MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. More marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

Question 1 – The Healthy Vegetarian Ltd

General comments

This is the mini case and also the main data analysis question.

The scenario is a listed company which operates a chain of shops selling ready-to-eat, vegetarian food and drinks. Healthy eating is a key feature of its marketing.

Each shop has a manager who has limited autonomy in deciding order levels and staffing levels, but most other decisions are centralised, including pricing and the supplier list.

The performance of each shop, and each shop manager, is monitored annually. All shops are ranked by three separate criteria and the lowest ranking shop is subject to closure review procedures. If performance does not then improve, the shop will be closed.

Budgets are also used to measure performance for all shops.

Two proposals have been put forward to revise procurement procedures. The first proposal is to replace the current system of shop managers placing orders by increasing centralisation of procurement. This is proposed to be achieved by determining order quantities centrally using the IT system and historic data patterns of sales for each shop. The second proposal is to partially decentralise procurement by permitting shop managers to source 20% of their shop's products directly from local suppliers, rather than ordering through head office.

An ethical dilemma has arisen as a non-executive director (Andrew) has pointed out that there is high sugar content in many THV products and that this is inconsistent with the marketing theme of healthy eating. The marketing director (Diana) has replied that the sugar content in grams is marked on all THV products and customers should read it.

1.1 (a)

	Leeds	Hull	Average for all shops	Average for 50 worst performing shops	Average for 50 best performing shops
Per sq m					
Revenue	£3,269	£4,063	£6,000	£4,875	£4,833
Op Profit	£131	£138	£375	£250	£375
NCA/Sq m	£4,231	£3,750	£3,875	£3,688	£3,750
Per employee					
Revenue	£38,636	£46,429	£68,571	£55,714	£58,000
Op Profit	£1,545	£1,571	£4,286	£2,857	£4,500
Rev/NCA	0.77	1.08	1.55	1.32	1.29
Op profit margin %	4.0%	3.4%	6.3%	5.1%	7.8%

% of average for all shops					
Revenue	88.5%	67.7%	100.0%	81.3%	120.8%
Op profit	56.7%	36.7%	100.0%	66.7%	150.0%
Operating costs	£408,000	£314,000	£450,000	£370,000	£535,000

Leeds shop

General issues

Based on the information available, the Leeds shop is larger in terms of floor space than the Hull shop and any of the three 'averages' given as benchmarks. This implies it could have greater potential to make more sales, so it may have an unfair advantage over smaller shops to generate revenue and profit.

Perhaps, more significantly, the cost of the property in Leeds is greater than the Hull shop and any of the three 'averages' given as benchmarks. This is true in absolute terms, but also in terms of non-current assets cost per square metre. The reason for this may be that the Leeds shop is better positioned in a prime location. This may enable it to generate more revenue. Comparisons of revenue per shop in absolute terms therefore gives unfair advantage to higher cost, bigger shops such as Leeds. Operating profit in absolute terms may also be greater for higher cost shops like Leeds, but in this case it needs to cover the additional depreciation costs.

Where the Leeds shop performs badly by comparison to all the other shops is in the ROCE KPI. Any additional profit it earns needs to be proportionate to the additional capital invested, and in this it seems to be failing.

Revenue

In terms of the total revenue generated, the Leeds shop outperforms the worst performing shops benchmark and generates 88.5% of the revenue of the average shop. Whilst not a good performance this would not place it in the very bottom of the rankings which would warrant being placed in closure review procedures.

However, when revenue is adjusted for scale using floor space, then the revenue per square metre at £3,269 is far lower than the Hull shop or the three benchmarks.

Also, revenue per employee at £38,636 is lower than the Hull shop and the three benchmarks. This may be a further reflection of scale or as a result of the inefficient use of labour resources.

Operating profit

In terms of the total operating profit earned, the Leeds shop outperforms the Hull shop, but is below the worst performing shops benchmark, despite the greater size of the Leeds shop. It generates only 56.7% of the operating profit of the average shop.

The operating margin is low at only 4%. This is little more than half the margin of the best performing shops benchmark, although it is above the margin for the Hull shop. In general it shows that despite generating significant revenue, operating costs are high.

Indeed, the operating costs of the Leeds shop are £38,000 higher than the worst performing shops benchmark despite generating only an extra £35,000 in revenue.

Operating profit per employee is the lowest of the shops in the table although similar to the Hull shop. Again this could reflect inefficient use of labour resources.

ROCE

As already noted, the ROCE of the Leeds shop is by far the lowest at 3.1%. This reflects poor utilisation of resources and a low level of return.

The ROCE uses the historic cost, but this was some years ago and the fair value may far exceed this which would make the ROCE far worse in fair value terms.

