Answers

1 (i) To: The Directors
From: Management Accountant
Subject: The Balanced Scorecard
Date: 11 June 2010

The use of non-financial performance indicators (NFPIs) has become more widespread during recent years to assess performance in organisations. This is largely attributable to the fact that many important aspects of organisational performance cannot be measured in purely financial terms. It follows that if performance measures are restricted to financial measures alone then many important non-financial aspects of organisational performance may be ignored.

Furthermore there is a widely held view that 'what gets measured gets done' and if performance measures are restricted to financial measures alone then the focus of managers will be myopic and consequently they may be motivated by the wrong stimuli. In the past the important measure of performance have been financial in nature, with little or in extreme cases no focus whatsoever, being given to other important aspects of performance. Many commentators have argued that financial measures encourage short-termism to the detriment of the longer-term prospects of organisations.

Many NFPIs are 'lead indicators' insofar as they give an indication of likely future financial performance and therefore their measurement might reveal problems which might be addressed by management in time to take remedial action.

Skill and care must be exercised by management in the selection of NFPIs given the vast number of potential NFPIs in order to avoid an 'information overload' which could be damaging to an organisation.

The increasing attention given to NFPIs was a key factor in the development of Kaplan and Norton's 'balanced scorecard' which proposed that business performance is reviewed from four perspectives, these are:

The financial perspective – How does an organisation appear to the shareholders?
The customer perspective – How does an organisation appear to the customers?
The internal business perspective – What must an organisation excel at?
The innovation and learning perspective – Can an organisation continue to improve and create value?

For each of the four perspectives goals and measures will need to be defined – typically five measures for each perspective. The goals and measures are designed to focus attention on important factors and precipitate improved organisational performance.

The internal logic of the balanced scorecard is that goal-setting originates with customers. Then an organisation must determine what it must excel at in order to satisfy customer expectations. The innovation and learning perspective contains goals which relate to how an organisation will maintain progress and develop its processes, products and services. The results from these three perspectives will be mirrored in the financial perspective.

The directors will need to agree the 'vision' of the organisational strategy with middle management and to ensure that the vision is also shared by all employees within the organisation thereby creating an 'understood environment'. The creation of such an environment should ensure that sufficient attention is focused on all important factors within the organisation's environment which will lead to higher levels of profitability.

The following are possible measures that might feature within a balanced scorecard for SBC:

Customer perspective:

% of sales from new clients
% of clients from whom repeat business is gained
Ratings from client satisfaction surveys

Internal business perspective:

% of client projects completed on time and within budget
% of bids for new clients which are successful
% of employee time billed to clients

Innovation and learning perspective:

% of time used for staff development
% of revenues earned from new products or services

Financial perspective:

Growth in operating cash flow
Gross margin earned from clients
Percentage increase in operating costs
Expected value added (EVA ^{TM}) generated in relation to the budget.

(ii) Calculation of the cost per consultation is as follows:

		Advertising	Recruitment	IT Support
Number of consultants		20	30	50
Salary ($)		40,000	35,000	30,000
Total salaries		800,000	1,050,000	1,500,000
Number of consultations per annum	(200 per consultant)	4,000	6,000	10,000
Business Development Activity		(280)	(1,320)	(1,200)
Chargeable days		3,720	4,680	8,800
Demand for chargeable consultations		4,200	6,250	10,250
Subcontractor days		480	1,570	1,450
Cost per subcontractor day ($)		300	220	200
Cost of subcontractors ($)		144,000	345,400	290,000
Cost per chargeable consultation ($)				
Full-time consultants	Total salaries plus operating costs/chargeable days	277·55	286·86	232·95
Subcontractors	= Cost of subcontractors/ number of subcontractors	335·71	255·71	235·71

Tutor note:
Any reasonable method for allocating operating costs was given credit. Here, chargeable days have been used but allocating by the number of consultants in each area or the number of consultations (inc BDA) were also accepted.

