90,000
	-32,400	-12,400	-2,400
	120	100	90
80%	-3,200	16,800	26,800
70%	-17,800	2,200	12,200
60%	-32,400	-12,400	-2,400

Calculation of Income 2 marks
Calculation of variable costs 2 marks
Calculation of fixed costs 2 marks
(NB marks are only given for the three missing figures)

(b)

Fixed costs	Probability	Capacity	Probability	Cash flow	Probability	EMV
-120	20%	80%	0.3	-3,200	0.06	-192
-120	20%	70%	0.45	-17,800	0.09	-1,602
-120	20%	60%	0.25	-32,400	0.05	-1,620
-100	70%	80%	0.3	16,800	0.21	3,528
-100	70%	70%	0.45	2,200	0.315	693
-100	70%	60%	0.25	-12,400	0.175	-2,170
-90	10%	80%	0.3	26,800	0.03	804
-90	10%	70%	0.45	12,200	0.045	549
-90	10%	60%	0.25	-2,400	0.025	-60
						-70

The EMV, is -£70 and therefore the scheme should be rejected by a risk neutral decision maker.

However, the result is marginal and may be overturned by non-financial factors.

This does not relate specifically to one outcome but is a weighted average value based on probabilities.

It should be noted that there is a 37.5% chance of the project making a deficit.

Calculation: 3 marks
Comments: 3 marks (1 mark per point made)

(c) Sensitivity analysis

Sensitivity analysis is a technique where decision options are tested for their vulnerability to changes in any variable such as expected sales volume, sales per unit, material costs and labour costs. An example of this technique would be to estimate whether a decision would change if estimated costs were x% higher than estimated, or estimated revenues y% lower than estimated.

Sensitivity analysis sets out to answer **what-if** questions to facilitate decision-making and to indicate critical areas for management control. For example, in investment appraisal, management is obviously concerned with 'downside risk' ie what changes would turn an *acceptable* project *unacceptable*.

As a financial manager you may have to examine the sensitivity of your estimates of decisions to a range of alternative assumptions regarding the variables around which calculations are based.

One major advantage of spreadsheets is that they provide an efficient way of obtaining answers to "**what-if"** questions, also known as "**sensitivity analysis"**. Once the spreadsheet has been prepared any of the variables can be changed and the output will change automatically, as long as the formulae have been set up correctly.

One way and two way tables are an example of such an application which assist in considering the alteration of variables.

Simulation

The concept behind this method is simple and easily implemented using spreadsheets.

The main idea is that a number of models are constructed based on differing assumptions, randomly selected from pre-constructed probabilities.

Each model is calculated for its final outcome and then the final outcome stored with all the other possible simulations in order that a distribution of returns for each simulation be prepared.

Conclusions can then be reached regarding the range of possible outcomes and their related probabilities.

Thus in the scenario in the question different outcomes would be predicted based on differing assumptions selected randomly (but in line with the probabilities of each assumption occurring). This would be run on numerous occasions until a profile is achieved of potential outcomes.

1 mark per point made up to a maximum of 4 for sensitivity analysis
1 mark per point made up to a maximum of 4 for simulation

(20)

Question 4

(a) Form equation for the demand equation:

Maximum demand = 80 + (1,400/100 x 10) = 220

Demand equation = Q = 220 – (P x 10/100)

This can be restated as: .P/10 = 220 – Q and thus P = 2200 - 10Q

Total demand = (multiply both sides by Q)

TR = P x Q = (2,200 – 10Q) x Q

TR = 2,200Q – $10Q^2$

Using calculus we can find the slope of TR ie MR

MR = 2,200 – 20Q

Optimal surplus where MR = MC

2,200 – 20Q = 280

20Q = 1,920

Q = 96

Thus P = ?