Closure decision

A distinction needs to be made between the performance of the manager and the potential performance of the shop. The causal factors therefore need to be identified to ascertain whether the poor performance is due to controllable factors (eg poor staff management) or non-controllable factors (eg difficult market conditions). A recovery plan can then be put in place and acted upon.

If the factors causing poor performance are non-controllable then alternative and more efficient use of the resources tied up in the Leeds shop could be gained by closing it and reinvesting the cash in alternative locations. As noted, the cash generated may far exceed the price originally paid.

Hull shop

General issues

The Hull shop is of similar size and value to the average and worst performing benchmarks, so reasonably valid comparisons can be made.

However the Hull shop was the most recently opened of the shops and therefore could still be regarded as in the start-up phase, with greater potential for future growth than other shops.

Revenue

The low level of total revenue generated appears to be the main problem. It is the lowest of the shops disclosed in the table with only 67.7% of the revenue of the average shop (ie about a third lower) and 83.3% of the revenue of the worst performing benchmark.

In terms of revenue per square metre, the Hull shop is about the same proportion lower than the average as in absolute terms, given they are of similar size.

By the same argument, the revenue per employee for the Hull shop, compared to the average shop and the worst performing benchmark, is similarly lower as they all have the same number of staff.

Operating profit

In terms of the total operating profit earned, the Hull shop is by far the worst. This seems likely to be due to low revenue and high operating gearing, with staff and depreciation being key fixed costs.

The operating margin is the lowest at only 3.4%. This is little more than half the margin of the average shop at 6.3%. In general, it shows that low revenue and high operating gearing are having a detrimental effect on margins.

Operating profit per employee and per square metre of floor space are both higher than the Leeds shop but below that of the worst performing benchmark. Again this could reflect poor revenue generation and/or inefficient use of labour resources.

ROCE

While the ROCE of the Hull shop at 3.7% is not as low as the Leeds shop it is far below the worst performing benchmark at 6.8%, reflecting low profitability.

Closure decision

Unless there is strong evidence that the Hull shop can quickly emerge from the start-up phase and make significant improvement, consideration should be given to closure. If the Hull shop were to be sold then more efficient use of resources could be gained by reinvesting the cash in alternative locations, even if the new shop were only to earn the worst performing benchmark rate of return. There may however be closure costs and, as the shop was acquired recently, the sale price might not exceed the price paid.

1.1 (b)

Closure review procedures may possibly have benefits of motivating staff at the lower end of the performance range but may also generate issues in terms of stress and uncertainty which may reduce staff morale.

Closure review procedures are unlikely to have either positive or negative motivational effects for strong performing units as it is not probable they will be affected.

Some form of criteria to decide on the viability of shops seems necessary in order to promote the efficient use of capital of the business as a whole. In this respect there are two factors:

(1) How the criteria are applied
(2) Which criteria are applied

How the criteria are applied

The current criteria are applied only annually. This is a long period, over which performance can deteriorate a great deal. More regular monitoring (eg quarterly or even monthly) seems appropriate.

Conversely however once a shop is placed in closure review procedures it can be closed within three months which gives little time for it to be turned around and improved.

There also seems insufficient distinction between poor performance of the shop and the poor performance of the shop manager. Changing the shop manager may seem to be an appropriate initial response to poor performance rather than closure of the shop. Replacement of the manager only appears to occur in response to budget deficits rather than closure review procedure measures.

The measures appear to be applied in terms of relative performance compared to other shops, rather than absolute performance against a predetermined target. If all shops are performing well in absolute terms, then one shop still has to be at the bottom of the rankings and at risk of being closed. Conversely, if a large number of shops are performing badly, it is only the very worst that will be captured by closure review procedures using relative measures. Other shops, performing badly but not quite as badly, will then escape scrutiny but may warrant closure.

Moreover, relative performance measures create uncertainty in that shop managers do not know the level of performance that will place them in closure review procedures, as they do not know, in advance, how other shops are performing. Absolute criteria for closure review procedures (eg a 5% ROCE) would at least make clear, from the beginning of the year, what is an acceptable level of performance.

Which criteria are applied

Revenue
Absolute revenue fails to allow for scale, and can therefore hide the underlying level of efficiency. A large expensive shop (such as Leeds) will easily achieve this revenue criterion, whereas a small shop may be well managed but may struggle to generate significant revenue.

Operating profit
Similarly, the absolute level of operating profit rewards scale. It also hides such factors as food wastage and theft of products amongst much larger costs.

ROCE

The ROCE as used in the closure review procedures bases the capital on the price paid for non-current assets. For older purchases, the fair value of the property may have increased a lot over historic cost. Conversely, for fixtures and equipment, they may be largely depreciated and in need of urgent replacement.