(iii) The figures contained in the appendix reveal a forecast reduction in level of total demand of 8% over the next two years. Specfically hard hit is the recruitment business with a fall of 20% over this period with the number of recruitment consultants dropping by 33%. The figures also show that salary levels will remain constant from 2011 to 2012. This may be due to reasons such as increased competition or an economic downturn.

The forecast increase 'across all activities' in days spent on Business Development Activity, notwithstanding the projected fall in activity levels in 2011 and 2012, represent an attempt by SBC to broaden and/or retain its existing customer base.

(Additional points such as the increased use of subcontractors (based on answer to part (ii)) were also given credit.)

(iv) Potential benefits which arise from the use of subcontractors by SBC include the following:

- Increased flexibility – the use of subcontract staff where own staff are unavailable helps to avoid situations where SBC might otherwise have to cancel and/or reschedule client activities which might lead to a loss of client goodwill or even worse, the loss of clients
- The use of subcontractors might be necessitated by the lack of a particular expertise among the full-time staff employed by SBC. Thus SBC can avoid being perceived to be 'turning away' business or providing services to clients which are not of the required quality level, both of which might be harmful to its reputation
- The use of subcontractors might reduce the overall costs of SBC as it might well be the case that the number of full-time staff employed within SBC would need to be increased if subcontract staff were not available. Thus the fixed costs associated with a fixed workforce would be higher and it is quite conceivable that some of the full-time staff might have low utilisation ratios, particularly in times of low demand by clients for the services offered by SBC.

Potential problems which arise from the use of subcontractors by SBC include the following:

- The use of subcontract staff might cause resentment by full-time staff within SBC who might view the use of subcontractors as a lost opportunity to develop their own skill bases
- Subcontractors might not identify with the corporate culture of SBC and hence might operate in a way which is inconsistent with ways 'things are done' within SBC. This might create an inconsistent view of the SBC by clients who have received services from both full-time consultants and subcontractors
- The fact that there are two completely different pay schemes operating might prove problematic and cause dissatisfaction among full-time consultants and/or subcontractors. For example full-time staff might consider that the rate paid per day to subcontractors is too high thus giving rise to perceptions of inequity which might damage the morale within SBC.

Tutor note:
Professional marks were given under the following headings: Format, introduction, conclusion, use of subheadings, professional language, clarity. A conclusion was not required as it is difficult to formulate for this diverse report but credit was given where it was reasonably attempted.

2 (a) Budgeted Income Statement for the year ended 31 May 2011

		$	$
Equine College:			
Fee income – Working (1)	Student category:		
	Surgery	4,536,000	
	Dentistry	3,150,000	
	Business Management	3,402,000	11,088,000
Operating costs			(6,760,000)
Budgeted profit of Equine College			4,328,000
Riding School:			
Fee income	Rider category:		
	Beginner	1,843,200	
	Competent	2,027,520	
	Advanced	3,379,200	7,249,920
Operating costs			(6,095,000)
Budgeted profit of Riding School			1,154,920
Budgeted profit of EMA			5,482,920

Workings:

(1) Equine College fee income:

e.g. Surgery	
Number of students (30% x 1,200) =	360
Fee per student 12,000 x 1·05 ($)	12,600
Budgeted Fee income ($)	4,536,000

(2) Riding School fee income

	Number of lessons	Charge per lesson ($)	Fee income ($)
240 horses x 4 per day x 320 days x 80% =	245,760		
Beginner (50%)	122,880	15	1,843,200
Competent (25%)	61,440	(30 x 1·1) = 33	2,027,520
Advanced (25%)	61,440	(50 x 1·1) = 55	3,379,200
			7,249,920

(b) (i)