P = 2200 - 10Q

P = 2,200 – (10 x 96) = £1,240

Profit = (96 x (£1,240 - £280)) - £95,000 = -£2,840

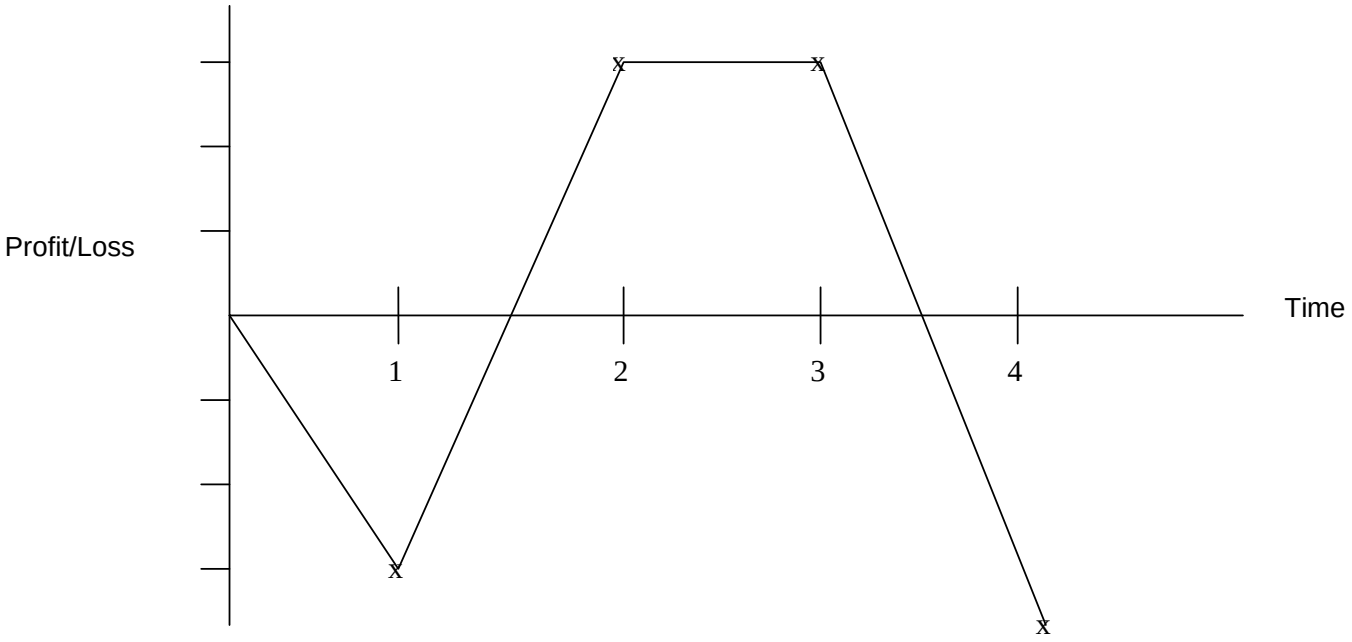
NB: The contribution earned by this project after adding back on the share of general overheads of £50,000 is actually £47,160.

The question should be asked as to whether the Unit's management would be willing to accept a small deficit (bearing in mind the benefit to the business community) given that it contributes £47,160 to the overheads of the organisation.

Forming the demand equation 3 marks
Calculating the optimal price 2 marks
Conclusion 1 marks

(b)

	Year 1	Year 2	Year 3	Year 4	Total
Demand	200	250	250	150	850
Contribution per delegate	£300 - £100	£500 - £100	£500 - £100	£350 - £100	
Total contribution	40,000	100,000	100,000	37,500	277,500
Less incremental fixed costs	-30,000	-30,000	-30,000	-30,000	-120,000
Relevant contribution	10,000	70,000	70,000	7,500	157,500
Less share of central fixed costs	-40,000	-40,000	-40,000	-40,000	-160,000
Profit/(loss)	-30,000	+30,000	+30,000	-32,500	-4,500



Calculation of profit for each year 2 marks
Drawing of the diagram 2 marks

(c) Alternative charging methods

1. Variable costing: only charging clients with the variable/incremental costs of the services rendered. There will be no recovery of fixed costs leading to a significant deficit.

2. Partial overhead charging: All variable/incremental costs are recovered but only a proportion of fixed costs. The same proportion of overheads could be

applied to chargeable services or could differ in relation to the services being provided.

3. Full cost charging: All costs incurred in the provision of a service should be charged in this instance. Thus no subsidy will be required.

4. Full cost plus a profit margin: A charge is set in order to create a surplus in order to subsidise other services given that the organisation is not setting out to make a profit overall.

