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# Answers

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- 1 To: The board of Rezillos Engineering (Rezillos)  
From: An Accountant  
Date: December 20X8  
Subject: Performance reporting and benchmarking at Rezillos**

This report evaluates the current performance report used for the annual board review. Next, the customer rating survey method and reporting are examined. Finally, the method of benchmarking to be used for the divisions is evaluated and the divisional benchmarking exercise is completed and initial conclusions drawn.

**(a) Performance report for annual board review**

The current report has a number of strengths and weaknesses. These will be discussed according to whether the report:

- measures performance towards the overall aims of the company; and
- is well-presented.

The current mission of the group can be broken down into a number of parts:

- The overall objective of the company is to deliver sustainable growth in value to the shareholders.

This is to be done by:

- working in partnership with customers;
- to deliver solutions which are
  - o innovative; and
  - o value-for-money;
- utilising the skills of the highly-trained workforce.

Beginning with the overall objective of Rezillos, the report does not directly measure shareholder value and so does not report its growth which are the primary goals of the organisation. This could be done directly by economic value added (EVA™) or total return to shareholders. Also, the report is wholly historical and contains no information about the future prospects necessary to judge whether the growth in shareholder value is sustainable. The current report uses period profits and return on capital employed as its main measures of performance. These can suffer from being short term unlike economic value added.

Overall, the report does not give information about the performance of the strategies which are in place to deliver the overall objective. These will require non-financial measures and so do not appear in the report which is dominated by standard accounting information.

There is no measure in the report of how the company works with customers. The company does collect data on interaction with customers at a divisional level although measuring 'working in partnership' is a vague term which should be more accurately defined in order to be measured, possibly by measuring the number of joint product development projects undertaken.

An indirect measure of the customer value-for-money is being offered through the gross profit which, when compared to the industry average, gives a partial measure of value but without data on the price/quality mix compared to competitors, it is difficult to be conclusive about this. Revenue growth is given but should be compared to industry growth in order to give an impression of the attractiveness of our offering to the customer.

No measure of innovation is offered in the report either in terms of the number of new products or the revenue or profit generated from them. This appears to be an important fault as an engineering firm such as Rezillos will only be viable in the long term if it continues to innovate.

There is no information on the skills or training done with Rezillos' workforce and given the emphasis on innovation and the sector in which Rezillos operates, these appear to be important factors.

There are measures appropriate for these strategies available within the divisions (see the benchmarking exercise later). These could provide easy solutions to many of these gaps.

The report treats the divisions in the same way as the group, using profit and comparison to industry average margins and budgets as the main assessment tools. This may not be helpful as the divisions are in different markets and so may not be easily comparable. This problem could be solved by providing the targets set for each of the divisions for the major financial indicators.

It is unusual, given the preponderance of financial data in the report, that there is very little about the assets and liabilities of the company or its liquidity. This may be acceptable if the efficiency of capital use and the danger of insolvency are negligible but this appears unlikely as shareholder value is a key measure and the ROCE is narrow.

In terms of presentation, the data are clear and in a form which would be easily recognisable to those used to reading accounts. However, it is common to provide a narrative commentary with such a report in order to highlight the key features in the report such as major deviations from target or performance well outside industry norms.

**(b) Customer survey ratings**

In a recent analysts' meeting, Rezillos has been questioned about its disclosure that it has an average 7.0 customer rating. The average customer rating is correctly calculated as 7.0 from the sample data. However, there are a number of questions which could be raised over the method of calculation and sampling.

The first issue which might be raised is what does 'average' mean in this context. The method used for the calculation is the arithmetic mean but average can also be considered to be the mode (most common rating) or the median (the middle value of the sample, which here would be the 5th value). Both of these alternative methods of calculation would give the lower value of 6.0 for the rating.

The calculation method does not take into consideration the size of the account. The rating of the large accounts might be considered more important and so given some extra weighting in the calculation.

A larger area of concern would surround the sample selected for the calculation. There are a number of questions to be raised about this:

- 1 A confidence interval and level should be supplied for the rating. If the sample is a small one or the confidence level required is high, then the confidence interval might be shown to be unacceptably large.
- 2 The method of sampling is not disclosed. Ideally, it should be a random sample.
- 3 There are various ways in which the sample might be biased:
  - (a) Only customers who are expected to give a favourable response may have been selected.
  - (b) It could be that only the customers who chose to respond are included in which case the sample will often be populated with those at the extremes of opinion on Rezillos' service.
  - (c) The majority of customers in the sample are from Beeland (six of nine) and only one from Teeland. This will not allow the rating to identify divisional performance, which, given each division has responsibility for customer support, may create a bias. In order to do this, random samples from each division should be taken separately.
  - (d) There are only three customers sampled with an above average account size (\$20.5m). It is common in such surveys to ensure that all of the major accounts are sampled.