Alternative measures

Operating profit margin – this addresses the scale issue by relating operating profit to revenue generated.

Gross profit margin – this would be the difference between revenue and the cost of sales (ie the cost of the food/drink acquired). As selling prices are uniform and the price paid for products is constant this measure would reveal inefficiencies in usage (eg wastage and theft).

ROCE based on fair values - would give a more accurate picture of opportunity cost and the realisable value on closure. It would make comparisons between shops more valid as they would be measured on the same basis.

Non-financial measures – may include: customer satisfaction ratings; number of items sold per square metre; and number of customer complaints. A balanced scorecard could be used to identify some key non-financial measures.

Examiner's comment

Requirement 1.1(a)

The data analysis was generally very well answered by most candidates calculating relevant data and presenting their figures in a structured table. Weaker candidates did not produce an initial table of calculations, but weaved occasional random calculations into their narrative. Other weaker candidates mainly used the figures already provided in the question, with few additional new calculations.
Most candidates produced a good commentary on the data with a reasoned opinion on whether Leeds and Hull should be closed or not. The vast majority also highlighted additional information required, with most tending to do this separately, rather than integrating it into their discussion. The vast majority also provided a conclusion, although there was a lot of sitting on the fence.

Requirement 1.1b

Overall the critique of the KPIs was poorly done. Relatively few candidates identified the issue of scale or concept of absolute versus relative KPIs. Even fewer candidates highlighted the issue of using a ranking system for the KPIs as opposed to measurement against a target.

Candidates performed better in suggesting other KPIs with most predictably using the Balance Scorecard. However, many failed to justify the additional KPIs in the context of the given scenario. Most candidates identified the need for non-financial KPIs and a good proportion highlighted the issue of asset values and ROCE.

Marks available	20
Maximum full marks	18

1.2 Budgeting

A budget is a plan expressed in financial terms.

THV appears to be currently using budgeting for three purposes:

1. Planning - Promotes forward thinking so resources can be put in place in time (eg a cash shortfall can be financed by a planned overdraft). Potential problems are identified early, therefore giving managers time enough to consider the best way to overcome that problem.

2. Motivating performance **-** Having a defined target can motivate shop managers in their performance. Shop managers may be motivated by a target to achieve, but this is reinforced by the policy of penalties such as dismissal if targets are not achieved.

3. Providing a basis for a system of control**.** Budgets provide a yardstick for measuring performance by comparing actual against planned performance and investigating budget variances.

Possible improvements

At the moment there may be a conflict between the ways in which THV is using budgeting.

Participation in setting targets by shop managers may lead to more commitment to achieving those targets but may also lead to a degree of biasing the budget downwards to improve budget variances. If managers fear they are going to be judged, and possibly dismissed, if they do not achieve their budget target they are likely to build in slack to make the budget more achievable. Budgets that contain slack are less useful for planning purposes as they contain bias.

An improvement would be to have less of a budget-constrained style of management and instead treat variances as an opportunity to make improvements rather than dismiss managers. With reduced consequences may come more co-operation and more accurate budgeting.

The fact that budgets below the previous year's level are not acceptable may fail to take into account changing market conditions (eg a new competitor in a local region). If last year's performance is now unachievable, the budget may need to be revised. Only realistic budgets can form the basis for planning and control, and therefore they should be adaptable. A zero-based budget would start from first principles rather than adjust last year's figure.

Budgets enable senior managers to 'manage by exception', and thereby focus on areas where things are not going to plan (ie the exceptions). This is done by comparing the actual performance to the budget to identify the variance. However, not all variances are under the control of shop managers. The principles of controllability and accountability apply. Shop managers can only be held responsible for budget variances arising from causes over which they have control.

The use of budgets could be extended by THV for other purposes. At the moment, there seems limited use of budgets for authorisation. Shop managers appear to have complete discretion of the number of staff hired at their shop. If they were forced to budget, then they would need to plan staff usage in advance which would make it subject to senior management scrutiny before the event. Similarly, variations from the staffing budgets would need to be justified before being authorised.

If the policy of permitting shop managers to make external purchases of food from local suppliers were to take place (see below) then this could be implemented, authorised and controlled by a budgetary mechanism at individual shop level.

The use of budgets could also be extended beyond shop level. Budgets could be applied to each of the 40 product lines to assess the profitability of each product line and trends in demand compared to expectations. Poorly performing product lines could be dropped where highlighted by adverse budget variances. Similarly, new product lines could be introduced and monitored by budgets.