5. Going rate charges: This rate could be that set by other public sector service providers in other localities. It ignores the differences in service that there may be and also the specific cost structures of the different localities. This may be based on the idea of interjurisdictional equity that the public should be able to receive the same service and charges as other similar locations.

6. Demand orientated charging: Set the charges at levels which different groups of users are willing to pay. This may be based on a comparison with private sector provision of like services. If profits are made then these can be used to cross subsidise other services.

7. Charges dependent on the service given: This requires that different services are categorised and then consistent logic re charging applied to them. The "need" services would be wholly financed by taxation and free at the point of use whilst facility services could be financed from charges. In between these services are the protective and amenity services which could be a mixture of subsidy and charge eg new business development.

8. Charges dependent on the benefits given: This requires a definition of the benefits given by the service which would then clarify the charging philosophy that would be most appropriate.

9. Customised value added model: This could be applied where there is substantial discretion shown by service users in deciding how they wish their service. Thus if an organisation wishes an IT course run in-house then a customised fee could be set.

10. Differential pricing: this is similar to the private sector where different prices are set for different customers eg off peak, adult/child, disadvantaged/advantaged.

11. Subsidised pricing: This could be used where the public sector body wishes to promote a service and encourage users of the service. An example of this may be the charges set for recreational facilities in a bid to promote good health.

12. Penetration prices: A form of subsidised pricing in order that an organisation can win a place in the market place by offering a lower price than they would have wished.

13. Price skimming: This is where a higher price is set than the norm for the market place. The idea is that the organisation's product/service is seen as a prestige brand as opposed to the other products on the market. Thus

customers at the wealthier end of the market will pay a higher price as they see this as a more prestigious product.

Differential pricing 1 mark per point made up to a maximum of 2
Price skimming: 1 mark per point made up to a maximum of 2
Other comments: 1 mark per point made up to a maximum of 6

(20)

Question 5

JIT

The JIT approach involves a continuous commitment to the pursuit of excellence in all aspects of manufacturing systems, design and operations. Its goals are:

- elimination of non-value-added activities
- zero inventory
- zero defects
- batch sizes of one
- zero breakdowns
- and 100% on-time delivery service

These goals represent perfection and are unlikely to be achieved in practice but they represent a target which encourages continual improvement and excellence.

The relevance of JIT to the public sector may appear to be limited. However, goals of zero defects in outputs, zero breakdowns, and 100% on-time delivery of services are high ideals that should be held to in all sectors. Examples of JIT implementation in the refuse collection service might include:

- Evidence of non-achievement of the 100% on-time delivery of services re the picking up of refuse could be found and improved upon.
- The breakdown in refuse vehicles and other key assets could be appraised in order to move towards zero breakdowns.
- Where significant stocks are held of materials it may be useful to use JIT in order to cut down these stocks and their associated costs eg vehicle fuel. This may involve the organisation building strong links with key suppliers in order to obtain guarantees regarding quality and delivery times.
- Elimination of non-value added activities might involve an appraisals of activities that do not directly affect the clients of the organisations services. Whilst these may not be completely eliminated there may be potential for reducing the costs incurred. For example, the administration function may be subject to such an appraisal.
- Reduction in the complexity of processes is also a means of creating greater efficiency and reducing costs. For example refuse collection delivery routes could be considered in order to simplify them and perhaps reduce errors and make them more streamlined.

Customer profitability analysis

This technique seeks to calculate the value added to an organisation by selling goods to a certain customer or segment of the market. A number of commercial organisations sell a large proportion of their total sales to a small number of large customers. Therefore it would be beneficial to consider the value that each contributes to the business. The discounts offered, freight costs, after sales service etc will differ between different customers. It is therefore useful to recognise how profitable or otherwise it is to deal with a certain customer given the specific requirements that that customer makes of us.

This technique is limited for application to the public sector as its benefit is only apparent for large customers. Where a public sector body is seen to supply its services to the one customer it may be useful to calculate the value of that client.

In the refuse collection example it may be worth calculating the separate incomes and costs incurred in dealing with the external clients where the service rendered is significant. This could be both at a contribution level and also a full cost and profit level.

Activity based management

ABM considers how ABC information can be used to assist in the management of processes. By providing management with detailed cost information by activity it assists managers to evaluate the effectiveness and efficiency of each activity.