Overall, the criticism appears justified and in future, Rezillos should consider disclosing more detail of the method of sampling and the sample size in order to build trust with the investing community.

**(c) (i) Methods of benchmarking**

There are broadly three methods of benchmarking relevant here. The proposed benchmarking exercise is an internal one comparing divisions within the same organisation.

The other methods are external (or competitor) benchmarking where comparison is drawn with competitors. This is valuable in identifying areas where the other companies demonstrate competitive advantage and also areas for improvement with a similar business. However, although this method can suggest areas where Rezillos can catch up with its major competitors, it will not identify how to gain advantage over these rivals.

At a practical level, the difficulty with this method is obtaining the information and even if a competitor can be persuaded to share information, it will often only give strategic improvements, not operational ones, as such detailed information is unlikely to be in the public domain.

A third method of benchmarking is functional benchmarking with a world-class company from another business sector. Rezillos could share detailed operational data without the worry of loss of confidential information directly to a competitor. The difficulty lies in translating lessons learned from one industry to another, so it is often done for generic activities such as logistics. Functional benchmarking against a company from outside Rezillos' industry sector could be challenging as it will require the use of information from another company which will likely use different systems to collect data.

The major advantage of internal benchmarking is the ability to obtain detailed operational information and so to share best practice amongst the divisions. This will show the different divisions the advantage of being part of a larger company and assist in integrating them.

This method of benchmarking suffers the drawback that it will often involve non-financial data whose production is often less robust than the financial systems involving subjective judgements. Also, it will not necessarily identify world-beating performance. Its internal focus may lead the company to ignore competitor performance. However, as a one-off exercise to harmonise and improve the divisions' performance, it seems to be suitable for Rezillos now.

**(ii) Divisional benchmarking exercise**

The benchmarking has been completed as follows:

	Beeland	Teeland	Veeland
<b>Benchmarking metrics</b>			
Growth of market	8.5%	3.2%	5.0%
Revenue growth	12.5%	3.2%	4.8%
Operating margin	10.6%	12.8%	15.0%
Inventory days	162	162	162
Order book growth	5.2%	5.3%	5.3%
Number of face-to-face interactions with top 10 customers	260	120	40
Percentage of revenue from new products introduced in the last three years	24.9%	29.0%	17.7%
Incident rate (20X8)	1.14	1.13	1.03
Incident rate (20X7)	1.18	1.13	1.18
Reduction in incident rate	3.4%	0.0%	12.7%
Utilisation of learning and development programme	1.20	1.26	0.98

The benchmarking metrics appropriately reflect many of the detailed strategies of the company:

- Order book growth reflects the sustainability of current levels of business;
- Number of face-to-face interactions with top 10 customers reflects working in partnership with customers;
- Innovative solutions is measured by percentage of revenue from new products introduced in the last three years; and
- Caring for employees and nurturing their skills is measured by reduction in incident rate and utilisation of learning and development programme.

The major missing piece is the change in shareholder value or profit generated by each division.

The initial three metrics identify the broad financial performance of each division:

- Beeland is operating in a high growth market and seems to be using lower prices and a sales drive (visiting top customers more regularly) in order to push growth above the market rate.
- Teeland operates in a more stable market but one where the take-up of new products is higher.
- Veeland is growing more slowly than its market possibly due to higher margins and a weak sales effort.

So, the divisions apparently operate in different markets but there does appear to be scope to share practices between them in order to improve. Looking at the individual metrics in more detail:

- Inventory days is the same across the divisions reflecting the new company-wide inventory management system. This indicates that some aspects of integration are working.
- Order book growth is an important measure of the future growth and sustainability of current profits in the business. All three divisions are performing comparably. Beeland, however, with its effort to see customers every two weeks on average is seeing higher levels of revenue growth and the other divisions might learn from this.
- Teeland is seeing the highest proportion of sales of new products but this may reflect the fact that they operate in a more developed market. This could only be controlled by obtaining external data such as industry averages for each country.
- Veeland has shown a significant reduction in safety incidents and its training and operating procedures should be shared with the other divisions in order to see if similar improvement can be replicated there.
- Not surprisingly, the market with the largest proportion of revenue from new products is also the one which makes greatest use of training. The low training score in Veeland may reflect little sales training as the number of sales interactions shows the most dramatic difference of all the metrics.

- 2 (a)** The performance pyramid covers not only financial performance but also performance relating to a wide range of underlying processes which drive financial performance. As such, it helps to set financial and non-financial performance measures, such as on-time stops. Non-financial measures are leading indicators which can help to achieve long-term future financial performance. This would be useful to Zones, which has had excessive focus on financial objectives and inadequate systems to measure and manage performance of the underlying processes driving financial performance. It is unclear exactly what the current financial objectives are.