Examiner's comments

There was discussion about the nature of the current budgeting system and the problems with it, but there tended to be limited detail and justification for how better use could be made of budgeting by THV. Weaker candidates struggled on this requirement providing only brief answers that lacked any real cohesion. The better responses gave due consideration to controllability by store managers in the context of performance measurement/management.

Available marks	7
Maximum full marks	7

1.3 Procurement processes

Purchasing of food products from local suppliers

Currently there is a limited degree of autonomy given to shop managers. The selling prices are fixed by head office; the prices paid to suppliers and recharged to shops are fixed by head office; the location of the shop and capital expenditure are determined by head office.

The only real factors that shop managers can control therefore are:

- The amounts of food ordered each day from within the narrow range of 40 products lines purchased by head office
- Staffing levels

Key advantages to permitting some purchases from local suppliers are:

- Use of local knowledge to accommodate local tastes
- Managers are more motivated if they have more autonomy
- Learning by head office from successful new products sold on a trial basis which can be rolled out across all 200 shops.

Disadvantages are:

- Costs – head office can take advantage of economies of scale to lower the cost of purchase. Individual shops are likely to pay more.
- Some central purchases would be displaced and therefore there may be the loss of quantity discounts.
- Less control – risk of fraud if shop managers sell their own goods through shops and understate revenue.
- Loss of homogeneity – if customers obtain different goods at different shops there may be some loss of brand identity.

Use of information technology systems for procurement

The use of automatic reordering at the level of individual shops would reduce the amount of autonomy for shop managers. In this sense, it is the opposite of the above proposal for purchasing from local suppliers. It is also probably initially incompatible with the above proposal as introducing purchases from local suppliers would make historical data patterns unreliable predictors of future sales.

Aside from the behavioural issues, there are risks of future sales patterns not following historical patterns. Local conditions, such as a new competitor, could be accommodated by a shop manager but may not be fully reflected by historic data recognition patterns over a prolonged period.

If errors are made by IT systems ordering so wastage occurs, it may not always be clear who is responsible. It would be difficult to hold shop managers responsible for wastage if they had not ordered the goods, yet wastage figures impact on profit.

Advantages would include:

- Releasing shop manager time to focus on customer service and staff management rather than order quantities
- Orders could be placed on a consistent basis if the shop manager was ill or on holiday
- Data management would be easier if IT systems were used rather than orders from 200 separate managers
- IT systems could be integrated with suppliers' IT systems for more efficient ordering. This could make systems more efficient as there are only four suppliers. Improved transfer of information may make the logistics and distribution systems of suppliers more efficient.

Examiner's comments	
This was generally well answered with most candidates scoring well. The merits and problems of procurement and IT were well considered by most, recognising the tensions inherent in centralisation versus de-centralisation in decision making. Fewer recognised the problems associated with conflicts in brand identity due to local sourcing and/or the possibility of fraud by store managers.	
Available marks	12
Maximum full marks	11

1.4 Ethics

Ethics pertains to whether a particular behaviour is deemed acceptable in the context under consideration. In short, it is 'doing the right thing'.

In making any ethical evaluation it is first necessary to establish the facts. In this case, the claims made by Andrew need to be established to assess their validity before taking any action. This may include establishing the sugar content of a sample of products. It might also include determining the validity of Diana's counter-claim that: "…the sugar content in grams is marked on all our products…."

The issue of legality may apply if the labelling is incorrect, misleading or contrary to regulations. Legal advice should be taken.

Assuming that Diana's claim that products are labelled is correct, this leaves open the question for the board of whether the marketing theme of healthy vegetarian food is inconsistent with the facts, notwithstanding that they are labelled individually.

In making a decision as to how to act, it may be helpful to Andrew and the board to apply the Institute of Business Ethics three tests:

- Transparency
- Effect
- Fairness

Transparency - would the THV board mind people (existing customers, suppliers, employees) knowing about the sugar content in a more open way? In particular, the issue of transparency will apply to the customers who may have believed the heathy eating marketing but, if told more overtly and transparently about high sugar content, would have acted differently. The key issue is whether the prominence and clarity of the labelling amounts to adequate transparency that would lead one to believe that the customers were making an informed choice on the sugar content of their purchases.

Effect – whom does the high sugar content, without clear disclosure, affect/hurt? Clearly this could include the health of customers who would have acted differently on the basis of full information. Other rivals selling genuinely healthy food may also have suffered financially.

Fairness – would the level of disclosure of sugar content be considered fair by those affected? The issue for THV's board is the boundary between the individual customer's responsibility to read labelling about sugar and the company's responsibilities: to make labelling sufficiently clear for it to be observed, and readily understood, in the context of making a food purchase of this nature; to be fair, open and accurate in the information it provides to customers via its marketing efforts.