If income streams can also be attached to the activities it then becomes possible to review the value added by each activity (as in value chain analysis).

One principle used here is the categorisation of activities into value added and non-value added activities. The impact of this latter category should be minimised if not eradicated (eg duplicate call outs to collect the same refuse).

ABM is useful in organisations where overhead costs are high and where the resources represented by overheads are consumed by products and services in different proportions to their relative production volumes. This is especially true of many public service organisations where labour intensive activities have been replaced by mechanisation and also by service entities. Whilst direct costs (eg material and labour) are easily attributed to products and controlled eg via standard costing, the controlling of overhead costs is more difficult.

Traditionally overhead costs have been attributed to products and services on the basis of such arbitrary methods as direct labour hours. ABC attempts to bring more accuracy to the attribution of overheads to products and services via the use of relevant cost drivers.

By focusing on the true costs of activities a number of questions can be asked: What is the true cost of providing a product or service, for example, the true cost of non-programmed refuse collection. Should we continue to provide that product or service on grounds of lack of profitability? What is the cost of providing an activity? Would it be better to outsource that activity (for example, certain elements of the refuse service delivery such as vehicle maintenance). What is the true cost of providing products and services to a particular client? Should we continue to service that client? What are the costs associated with non-value added activities? Can we eliminate and reduce these non-value added costs?

Target Costing

This technique is concerned with shaping the production around the targeted cost for a product. Simplistically the stages of the process are as follows:

(i) Prepare a product specification.
(ii) A target selling price is estimated, assuming a certain level of sales. Where the elasticity of demand is high ie a small incremental change in the price will result in a wide swing in demand, the understanding of the sales price and volume relationship is vital.
(iii) The target profit level should be calculated (possibly based on the return on capital target or cost of capital).
(iv) The target cost can then be calculated by deducting the profit element from the target price.

In a simple situation the product designers can then produce a product whose specifications will cost this target amount. However, in reality the designers are more likely to be involved in an iterative process. Thus the designers may specify a product's requirements in regard to the market's perceived needs. The accounting team will then cost these specifications. It is unlikely that this initial product cost will equate to the target cost. There would then follow a process of adjusting the product specifications in order that the target cost can be attained. This iterative process requires some form of formalised structure in order that it will be completed effectively. In the refuse example a best practice benchmark cost maybe used as a target to be achieved.

Often the costs specified for the product will be higher than the target set and a review is required in order to reduce the costs of the design specification. One technique to aid in this is **quality function deployment** (QFD). This technique compares customer requirements for the different aspects of our product or service with the actual specifications of our product or service. We can thus see where effort is needed to meet customer requirements where we are at present not effectively achieving those and may also see areas where we are putting effort in but the market does not place a value on the internal characteristic. Once the relationship between what we offer and what the market requires is understood trade-offs between cost and product specification can be made. In the refuse example it may be considered appropriate to reduce the flexibility of the service offered to certain clients in order to only service them during under capacity times thus saving costs.

ABC can also be used within target costing as many costs may be of an overhead nature. The overhead costs are allocated and apportioned to various activities and then applied to products via cost drivers ie the factor that drives (influences) the overhead cost to be incurred.

Another area of note is that target costs could be used as a **motivational tool.** Whilst conceptually market conditions are the predominant influence on setting target costs there is also the scope for modification. Thus we may wish to set a target below that set by the market conditions in order to reduce further the costs and improve product profitability.

The **focus** of target costs can also vary. Whilst it is possible to concentrate on the entire product cost it may be more beneficial to break this down. This can be considered in relation to different functional areas or activities within the organisation or to the various sub components of the final product. This will help in the analysis of areas where cost review is required as some areas may be effective and others ineffective in relation to the target costs.

The application to the public sector of this technique may appear to be limited as many of the services are not charged directly to the clients. Target costing requires as its starting point the market price and the profit margin required by the company. However, what is potentially available to the organisation is benchmark cost details of the best practice provision in the country. This then can become the target which management may transpire to achieve in the future. Time should be spent in attempting to alter procedures and provision in order to achieve the target.

In this scenario the best practice within the sector can be monitored and attempts made to achieve best practice within the refuse collection service.

5 marks for each technique with 2 being given for application
(20)