% change in fee income	Probability	Lesson capacity	Probability	Combined probability	Equine College revenue	Riding School revenue	Total costs	Net profit	Expected value of net profit
					$	$	$	$	$
		90%	0·10	0·02	11,088,000	8,156,160	12,855,000	6,389,160	127,783
No change	0·20	80%	0·60	0·12	11,088,000	7,249,920	12,855,000	5,482,920	657,950
		70%	0·30	0·06	11,088,000	6,343,680	12,855,000	4,576,680	274,601
Decrease		90%	0·10	0·06	9,979,200	8,156,160	12,855,000	5,280,360	316,822
by 10%	0·60	80%	0·60	0·36	9,979,200	7,249,920	12,855,000	4,374,120	1,574,683
		70%	0·30	0·18	9,979,200	6,343,680	12,855,000	3,467,880	624,218
Decrease		90%	0·10	0·02	8,870,400	8,156,160	12,855,000	4,171,560	83,431
by 20%	0·20	80%	0·60	0·12	8,870,400	7,249,920	12,855,000	3,265,320	391,838
		70%	0·30	0·06	8,870,400	6,343,680	12,855,000	2,359,080	141,545
				1·00				Expected value of profit =	4,192,872

(ii) The use of expected values takes into account the relative likelihood of each of the possible outcomes occurring. The expected value of $4,192,872 is not one of the potential outcomes in the table, but is the weighted average of those outcomes. The use of expected values by the management of EMA implies that they have a risk-neutral attitude. A risk neutral decision-maker will ignore the variability in the range of potential outcomes and will be concerned only with the expected value of outcomes.

(iii) Possible reasons why the government of Hartland has decided to open an academy comprising an equine college and a riding school are as follows:

EMA operated the only Equine College in Hartland and operated at full capacity during the year ended 31 May 2010. This could well be an indication that the demand for equine specialists in Hartland exceeds the available supply.

Much transportation in Hartland is provided by horses and this might therefore account for the fact that the Equine College operated by EMA is currently operating at full capacity. It is reasonable to assume that the more that horses are used for transportation then the greater will be the need for specialists such as equine veterinary surgeons.

The government of Hartland 'actively promotes environmental initiatives' and therefore it might well be the case that it discourages the use of petrol and diesel propelled vehicles for both social and business purposes.

Hartland is a developing country which has a large agricultural sector and therefore it is probable that horses are used in day-to-day operations e.g. farming.

3 (i) Value for money audits may be seen as being of particular relevance in not-for-profit organisations where they are an important performance assessment tool. The VFM audit focuses on the achievement of objectives of the organisation in a way that ensures the most economic, efficient and effective manner. This may be complicated by the inter-relationship of objectives.

In the scenario the principal objective is the provision of the upgrade of the air-conditioning systems, ensuring that the quality of the system is satisfactory to LGHD. A subsidiary objective is to ensure satisfaction of the occupants of the premises with the quality and ease of use of the upgraded system.

An extension of the objectives is to ensure that the upgrade is seen to satisfy cost-benefit criteria, both in terms of the upgrade and the subsequent maintenance and operational advice to be provided by the contractors.

The principals are LCGD as the provider of funds and the house occupiers as recipients of the improved service.

The agents are the contractors who are tasked with the installation and maintenance of the upgrade plus the advice to users (occupants) during the initial two year period.

(ii) The focus on the achievement of the objectives of the proposed improvements will benefit from consideration of the relevance of each of Economy, Efficiency and Effectiveness. The three Es are likely to be seen as possibly being in conflict with each other in terms of the achievement of objectives.

Economy will be seen as being achieved by aiming at minimising the average cost per house for the upgrade and subsequent maintenance and advice. This may be aimed at choosing the lowest quote per house for the proposed upgrades. A possible problem with this approach is that the quality of the work done may be compromised resulting in dissatisfaction of occupants.

Efficiency may be seen as the maximisation of the input:output ratio. In this exercise, this may be measured through maximising the number of houses that can have the air-conditioning upgrade with the funds available.

Effectiveness requires the achievement of the objectives (both principal and subsidiary) of the proposal. This may be measured by focusing on factors such as:

- The quality of upgrade obtained
- The level of improvement in air-conditioning achieved
- The extent to which external noise is eliminated
- Residents' feedback indicates that the benefits will outweigh any inconvenience caused by the upgrading work
- LCGD considers that 'value for money' has been achieved.