Honesty – A final issue is one of honesty. Is there an intention to mislead in holding out products to be healthy in marketing communications and then making the minimum possible disclosure in the expectation that customers will not understand the reality of the sugar content?

Actions

Andrew's actions should be consistent with his obligations and duties as a non-executive director. His initial action should be to inform the board. Three issues are to be highlighted: (1) whether the labelling is transparent, clear and in compliance with regulations such that there is evidence that customers are making an informed choice on the sugar content of their purchases; (2) whether the marketing message is misleading; and (3) if the labelling is within regulations, whether it is also in line with custom and practice in the industry.

Andrew needs to give the board reasonable time to respond to the issues that he has raised. If there is no adequate, timely response, and he believes the actions are illegal, then he may have a duty as a non-executive director to report to the relevant regulatory body, having taken legal advice.

He should consider resigning if this becomes necessary.

Examiner's comments

A large majority of candidates adopted the transparency, effect, and fairness structure. However, the application of this structure varied, with weaker candidates not completely sure of the correct interpretation of the principles in the context of the scenario. Many candidates failed to go beyond this TEF framework to discuss any other ethical principles. Overall the use of ethical language and principles was not as comprehensive as in previous sittings. Many candidates failed to address the legality issue or to identify suitable actions for Andrew given his role as an non-executive director. Although most candidates (but not all) identified potential actions for Andrew, there was generally a poor understanding of Andrew's role as a non-executive director in relation to this issue.

Available marks	9
Maximum full marks	8

Question 2 – Elver Bloom Recruiting plc

General comments

The scenario relates to a medium-sized employment recruitment agency. It recruits staff globally, on behalf of its clients, to work on permanent employment contracts in London in the finance industry.

EBR has found it difficult to win new tenders, retain existing clients and increase revenue. The EBR board therefore decided to reduce all its fees by 10% from 1 April 2015.

The board has recently been reviewing financial and operating data to determine whether the price reduction policy has been successful, but there is some disagreement on interpretation by board members.

One of the directors, Amy, has proposed an alternative policy: to move upmarket by increasing fees by 20% from their current level. The increased price is to be accompanied by offering increased rebates for unsuccessful appointments.

2.1

Key issues - notes

Economic

- Economic growth - more employees required
- More prosperity – higher salaries on which fees are based
- Labour market conditions – as the market nears full employment, it is more difficult for employers to find the right people without specialist outsourced help
- Economic cycle makes labour market and therefore recruitment particularly volatile.
- Specialist companies with dependency on one sector (eg finance or IT) generate risk of dependency on the fortunes of that sector

Technological

- E-recruitment through social media and internet makes quick access to more potential recruits cheaper and easier
- International recruits can be accessed with social media and internet without physical presence in other countries
- Groups can be easily targeted (eg financial services or IT potential recruits) using relevant websites and industry electronic journals
- Makes market place more competitive when cheap access makes low barriers to entry for new recruitment companies.
- Makes pricing more transparent
- Clients can more easily recruit themselves through Linkedin etc so less need for agency services

Legal

- Employment law advice a source of income
- Employment legislation may constrain the recruitment process to avoid discrimination and promote equality. This may impose additional costs.
- Data protection may prevent e-recruitment details being accessed
- International recruitment may be constrained by immigration laws

Conclusion and synthesis

Profitability in the recruitment agency industry is dependent on cycles in the labour market which in turn are a function of the economic cycle. Agencies dependent on one sector (eg finance or IT) will be dependent on the fortunes of that industry, which may or may not follow macro-economic conditions. Revenue generated in the recruitment agency appears to have benefited overall from the general economic recovery, thereby enhancing industry profitability.

The increased use of social media and e-recruitment seems to be lowering costs in the industry so may appear to add to profitability. However, this is not unambiguously the case if it simultaneously reduces barriers to entry and thereby increases industry competition and forces down prices.

Legal issues may similarly have an ambiguous effect on industry profitability in constraining actions of recruiters and requiring additional processes, but also offering an opportunity for advisory work. Overall the three factors appear to have recently enhanced industry profitability but there is sufficient ambiguity of effect that not all industry participants may benefit from this.
Examiner's comments Answers tended to use the three headings provided however the economic analysis was generally poor with few answers clearly stating the link between economic activity, the labour market and the recruitment industry. Better answers used examples for technology from social media, for employment law, and data protection. Poorer efforts tended to be somewhat generic.

Available marks	10
Maximum full marks	10

2.2

To: EBR board
From: An Adviser
Date: 7 June 2016
Subject: Report – fee level review

Year to 31 March	2016	2015	Change %
Fee per appointment £	£16,000	£17,000	-5.9%
Rebate/revenue %	12.0%	10.1%	
Operating profit % fees	41.6%	44.2%	
Operating profit % total	46.4%	48.9%	
VC/revenue %	20.0%	18.0%	
FC/Revenue %	26.4%	27.7%	
VC per appointment £	£3,200	£3,060	4.6%
FC per appointment	£4,230	£4,714	-10.3%
TC per appointment	£7,430	£7,774	-4.4%
Recruitment operating profit per appointment	£6,649	£7,511	-11.5%
% changes			
Revenue	4.9%		
Operating profit recruitment	-1.4%		
Other services	8.9%		
Operating profit total	-0.4%		

Impact of price reduction

In comparing 2016 with 2015, the working assumption adopted is that, in the absence of the fee change, the 2016 financial statements would replicate those of 2015. In other words it has been assumed that any changes in 2016 are due entirely to the 10% fee reduction.

There has been:

- Growth in revenue of 4.9%, but operating profits on fees and overall have fallen by 1.4% and 0.4% respectively. The increase in revenue as a consequence of fee reduction implies that demand is elastic. Nevertheless, the increased revenue has been outweighed by the increased costs caused by the higher level of activity, leading to a fall in operating profit.
- More appointments have been made, up 11.4%, increasing from 700 to 780. According to the working assumption, this has been generated by lower prices. This gives the opportunity for future growth and cross selling of other services (which have also increased).
- There is a danger of price being a signal for quality and the perception of positioning downmarket when trying to attract upmarket clients and recruits.
- Fee per appointment has only fallen by 5.9% not 10%. This may mean a better mix of higher quality appointments or that the 10% reduction policy has not been fully implemented.
- Rebates increased in absolute terms and also as a % of revenue, so there may be poorer quality appointments (although variable cost per appointment has gone up which could imply increased quality, or increased inefficiency).
- Operating profit has changed only marginally in absolute and % terms. However operating profit per appointment has fallen significantly by 11.5%. This has been driven by the 10% fee reduction but also the increase of 4.6% in variable cost per appointment already noted.
- 'Other services' has increased contribution – this may indicate more cross-selling.

Retain or reverse price reduction

The short term impact in 2016 from the price reduction would indicate that the effect has been unfavourable as the operating profit has fallen. However, before deciding on the best future action, the

working assumption that there were no other relevant factors affecting profit may be challenged.

Also, it may be inappropriate to judge the pricing strategy based on one year alone. The increase in the number of appointments may have a longer term beneficial effect in improving reputation and increasing cross-selling of other services.

However the longer term effects may also be detrimental to the company and the damage to the company's reputation for quality may increase over time adding to the short term adverse effect on operating profit.

Examiner's comments

Calculations were variable, with some students producing few or no calculations, whilst others made a reasonable attempt. There was generally a poor appreciation of the relationship of price/volume/variable costs, with only a minority considering the growth in other services or price elasticity and sensitivity. The discussion of the case to retain or reverse the price reduction was generally thin. Sometimes it was just added as an assertion as part of the conclusion.

Available marks	18
Maximum full marks	16

2.3

Key issues

Amy's proposal is to move EBR further upmarket, not just from the current market positioning (following the 10% price reduction), but further upmarket than the traditional market position prior to the recent price reduction. This could be viewed as part of a differentiation strategy.

This would mean that EBR, under Amy's suggestion, would be charging higher prices than ever, despite the fact that it has been having difficulty in winning tenders since the end of the recession at lower prices.

Price can be taken as a signal of quality, particularly where objective evidence of underlying quality may be difficult to attain. Amy's other suggestion is therefore consistent with reinforcing the quality signal, by going beyond the industry norm in offering rebates. This gives a
self-imposed penalty for poor appointments, and therefore incentives to make good quality appointments. If this is perceived by customers and potential customers, it is a consistent signal of quality with the price increase.

In terms of risk shifting, it transfers much of the risk of bad appointments from the client onto EBR. The increase in price may therefore be regarded as a risk premium being paid by clients.

From EBR's perspective there is a significant downside risk. The costs of the rebates may significantly outweigh the benefits of increased prices, particularly if the change fails to attract new customers. There is therefore a need for more information to quantify the risk to EBR. In this respect:

- Historical information about how long appointed employees have stayed with clients is needed in order to model the effects of rebates in the future.

- Market research is also needed to evaluate the likely client response to the rebate offer and to increased prices, so historical trends can be better extrapolated.

A further risk arises from competitor response. While such a policy is not common in the industry, and therefore differentiates EBR from its competitors, this is only the current position. Markets are dynamic and, if the policy is initially successful, then competitors may copy it, thereby reducing the benefits to EBR and possibly forcing down industry profits.

A final issue is that the swings in pricing policy within a short period of time, and in opposite directions, are likely to cause market confusion as to EBR's market positioning. In this respect, the previous reduction in prices may harm this proposed strategy, particularly as it is based upon the perception of quality being influenced by price, which requires stability of pricing policy.

Recommendation

The increase of prices suggested by Amy is significant and has a risk of losing existing customers and causing wide swings in pricing following the recent 10% reduction.

One proposal would be to offer all customers a choice of prices: (i) the higher price with a higher rebate; or (ii) the existing (or original) pricing with existing rebates. This would enable customer preferences to determine the price-risk package, rather than the EBR board to guess what all customers may want.

Examiner's comments

Many candidates used the Suitable/Acceptable/Feasible structure but were not normally helped by this framework as they consequently tended to overlook the strategic re-positioning and quality changes. Better approaches were to discuss the price/quality relationship and the change to a differentiation strategy, followed by discussion of the price/profit/risk trade-off. A minority made direct reference to Porter's generic strategies framework, often identifying the proposal as one of focused differentiation.

Available marks	10
Maximum full marks	9

Question 3 – TechScan plc

General comments

The scenario in this question is a company which develops and manufactures complex electronic scanners. The company has a large research and development (R&D) department.

The company is trying to decide whether to use its own R&D department to complete the development of a new type of scanner or to acquire the R&D rights from a rival company under licence.

If the new technology is successfully developed using internal R&D it would be much lower cost than an external licence, but there is only a 60% probability that the internal R&D would turn out to be successful.

With either internally or externally developed technology there is uncertainty in the market about the level of sales that can be achieved, with a 70% probability of high sales and a 30% probability of low sales.

3.1

Research should be intended to improve products or processes in order to gain competitive advantage. R&D should support the organisation's strategy, be properly planned and be closely co-ordinated with marketing.

There may be an impact on the R&D department arising from behavioural issues. This could arise from abandoning the current development project in favour of using licensed Ursa technology. If the best R&D staff are to be retained for developing the next generation of technology over the next five years, then motivation and staff retention will need to be prioritised. Loss of key core competences from losing key staff could be a key issue that damages the R&D capability of TechScan for many years.

R&D can have long term horizons and if Option 2 is selected, then it would seem that the next critical time is in about six years (ie the new technology is licensed from next year and will last for five more years).

It is important that the R&D strategy should be carefully controlled; new products and technologies can be a major source of competitive advantage but can cost a great deal and have a degree of uncertainty. A screening process is necessary to ensure that resources are concentrated on projects with a high probability of success.

In this respect, R&D can be important but only if it is successful. Otherwise it is a wasted cost. If Option 2 is selected, the previous R&D project would not have produced outcomes as the board would have decided to license alternative technology from another company. Whilst it may have been successful if the final R&D phase had been financed, this would not have the opportunity to occur if there is an immediate decision in favour of Option 2. Any money spent on earlier phases is therefore wasted. A review or debriefing of what went wrong with the previous R&D project may now be appropriate in order to learn lessons about the future of the R&D department.

In the context of the board accepting Option 2, the future of R&D can be seen as part of the next product life cycle. In preparing for the obsolescence of Ursa technology, successful new technology needs to be in place for the next product life cycle in approximately six years' time. If there is early success in the new R&D, then the current product life cycle for Ursa technology may be shortened, but it is likely that contractual commitments have been made to Ursa to make licence payments over five years so these would need to be treated as a sunk cost.

Examiner's comments

This was reasonably well answered, although most concentrated either on R&D and possible closure of the department together with redundancies, or alternatively on the move to licensing. Only a minority addressed both the issue of impact on the R&D department and on the future R&D strategy. Only a minority made explicit reference to core competences in R&D and related problems, although many alluded to this indirectly.

Available marks	6
Maximum full marks	6

3.2 (a)

Option 1

Initial investment	R&D cost outcome	Price outcome	NPV	Probability	Expected value
(£45m)	Fail* (£100m)	High +£160m	£15m	(0.4)(0.7) = 0.28	£4.2m
(£45m)	Succeed (£20m)	Low +£110m	£45m	(0.6)(0.3) = 0.18	£8.1m
(£45m)	Fail* (£100m)	Low +£110m	(£35m)	(0.4)(0.3) = 0.12	(£4.2m)
(£45m)	Succeed (£20m)	High +£160m	£95m	(0.6)(0.7) = 0.42	£39.9m
Total				**1.0(proof)**	**£48.0m**

* If the R&D project fails, TechScan will move to Ursa Inc licensing, as future benefits exceed future costs even in a low price scenario (even though there is a loss overall, the initial £45m is a sunk cost at this stage).