The elements of the pyramid are interrelated, and each level in the pyramid supports the one above it. For example, on-time stops will increase customer satisfaction, which will eventually lead to greater market share, one element of the corporate vision.

Objectives cascade down the pyramid from the strategic to the operational level. The vision to increase shareholder wealth can be supported by financial objectives such as EVA™ at the level below. Measures flow up the pyramid, so that measurement of on-time stops can help determine whether Zones is achieving customer satisfaction.

The pyramid ensures that all aspects, both internal and external, of performance are measured. The right hand side of the pyramid covers internal efficiency, such as flexibility and productivity, while the left hand side covers external effectiveness, such as customer satisfaction. Using on-time stops again as an example, which relates to the quality (external effectiveness) element of the pyramid, will lead to improved performance up the left hand side of the pyramid.

- (b) Operational performance is represented by the four elements at the bottom level of the performance pyramid, which are quality, delivery, cycle time and waste. It is unclear what quality means in the context of the corporate vision, though the measure of on-time stops could be interpreted as a measure of quality, which is valued by customers. There is no direct measure of cycle time, for example, the time taken between collecting a parcel and delivering it. Also, there is no direct measure for delivery, which in this context would be the amount of time needed to arrange a collection or delivery.

#### **Vehicle utilisation**

This is a good way to measure waste. The greater the utilisation of vehicle capacity, the lower the waste, for example, of vehicle running costs. In the long run, higher vehicle utilisation would mean the number of vehicles operated could be reduced for the same level of activity. This would lead to increased productivity and financial performance, so helping to achieve the corporate vision.

Vehicle utilisation will vary, according to location, time of year and type of vehicle used, and is also measured inconsistently, according to the type of vehicle. Vehicle utilisation may be too broad a measure, making it difficult to manage performance. Areas of poor performance may mask other areas of good performance. Similarly, measuring utilisation as an average between that at the beginning and end of each day may not actually represent the average utilisation during the day.

#### **Fuel consumption**

Reducing fuel consumption would lead to a significant increase in financial performance at Zones. Measuring average fuel consumption per kilometre travelled does not, however, relate directly to activity, for example, to the number of parcels delivered.

Average fuel consumption will vary between type of vehicle and between rural and urban areas. A large vehicle may have high fuel consumption per kilometre travelled, but will also carry a large number of parcels. Average fuel consumption per kilometre is not a good measure of waste, or any other aspect of operational performance. To be useful in managing operational performance, this measure should be changed to average fuel consumed per parcel delivered. In this case, this would be a suitable measure for waste.

#### **On-time stops**

Customers are likely to value on-time stops very highly, and along with value for money, this will be one of the main reasons they will choose to use Zones. This is reflected in the corporate vision. The proportion of on-time stops is a measure of operational performance which relates to the quality element of the performance pyramid and is a key driver of customer satisfaction.

**Tutor note:** *Answers structured on the basis of the four operational elements of the pyramid would be acceptable.*

- (c) The DMAIC acronym stands for define, measure, analyse, improve and control. These are the five phases by which the six sigma methodology is implemented. To be suitable for use in the DMAIC method, measures defined must have certain characteristics.

#### **Percentage of stops made within 10 minutes of the booked time**

According to the six sigma method, only those measures which are valued by the customer should be measured. On-time stops will be valued by customers, and contribute to customer satisfaction.

Currently, however, of all complaints which Zones receives from customers relating to stops not made on time, less than around 1 per million of these relate to those made within 30 minutes of the booked time. This level of complaints is so low that this would already achieve the very low number, 3·4 per million, of failures targeted by implementation of the six sigma methodology.

It seems that customers will not value stops made within 10 minutes of the booked time, any more than they would value those within 30 minutes. Another principle of six sigma methodology is not to measure what customers are already satisfied with. They are already satisfied with stops made within 30 minutes of the booked time.

The percentage of stops made within 10 minutes of the booked time is not a suitable measure. The time and costs of making the measurements will exceed the benefits of doing so.

#### **Failed deliveries**

Failed deliveries will represent a considerable cost to Zones in terms of wasted fuel and driver time. It may also reduce flexibility by using up vehicle capacity which could be used to carry more parcels. Even though deliveries may fail due to traffic congestion, they will still reduce customer satisfaction.

The percentage of failed deliveries is currently 5%, well above the target rate for failures under the six sigma methodology (which is better than 3·4 per million accuracy), and in this respect would be a suitable measure.