(iii) Intangibility in the context of the LGHD proposal relates to the likelihood that it is less likely that there will be a single measurable output. The upgrading of the air-conditioning systems is likely to require different amounts of input effort from one property to another. In addition, the provision of maintenance and advice to occupiers over the first two years after the upgrade is unlikely to be able to be valued with certainty. Intangible factors such as the professionalism of the contractors may be difficult to value. Also the level of advice likely to be sought by occupiers may vary considerably.

Heterogeneity refers to a possible variability in the standard of performance in the provision of the service. The quality of advice given to house occupiers may vary according to the expertise and/or level of commitment of the engineer giving the advice. Alternatively, the engineer may be underperforming because of some work stress factor.

Simultaneity refers to the provision and consumption of the service coinciding and hence making it difficult to apply all relevant checks and tests before its use. In the LGHD exercise, it should be possible to test the quality of an upgrade before it is accepted by LGHD. However, the provision of maintenance and operational advice will take place throughout the two-year period after installation. This means that there should be some safeguard provisions in the contract to ensure that deficiencies from the agreed maintenance and advice aspects can be addressed as required.

Perishability refers to the inability to 'store' the service in advance. A particular problem may be where extreme weather conditions (hot or cold) lead to an overload of the air-conditioning units. Will there be any provision in the contract to ensure that the contractors will provide additional help – especially during the initial two year period?

(Alternative examples and comments would be accepted.)

4 (a) (i) The differences in the reported cost estimates calculated under each of the two costing systems are significant. This is especially the case with regard to Job order 973. The management accountant's calculations for the cost estimates produce the following increase/(decrease) in reported costs:

	Job order 973	Job order 974
	$	$
Unit cost per job under existing system	1,172·00	620·00
Unit cost per job under activity based costing	1,612·00	588·89
Increase/(decrease) in reported cost	37·54%	(5·02)%

Job order 973 shows an increase in reported cost of 37·54% [(1,612 – 1,172)/1,172] whereas Job order 974 shows a decrease in reported cost of 5·02% [(88·89 – 620)/620].

A common occurrence when activity-based costing is implemented is that low-volume products show an increase in their reported costs while high-volume products show decreases in their reported costs. This is very much the case with regard to the products which are the subjects of Job orders 973 and 974.

The reported costs also differ due to the following:

– Job orders 973 and 974 differ in the way they consume activities in each of the five activity areas within SFS's premises
– The activity areas differ in their indirect cost allocation bases. In particular no activity area uses direct labour hours as the basis of allocating indirect costs.

Two areas where the differences in reported product costs might be important to SFS are as follows:

Product design – since it is more probable that those involved in the design of products will find the results produced by the activity-based approach to be much more credible. This is especially the case in a machine oriented environment where direct labour hours are unlikely to be the major cost-driver. Activity-based costing can be of more assistance to product designers and may signal areas where cost reductions can be achieved, for example using fewer cuts on the lathe and/or reducing the number of machine hours required in the milling area.

Product pricing – The application of activity-based costing shows that the cost of Job order 973 is being understated while the cost of Job order 974 is being overstated. The management of SFS should be aware of the danger of failing to recover the costs incurred on Job order 973. Conversely, they may well be overpricing Job order 974 which might well entail losing business to its competitors.

(ii) Two problems SFS would have had to deal with in the successful implementation of an activity-based costing system are as follows:

(i) initially it would be very time consuming to collect a large amount of data concerning the activities relating to each job undertaken by SFS. Hence the cost of buying, implementing and maintaining a system of activity-based costing is likely to be significant.

(ii) it would be vital to identify the real 'cost-drivers' within the activity-based costing system of SFS otherwise results given by the ABC system would be inaccurate leading to incorrect decisions by management.

Tutor note:
Additional credit was available for staff/culture issues which would be resolved by adequate training and motivation to change.

(b) Operational ABM is about 'doing things right'. Those activities which add value to products can be identified and improved. Activities that do not add value should be reduced in order to cut costs without reducing product value. Where for example a product or service has been estimated to require a longer activity time than other products or services then every effort should be made to find ways of reducing the number of hours required.

Strategic ABM is about 'doing the right things' using the ABC information to decide which products to develop and which activities to use. It can focus on profitability analysis, identifying which products/customers are the most profitable and for which sales volume should be developed.

An activity may have implicit value not necessarily reflected in the financial value added to any service or product. SFS might decide to cut back on the level of expenditure involved in servicing customers. This may lead to a poorer perceived value by customers of the service provided by SFS with a consequent fall in demand.

There are risks attaching to the use of ABM insofar as ABM can give the wrong signals. For example a particularly pleasant work environment can help attract and retain the best staff, but may not be identified as adding value in operational ABM. By the same token, a customer that represents a loss based on committed activities, but that opens up leads in a new market, may be identified as a low value customer by a strategic ABM process.

Tutor note:
Other risks or potential problems were also accepted such as pricing errors arising or the cost/benefit of such an expensive system.

5 (a) At present, the variable manufacturing costs are targeted to be at a level of 35% of sales value. Fixed costs are expected to increase by $400,000 in 2012 which may be indicative of an increase in the level of activity.

The use of cost targeting would necessitate comparison of current estimated cost levels against the targets which must be achieved if the desired levels of profitability, and hence return on investment, are to be achieved. Thus where a difference exists between the current estimated cost levels and the cost target, it is essential that this gap be closed. The gap between the cost targets and current expected cost levels regarding the application for 'platinum' status may be analysed into internal and external failure costs. Internal failure costs arise when products or services fail to meet design quality standards and such failures are detected before the product or service is passed to the customer. For example, incorrect processing of customer orders prior to supplying goods or services to customers, excessive idle capacity of personnel would constitute internal failure costs. External failure costs arise after products or services have been passed to the customer and would include costs incurred in order to address rectification claims from customers. Internal failure costs are expected to fall from 21·92% of the cost target to 7·5% of the cost target in 2013. External failure costs are expected to fall from 27·2% of cost target to 6·13% of cost target in 2013.

Prevention and appraisal costs are discretionary costs incurred by management in an attempt to reduce the costs of internal and external failures. Prevention costs are incurred as a consequence of management actions with regard to achievement of the desired quality standards to enable the cost target to be achieved, such as for example the costs incurred in training sales administration staff. Prevention costs are expected to fall from $4·2m in 2011 to $1·32m in 2013.

Appraisal costs are costs incurred in order to ensure conformance with agreed quality standards. These would include costs incurred in ensuring quality negotiation procedures with customers. Appraisal costs are expected to decrease by $100,000 to $0·7m in 2012 and to remain at that level during 2013.

(b) (i) The application for 'platinum status' quality certification may be measured in both financial and marketing terms. The net profit/sales percentage is expected to increase each year. The figures are 8·33%, 31·67% and 43·89% for 2011, 2012 and 2013 respectively (e.g. 2011 = $2m/$24m). The profit increase is partly linked to the projected fall in quality costs, both costs of conformance (appraisal and prevention) and costs of non-conformance (internal and external failure) as shown in the appendix. It is also linked to the increase in volume of business as fixed costs have a reduced effect. Will BEG achieve market growth and an improved market position? The projected sales in the appendix shows growth of 25% in 2012 ($30m/$24m) and a further 20% in 2013 ($36/$30m). In addition, market position is anticipated to improve, with a market share of 8%, 9·38% and 10·59% in years 2011, 2012 and 2013 respectively (e.g. 2011 = $24m/$300m).

(ii) In order to achieve external efficiency BEG has to satisfy its customers. Customer satisfaction may be defined as meeting customer expectations. The quality of service provision and delivery are operational criteria that can be used to monitor levels of customer satisfaction. The success will require an efficient business operating system for all aspects of the cycle from product design to after sales service to customers. Improved quality and delivery should lead to improved customer satisfaction. Schedule 1 shows a number of quantitative measures of the expected measurement of these factors:

- Quality is expected to improve. The percentage of products achieving design quality standards is expected to rise from 92% to 99% between 2011 and 2013. In the same period, rectification claims from customers for faulty work should fall from $0·96m to $0·1m and the cost of after sales rectification service should fall from $1·8m to $0·8m.
- Delivery efficiency improvement may be measured in terms of the increase in the percentage of sales expected to meet planned delivery dates. This percentage is forecast to increase from 88·5% in 2011 to 99·5% in 2013.

(iii) Internal efficiency may be assessed by reference to flexibility and productivity. Flexibility relates to the business operating system as a whole whilst productivity relates to the management of resources such as staff time. This should be helped through reduced cycle time and decreased levels of waste. Once again the appendix shows a number of quantitative measures of these factors:

- The average total cycle time from customer enquiry to delivery is forecast to reduce from 49 days in 2011 to 40 days in 2013. This indicates both internal efficiency and external effectiveness.
- Waste in the form of idle capacity of service personnel is expected to fall from 12% to 1·5% between 2011 and 2013. Also, service enquiries not taken up by customers are expected to fall from 10·5% of enquiries in 2011 to 3% of enquiries in 2013. These are both examples of ways in which improved productivity may be measured. Both will be linked to the prevention and appraisal costs, which are intended to reduce the level of internal and external failure costs.

Whilst we do not know the precise standards that are required to be achieved in order to gain 'platinum' status quality certification one can conclude that BEG has forecast vast improvements in several aspects of its performance during the three-year period under review.

Tutor note:
Additional points such as a reasoned conclusion on the overall forecasted performance were credited.

				Marks	Marks
1	**(i)**	Importance of NFPIs	Up to	4	
		Balanced scorecard – discussion	Up to	2	
		Balanced scorecard – SBC	Up to	7	13
	(ii)	Chargeable days		3	
		Subcontractor days		2	
		Costs per consultation		2	7
	(iii)	Comments (on merit)	Up to 2 each	6	Maximum 5
	(iv)	Potential benefits		3	
		Potential problems		3	6
		Professional marks		4	4
					Total = **35**
2	**(a)**	Equine College:			
		number of students		1·0	
		fee income	3 x 0·5	1·5	
		operating costs		0·5	
		Riding School:			
		number of lessons		1·5	
		fee income	3 x 0·5	1·5	
		operating costs		0·5	
		EMA profit		0·5	7
	(b) **(i)**	Combined probability schedule		3	
		Profit and loss schedule		3	
		Expected value schedule		3	9
	(ii)	Likelihood of occurrence		1	
		Risk neutrality		1	
		Other relevant comments		1	3
	(iii)	Reasons	3 x 2	6	6
					Total = **25**
3	**(i)**	Value for money		3	
		Principal and agent		3	6
	(ii)	Economy, efficiency, effectiveness	Up to 2 each	6	6
	(iii)	Explanation of terms, the extent of their influence and problems arising for each heading	Up to 2 each	8	8
					Total = **20**

					Marks	Marks
4	**(a)**	**(i)**	Comments (on merit):			
			Cost per unit comparisons		2	
			Reasons for differences		2	
			Potential consequences	Up to 2 each	4	8
		(ii)	Problems	Up to 2 each	4	4
	(b)		Comments (on merit):			
			Operational ABM		2	
			Strategic ABM		2	
			The implicit value of an activity		2	
			Risks		2	8
						Total = **20**
5	**(a)**		Comments (on merit):			
			Cost targets		4	
			Costs of quality		4	8
	(b)	**(i)**	Financial performance and marketing		4	
		(ii)	External effectiveness		4	
		(iii)	Internal efficiency		4	12
						Total = **20**