Option 2

Initial investment	cost outcome	Price outcome	NPV	Probability	Expected value
0	(£100m)	High +£160m	£60m	0.7	£42.0m
0	(£100m)	Low +£110m	£10m	0.3	£3.0m
Total				**1.0**	**£45.0m**

Tutorial note: A decision tree diagram can also be used to do this calculation.

Alternative approach:

Revenue in each case = (0.7 x 160) + (0.3 x 110) = 145

Costs

Option 1: -45 + (0.6 x -20) + (0.4 x -100) = 97
Option 2: 100

Profit:

Option 1 : 145 – 97 = **48**
Option 2: 145 – 100 = **45**

3.2 (b)

The issues of investment in R&D or licensing deals with the concepts of risk, expected values and probabilities.

The TechScan board has to deal with decision making under uncertainty. In these circumstances there are two levels of uncertainty:

- Uncertainty of R&D success – which leads to uncertainty of costs for the R&D option but not the licensing option
- Uncertainty of market conditions – which leads to uncertainty of revenues, which is the same for both types of technology

The two types of uncertainty are independent of each other, but occur simultaneously.

The table above shows that Option 1 has a higher expected NPV than Option 2. As a result, in terms of expected values alone, Option 1 is preferable ie undertake the final phase of the R&D project and invest £45 million.

However there are some weaknesses in using these expected values as the sole decision making criterion:

(a) The probabilities used when calculating expected values are likely to be estimates, particularly as R&D activity tends to have unknown uncertainties. The probabilities provided may therefore be unreliable or inaccurate.

(b) Expected values are long-term averages most suitable for decisions involving a high number of similar outcomes. They are less suitable for use in situations involving one-off decisions such as whether to buy the licence or engage in further R&D, where the expected value itself will never occur. They may therefore be useful as a guide to decision making rather than as a strict rule for one-off decisions.

(c) Expected values do not consider the attitudes to risk of the people involved in the decision making process. They assume risk neutrality which may not be appropriate for the owners of TechScan.

Looking at the data above more specifically, although Option 1 has the higher expected value (by £3m) it has a greater risk in terms of dispersion of outcomes. There is a 12% chance of making a significant loss of £4.2m, where the R&D project fails and there are low prices. For Option 2 there is no loss expected to be incurred in any circumstance.

Similarly, under Option 2 there is a 70% probability of achieving profits of £42m, which is greater than any envisaged outcome under Option 1.

Other factors

If TechScan uses Ursa technology under licence its R&D function may diminish and lose capability to engage in future R&D projects (see above)

Also, If TechScan uses Ursa technology under licence then it becomes dependent on another company which is a rival and on the terms of the licence agreement. Thus, for instance, the opportunity to export may unexpectedly arise over the next five years but TechScan would not be able to exploit this under licensing, as it only has UK rights, whereas it could export with its own R&D where it owns the intellectual property.

There is a risk that the licensing payments may vary. It is possible they are fixed in US$ terms but exchange rate fluctuation may alter their value in sterling.

It may be more difficult to legally enforce UK exclusivity under the licensing agreement than would be the case under a patent for a product that has been developed internally.

It is possible there are internal behavioural issues which could create untoward optimism for the internal R&D under Option 1. This may mean that the probability of success of the R&D project may have been exaggerated. A degree of professional scepticism should therefore be applied to these probabilities until there is supporting objective evidence.

If the R&D project is successful it may be possible to gain revenue from licensing it out to rival companies in other countries.

Conclusion

If there is reasonable confidence that the probabilities provided are reliable estimates which have been objectively determined, then there is a strong case for Option 1 and thereby retaining the core competence of R&D and control over the intellectual property rights to the technology. It also has the higher expected value.

If the R&D project fails, the licence can still be accessed from Ursa Inc at the same cost, but £45m in initial R&D will have been wasted. The wider financial strength of the company to withstand such a financial loss needs to be ascertained.

Examiner's comments

Most candidates calculated the expected NPV for Option 2 correctly. Common errors for Option 1 included selecting a zero NPV if the R&D project failed, rather than reverting to licensing. The most common incorrect answers for the ENPV of Option 1 were £80m and £30m. A small minority ignored expected values altogether in their calculations. Other errors included multiplying the NPV figures by 5 years.

In their narrative, some made use of real options terminology and concepts to enhance their analysis. Very few considered the limitations of expected values or questioned the validity of the probabilities provided. Whilst most candidates mentioned risk, far fewer spelt out the nature of the risks in using the numbers in the scenario and the limitations of expected values in this context. Consideration of other relevant factors tended to focus on keeping the option open for future R&D developments via Option 1 and thereby preserving the firm's core competences, although it was often not expressed in these terms.

Available marks	17
Maximum full marks	15