According to the six sigma method, only those measures which can be improved should be measured. Failed deliveries arising from customers being unavailable to take the delivery is completely out of Zones' control. Deliveries failing due to incorrectly

addressed parcels could be reduced to some extent, for example, by the use of information technology to check the correct address, but most failures due to this are outside Zones' control. As failed deliveries cannot be significantly improved, this is not a suitable measure.

### 3 (a) Employees

Employees are cautious about the proposal to export to Kayland, and are risk averse. They would use the maximin rule, which is the choice of product with the best of the lowest outcomes. In this case, this is Blue.

#### Directors

Directors are paid a high bonus dependent on profitability of the product chosen. As they have served on the board for many years, there appears to be little chance that they would be removed by making a poor choice. They are risk seekers, and will use the maximax rule, that is, the choice of product with the best possible outcome. In this case, this is Green.

#### Shareholders

Shareholders are risk neutral. They will choose the product with the highest expected value; in this case this is also Blue, which has an expected value of D\$82,728.

#### Total profit

Probability	Exchange rate (W1)	Red (D\$)	Blue (D\$)	Green (D\$)
0.75	2.20	67,273 (W2)	73,637	54,546
0.25	1.80	95,555 (W3)	110,000	111,111
Expected value (W4)		74,344	82,728	68,688

#### Workings

##### W1 – Exchange rate

\$D strengthens by 10% against \$K:  $2.00 + 10\% = 2.20$

\$D weakens by 10% against \$K:  $2.00 - 10\% = 1.80$

##### W2 – Total profit at exchange rate of \$D1.00 = \$K2.20

	Red (D\$)	Blue (D\$)	Green (D\$)
Revenue in K\$	400,000	540,000	960,000
	(50,000 x K\$8.00)	(60,000 x K\$9.00)	(160,000 x K\$6.00)
Revenue in D\$	181,818	245,455	436,364
	(400,000/2.20)	(540,000/2.20)	(960,000/2.20)
<b>Cost of imported materials (D\$)</b>			
Red (50,000 x 1.20 x 2.00/2.20)	54,545		
Blue (60,000 x 1.50 x 2.00/2.20)		81,818	
Green (160,000 x 1.25 x 2.00/2.20)			181,818
Cost of other materials (D\$)	60,000	90,000	200,000
	(50,000 x D\$1.20)	(60,000 x D\$1.50)	(160,000 x D\$1.25)
<b>Total profit (D\$)</b>			
Red (181,818 – 54,545 – 60,000)	67,273		
Blue (245,455 – 81,818 – 90,000)		73,637	
Green (436,364 – 181,818 – 200,000)			54,546

##### W3 – Total profit at exchange rate of \$D1.00 = \$K1.80

	Red (D\$)	Blue (D\$)	Green (D\$)
Revenue in K\$ (W2)	400,000	540,000	960,000
Revenue in D\$	222,222	300,000	533,333
	(400,000/1.80)	(540,000/1.80)	(960,000/1.80)
<b>Cost of imported materials (D\$)</b>			
Red (50,000 x 1.20 x 2.00/1.80)	66,667		
Blue (60,000 x 1.50 x 2.00/1.80)		100,000	
Green (160,000 x 1.25 x 2.00/1.80)			222,222
Cost of other materials (D\$) (W2)	60,000	90,000	200,000
<b>Total profit (D\$)</b>			
Red (222,222 – 66,667 – 60,000)	95,555		
Blue (300,000 – 100,000 – 90,000)		110,000	
Green (533,333 – 222,222 – 200,000)			111,111

#### W4 – Expected value

	Red (D\$)	Blue (D\$)	Green (D\$)
Red (0.75 x 67,273) + (0.25 x 95,555)	74,344		
	(50,455 + 23,889)		
Blue (0.75 x 73,637) + (0.25 x 110,000)		82,728	
		(55,228 + 27,500)	
Green (0.75 x 54,546) + (0.25 x 111,111)			68,688
			(40,910 + 27,778)

- (b) Sberry's three key stakeholder groups will use different criteria to make decisions on the Kayland opportunity according to their attitude to risk and reward. The maximin and maximax rules and the expected value can be used to determine the decisions which each group will make.

#### Maximin and maximax rules

The maximin rule, the choice with the best of the lowest outcomes, which would be preferred by the employees, can be an excessively risk averse approach. As Sberry's products have short product lives, it must constantly develop new products, so some commercial risks will have to be taken.

The maximax rule, which the risk-seeking directors prefer, has the problem that it may be overly optimistic. Product choices with the maximum reward or profits may also be riskier, and could mean that directors take risks which exceed the shareholders' risk appetite so as to earn high bonuses.

A problem with both of the maximin and maximax rules is that they both ignore the probability of the outcome actually occurring.

#### Expected value

The expected value approach is a long run average which can be applied to decisions which are repeated many times. The actual expected value is not a possible outcome and will never occur in practice. