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# Answers

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1 Report

To: Board of Lopten  
From: A. Accountant  
Date: December 2013  
Subject: KPIs for Lopten in Beeland

Introduction

This report calculates the KPIs suggested by the board and evaluates their effectiveness in addressing identified external environmental issues, their ability to cover the CSFs chosen for the Beeland operations and how they address the key functions of senior management to plan and control Lopten. Finally, the report evaluates the gap between the target profit and the results of the two suggested marketing strategies.

(i) Summary of KPIs

	Cheerful	Posh
Profit for each product (\$m)	42	45
Average price per unit (\$)	400	700
Contribution per unit (\$)	145	375
Market share	12%	33%
Margin of safety	26%	27%
ROCE	13%	18%
Total quality costs (\$m)	28	19
Consumer awards	1	4

Details of calculations are given in Appendix 1.

(ii) Issues in the external environment

The issues in the external environment can be identified using the PEST acronym, which stands for political, economic, socio-cultural and technological.

The political environment is characterised by government actions which here included the giving of grants to a competitor to set up manufacturing operations in Beeland. This is not Lopten's mode of operation which is to manufacture outside Beeland and only create a selling operation within the country. None of the KPIs directly address this issue which could lead to increased profit available to develop the competitor's products or government action against Lopten by, say, increasing import tariffs.

The economic environment is characterised by growth as the populace of Beeland becomes wealthier. There is no measure of this included in the KPIs. There is no measure of competitor activity, although market share does provide some measure of the relative strength of Lopten and its competitors. It is notable that none of the KPIs measure current rates of growth in their area. Also, the given KPIs do not reflect the foreign exchange risk which Lopten could encounter in repatriating profits from Beeland.

The socio-cultural factors include demographic trends and changes in customers' tastes. The increasing wealth mentioned earlier will be a factor in driving the consumers' taste towards the more expensive Posh products. These would justify the large potential growth indicated in marketing Plan B. There are several measures which will bear on this area but, as noted above, all will require trends to be given, for example, the inflation of average price per unit and consequent improvement in profit and contribution indicators.

Technology can impact on Lopten in two ways. First, the development of new features for the products themselves will require continued product development at Lopten as a whole, although it will be less relevant to the operation in Beeland which may not have the market for cutting-edge technology yet. Therefore, it is appropriate that this area is not covered by the existing KPIs. Second, new technology in manufacturing could improve further the contribution per unit as costs are cut from the manufacturing process by, for example, increased automation in production. The use of contribution to measure this impact is indirect as it is also influenced by the selling price, so a measure of manufacturing cost per unit would better capture the change.

(iii) Linking the KPIs and CSFs

The first CSF is to obtain a dominant market presence. This will be measured by the market share and it can be seen that Posh has obtained about a third of the market and so can be said to be a major presence. In order to judge whether this is dominant, Lopten will need to have its competitors' market share. Other KPIs (average price per unit, ROCE, consumer awards) can be used in measuring market position but again, only if comparable data for the competition is supplied. In trying to achieve dominant market position, Lopten could chose to cut prices in order to drive up volumes and the contribution per unit shows how far the selling price can be cut before breakeven is reached (= average price – contribution).

The second CSF is the maximisation of profit within the risk appetite of the business. The absolute level of profit is given as a KPI and so a trend analysis of this will indicate optimisation. The trends in average price per unit and cost per unit (not a KPI but indirectly indicated through the contribution) will show the effectiveness of the marketing and production activities in

contributing to profit. ROCE will provide an indication of the efficient use of capital in generating profit. The risk taken is measured by the margin of safety which shows how far current sales would have to fall to result in a breakeven profit situation.

The third CSF looks at maintenance of brand through product quality. The most direct measure of brand can be gained through the consumer awards as they show the impression being made on the customers by the products. The total quality costs figure gives an indication of the spend on quality but without an internal trend and external benchmarking, this figure is difficult to interpret. There is no KPI on the marketing spending which would be a common support for the brand.

**(iv) Planning and control at Lopten**

Planning is carried out at Lopten where there is a top-down structure to the mission, objectives and CSFs leading to the KPIs. The KPIs which will be reflected in this activity are those which are forward looking. Margin of safety addresses the risk of making a loss going forward and the size of the margin will give the board comfort that they can afford to take strategic risks without risking the survival of the Beeland operation. Another forward looking indicator would be the awards won which should give the company ability to build volume and also margins in the future. The other indicators are of general financial health which will provide the capital base for future plans.

The control activity measures actual results against plan and then takes necessary action to correct activities back to plan. In order to be used in this way, the KPIs calculated above will need their benchmark comparators to be given. Most of the indicators given would be used in this way if benchmarks were provided.

At board level, much of the decision-making is planning while at the operational level, there is more control than planning activity. Therefore, the balance among the suggested KPIs is unusually towards control. This issue could be addressed by including measures such as revenue and market share growth which establish trends useful for financial projections.

**(v) Performance gap analysis**

Using the calculations for profit already completed in Appendix 1, we have the following projected profits for the two plans:

**PLAN A**

	Most recent \$m	Yr 1 \$m	Yr 2 \$m
Contribution			
Cheerful	162	169	176
Posh	165	172	178
Fixed costs	240	240	240
Profit	87	100	114

**PLAN B**

	Most recent \$m	Yr 1 \$m	Yr 2 \$m
Contribution			
Cheerful	162	162	162
Posh	165	190	218
Fixed costs	240	240	240
Profit	87	112	141

Therefore, we can see that if we continue with the current marketing strategy and so maintain our product mix (Plan A), then there is a gap in performance of \$21m compared to the target profit in two years' time. However, if Lopten adopts Plan B, then the company can achieve its target profit in two years. The success of Plan B depends on the achievement of a high growth rate of 15% p.a. This growth rate will depend on the continued improvement of the general economy, as this will create the wealth to generate the demand for the higher contribution Posh product. It will also depend on the success of the increased marketing spend on promoting Posh. It would be wise to consider whether the increased marketing spend will be effective, as the current spend of \$80m may be saturating the market at present and so additional spending will not generate proportionately more sales.

*[Tutor note: Minor rounding differences in the calculations will not be penalised.]*

**Conclusions**

The current KPIs do not cover many of the external factors in Lopten's business environment and link weakly to the CSFs. The balance of the KPIs is towards control when the balance of the board's work will be forward looking towards planning the future of the business. A revision of the KPIs used should be undertaken in order to address these concerns.

The current marketing plan for Beeland will fall short of the target profit and so it should shift to emphasising the higher margin Posh products (Plan B) which will achieve the target provided the growth assumptions are realistic.

**Appendix 1**

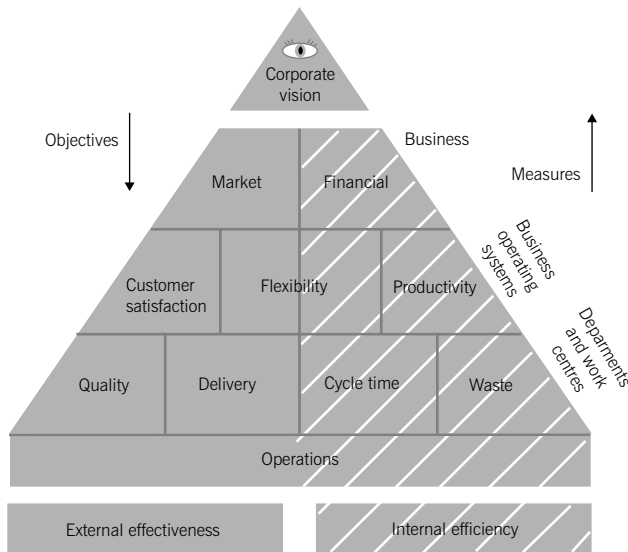
	<b>Cheerful</b>	<b>Posh</b>
Units (millions)	1.12	0.44
	<b>\$m</b>	<b>\$m</b>
Revenue	448	308
Variable costs:		
Labour	67	35
Variable overheads	45	22
Materials	101	53
Distribution	50	20
Quality	22	13
Contribution	162	165
Fixed costs:		
Administration	18	18
Distribution	16	16
Quality	6	6
Marketing	80	80
Total fixed costs	120	120
Profit	42	45
Breakeven sales units (millions)	0.83	0.32

(= total fixed costs/contribution per unit)

- 2 (a) The performance pyramid is based on the belief that each level of an organisation has different concerns but they must support each other in order to achieve the overall objective of the organisation. The aim is to produce a set of performance measures which cover the outputs and drivers of the outputs of the organisation. The pyramid shape is to emphasise that the measures from the operational up to the strategic levels should support the corporate vision.

A general criticism of the system at Graviton could be that it is suffering from tunnel vision which is over-focusing on those areas which are actually measured. This can be managed by ensuring that the set of performance measures are comprehensive in examining the results and the determinants of those results for the organisation. The performance pyramid is a systematic method which tries to achieve this goal. Tunnel vision may explain why, although revenue is rising rapidly, the operating profit is fairly static. There is a danger that the company is focusing on making more sales to the exclusion of making higher profits. This may result from the measuring of revenue growth but not of cost related metrics or profit margins. It is notable that there are no variances from budget given in the performance report.

The pyramid diagram is:



The pyramid begins with the corporate vision. At Graviton, the company objective is to maximise shareholder wealth by being flexible in response to market demand and controlling the production chain closely. The current performance measures as illustrated in the example report do measure all of these factors in some way but may not be comprehensive.

- Return on capital employed (ROCE) is reported but this is not directly measuring shareholder wealth and it is surprising that there is no mention of measures such as total shareholder return which will cover dividends and share price growth. The failure to provide a dividend measure may be a reason why the dividend growth has been allowed to slip.

- Flexibility in manufacturing is measured through the time to market for new designs. The design awards won indicate the innovative abilities of the employees at Graviton. The ability of the manufacturing chain to replenish successful lines and so take advantage of a fast-selling product is not measured.
- Close control of production is not evident as the problems with quality of clothes (durability complaints by customers) demonstrate. There may be a lack of cost control which explains the disconnection between growing revenue and the operating profits performance.

The next level of the pyramid is the driving of the vision by satisfying the market and performing well financially. As noted above, the financial measures are lacking a focus on costs through profit margins (such as gross margin) or key cost headings such as labour costs which would highlight the higher costs of designers. Therefore, the danger exists at Graviton that profitability is being sacrificed for revenue growth. Productivity measures of waste are likely to be important as designs become obsolete in this market quickly and the manufacturing process for clothes can lead to waste of materials in production. The problem of obsolescence can be significant in a fashion-driven industry since it is important to get the right garments in the right place at the right time. Inventory write-offs would measure such waste.

Market satisfaction is driven by customer satisfaction and flexibility. Graviton measures flexibility through time to market and delivery and these are obviously given a high priority in order to meet this objective in the corporate vision. Customer satisfaction can be considered to be measured through the revenue growth and indirectly through the winning of design awards but the failure to address quality may detract from this in the long term. (There is also evidence of short-term thinking at factory site 2 where the reason for the excess equipment repairs could be the failure to invest in new equipment which may be driven by the desire to keep the capital employed figure low to enhance ROCE.) An exercise should be undertaken to identify how strongly customers value the durability of Graviton's products and if this is significant, then measures of quality such as level of complaints should be made. It is possible that in a fast-changing, trend-driven industry such as Graviton's, there is little interest from customers in the durability of their garments, as they will be purchasing new ones on a regular basis to keep up with fashion.

- (b) Myopia is prioritising short-term issues over long-term ones and is evident here in factory site 2. The variance in repairs expenditure could be due to a failure to invest in new machinery and so having excess repair work to do on old machinery. This could be exacerbated by using ROCE as a performance measure, since continuing to use old machinery (possibly written off) will require little or no capital employed. The use of longer term measures rather than those over just one accounting period might help to capture the effect of such behaviour.

Gaming is dysfunctional behaviour (from the organisation's perspective) where an individual manager is trying to meet their individual targets while ignoring the good of the whole organisation. There is evidence at factory site 1 of this behaviour where a manager is manipulating revenue and profit across the accounting cut-off. This behaviour can be dealt with by emphasising a culture of honesty in the organisation and by ensuring that the manager is rewarded for average gains over long periods rather than block payments for hitting simple profit-triggers in a single period.

Ossification is the unwillingness to change from an existing performance system, especially when it shows adequate or good results are being achieved. The board is clearly exhibiting this problem in resisting change at Graviton. The CEO will need to persuade them that there are issues in the omissions from the current set of performance measures which will lead to long-term difficulties in achieving their overall goal of enhancing shareholder wealth. The targets and remuneration of the board should be set so that the board is rewarded if current good performance is sustainable in the future.

- 3 (a) The new information will not be without cost to Quark. The costs of hardware and software to set up the system and then ongoing operation of the system in terms of maintenance, consumables and employee time are often considerable. However, these costs can be offset against the efficiency savings of lost employee time in searching for tagged items and quality improvements in patient care which will result from that quicker access.

The information now being collected is non-financial in the location and quantities of equipment and drugs. However, these are forms of information which exist in the current systems and so there need not be dramatic change. The significant difference from the old system will be the real-time nature of the information and also its accuracy as it is collected and updated automatically. The tags are attached to batches of high-value drugs and if one of these batches is opened, then the count of inventory will not be entirely accurate if only the RFID information is used. A physical count will still be required for accuracy but the locations of these items from RFIDs will speed this.

Performance reporting will change as weekly inventory check reports will no longer be filed for the high-value drugs and instead there will be real-time, screen-based information. The relevant staff will need to be trained to access and use the information in this new system. It would appear that many medical staff will need access and so terminals will need to be available throughout the hospital – if the speed gains in finding items are to be obtained.

Improved control will result from the knowledge of location of high-value drugs. It will be easier to ensure that they are all in secure locations which will reduce the opportunity for theft. Additionally, knowing the date of delivery it will be easier to identify items which may become obsolete and so they can more easily be used first, thus reducing wastage. Regarding the items of equipment, identification of location will reduce staff time in searching and also allow the items to be placed in the stores where they are most often accessed, thus further reducing searching time. This will improve quality of patient care due to a faster response. It will also be simpler to check and ensure that these items are in secure locations and so reduce the risk of theft. Management will also be able to check if processes of tidying up and locking away are being observed by doing daily checks on this through the system.

- (b) Lean systems are based on the Toyota production system whose overall goal was to get the right things to the right place at the right time, the first time. Additional aims were to minimise waste and be open to change. These objectives match closely with the RFID system at Quark. The location information will allow assets to be in the right location or at least a more optimised location and so speed ('right time') delivery of the service. The reduction in obsolescence and staff time help to minimise waste while the introduction of such a different process will require a culture of change in the organisation.

The five Ss concept is often associated with lean principles and has the aim of creating a workplace which is in order. It should sit well with the high status of work in Quark as it engenders employees' pride in their work and results in higher quality performance.

The five Ss are:

- Structurise – Introduce order where possible. Thinking about optimal locations for storage of the tagged items will help to do this at Quark.
- Systemise – The new RFID system will help to arrange and identify items for ease of use.
- Sanitise – Be tidy. There is danger that the easy availability of the knowledge of the location of items may lead to a lack of care with them. However, by training staff that they will be judged on storing items in useful locations, this information can be used as a control tool by management.
- Standardise – Be consistent in the approach taken.
- Self-discipline – Maintain through motivation. The system should report by exception to management on a daily basis about any items misplaced and so corrective action can be taken.

In order to be successful, lean techniques must be more than just housekeeping and should be treated as signs of the importance of quality at Quark.

- (c) The attitude of the medical staff to the system will be important. As they are high-status individuals, it will be necessary to persuade them to accept the new system rather than impose the change. There will be the danger that they see the system as spying on them and take this as an insult to their professionalism. They will need to see the benefits both in terms of reduced frustration in their own job and patient care. This will motivate them to change their current (haphazard) way of storing assets.

The new system will be screen-based but the use of information technology should not be shocking in Quark as it has the reputation of being advanced in this area. The reports will need to be carefully designed with input from the medical staff in order that they find the system easy to learn and use, as this is often a major barrier to the uptake of a new system. The design of the new method of recording drug administration by nurses may have been part of the problem with its implementation.

Promotion of responsibility and accountability will come through the management use of the new information. It may be possible to make specific staff (e.g. nursing staff) responsible for the storage of drugs and specific specialist doctors responsible for the storage of equipment related to their field of expertise. Regular checks on the position of assets will act as a control test of this staff activity. It may be necessary to break the hospital into departments or wards in order to identify the relevant responsible individuals. The managers must think carefully about how often to do their control reporting but daily exception reporting of any items not properly stored would appear appropriate, given the need to use the assets at short notice. It will be important to select the correct individuals and groups to be responsible as there will be a demotivating effect if a staff member is being criticised for not securing an item when a higher status member of staff (e.g. medical specialist) has over-ridden their decision.

- 4 (a) Logically, the Force Score (FS) should reflect the aims and objectives of the department. The overall aim has two basic parts: (1) value-for-money service; (2) community safety. The score does use variables associated with community safety but does not measure value-for-money. Value-for-money would be reflected by measures which take account of the economy, efficiency and effectiveness of the police forces. For example, the other indicators given in Appendix 1 allow calculation of the following measures which could be useful in measuring performance of this objective:

Other indicators:	C	D	E	F
Number of police per 10,000 population	49.6	48.9	50.0	52.7
Cost per population member (\$)	323.2	331.1	336.5	340.0

The more detailed goals of the police forces are:

- Tackle the underlying causes of crime and achieve long-term sustainable solutions – which is measured by Rank 1 for the number of reported crimes.
- Bring perpetrators to justice – which is measured by Rank 2 which measures the detection rate of crimes.
- Provide protection and support for individuals and communities at risk of harm – which is measured through the user satisfaction score (Rank 3).
- Respond to community needs by being accessible and engaging with their concerns – which is measured through the user satisfaction score (Rank 3) and the responsiveness is measured by call handling speed (Rank 4).

None of these ranks will perfectly measure all aspects of each of the goals but there is a broad coverage present. For example, an improvement might be to include a measure of community engagement through the number of public meetings between police and the community or a measure of community-based policing initiatives.

The choice of weightings used in the FS formula must be considered. Force F is top ranked and Force C is bottom ranked. However, among the four variables used to calculate the score, no one force dominates with three different forces being the best in each of the four variables. Therefore, the weightings are important in determining the final FS.

The formula used is simple as it recognises only four input variables and weights these equally. No explanation of the logic of the choice of variables or weightings has been offered. Different weightings would produce very different results. To illustrate this, if a simple weighting system were used where weighting was given only to Rank 3 (on user satisfaction), then Force D would rank top and Force F would be bottom. Also, relatively small variations can have big impacts on the final FS. For example, the difference between each force in their call answering is not great with three percentage points separating best and worst but this generates a difference of 0.75 in the forces' final FS.

There is a danger of over-complicating the formula (with more variables and complex methods of allocating weightings) and thus losing one of its main advantages, which is its simplicity.

- (b)** The use of league tables effectively benchmarks performance and can have a positive effect on behaviour. The sharing of data on performance can indicate areas of best practice and so improve performance across all forces. Additionally, the use of league tables gives a single figure which gives a clear, immediate answer to questions of performance.

However, the use of league tables only measures relative performance. The best force in the table could still be producing an unacceptable performance in absolute terms. In order to avoid this problem, tables will often try to include comparable bodies from outside the area of control of the government (foreign police forces). However, to get comparable data in order to calculate an FS for a foreign police force will be difficult.

On introduction, if the police staff do not feel that they can affect the FS, then they will not be held accountable by it. They may ignore it or actively undermine it in public through their union. This will present the government with difficulty as the police are considered the experts on this area of public policy and their criticism will carry weight with the electorate.

Once the system is in use, the FS can be used as a target for the leaders of each force; however, it can lead to over-focusing by employees on the variables in the FS to the exclusion of other relevant issues, i.e. only doing what gets measured. This means that the FS must encompass the key variables which will drive desired performance.

The police staff may be demotivated by the league tables if they feel:

- (i) that the FS does not reflect the valuable work which they do (as noted above, the current FS formula does not take account of the value-for-money aspects of the police force's efforts); or
- (ii) that the FS is driven by factors outside their control. (For example, there may be a link between the number of crimes reported and the economic conditions in the forces area which they do not have power to affect.)

The use of league tables has stemmed from their introduction for schools. However, the comparison between police forces and schools may not be valid, as school league tables are helpful where parents have some choice in the school to which they send their children while with only four forces covering the country, residents will have to move a long distance to be under the protection of a different police force. The schools' league table only used the single output of pupils' performance while the FS is more complex as it tries to encompass a number of different outputs. This will lead to greater debate about the value of the measure for the reasons given above and possibly its reduced effectiveness.

<b>1 (i)</b>	Variable costs	2
	Fixed costs	1
	Profit	1
	Average sales price per unit	1
	Contribution per unit	1
	Market share	1
	Breakeven	1
	Margin of safety	1
	Return on capital employed (ROCE)	1
	Total quality costs	1
	Maximum 11 marks	

**(ii)** Using the PEST headings:

Up to 2 marks for discussion of the relevant issue in the scenario and up to 2 marks for commenting on the relevance of the suggested KPIs to the issue

Maximum 11 marks

**(iii)** Up to 4 marks for comments on each CSF

Maximum 10 marks

**(iv)** 1 mark per point made

Maximum 5 marks

**(v)** Calculations:

Plan A	
Contribution	2
Profit	1
Plan B	
Contribution	1
Profit	1
Gap	1

Comments:

1 mark per point up to 4 marks

Maximum 9 marks

Professional marks will be awarded for the format, style and structure of the discussion of your answer. (4 marks)

**Total 50 marks**



**2 (a)** General description of model – up to 3 marks (including diagram)

Remaining marks must have relevance to Graviton –

Tunnel vision – up to 5 marks

Up to 4 on the link of the metrics to the vision

Then 1 mark per point up to 6 marks on

Market satisfaction

Financial performance

including:

Customer satisfaction

Flexibility

Productivity

Quality

Delivery

Cycle time

Waste

1 mark per point for other relevant points

Maximum 15 marks

**(b)** 1 mark for clear definition of the term then 1 mark per point made of relevance to Graviton and possible management solutions up to 3 on any one topic.

Myopia

Gaming

Ossification

Maximum 10 marks

**Total 25 marks**

- 3 (a)** Costs and benefits up to 3  
Type of information supplied up to 3  
Performance reporting up to 3  
Improved control up to 6  
Maximum 12 marks

- (b)** Definition of lean system up to 2  
Analysis of impact of RFID system up to 7  
Up to 2 for definition of five Ss  
Maximum 7 marks

- (c)** Medical staff's behaviour will influence the design up to 4  
Promotion of responsibility and accountability up to 4  
Maximum 6 marks

**Total 25 marks**

- 4 (a) Calculations:**
- Other indicators up to 2
  - Comments:
  - Force score formula
    - Choice of variables used for weighting
      - match to overall aim up to 3
      - match to detailed goals up to 5
    - Allocation of weightings up to 4
  - Other up to 2
  - Maximum 14 marks
- (b) General evaluation of league tables up to 4**
- Link of tables to targets and employee reaction
    - Introduction of tables up to 2
    - Behaviour under the system and sense of accountability up to 5
  - Comparison of use in schools and police sectors up to 2
  - 1 mark each for other relevant points
  - Maximum 11 marks
- Total 25 marks**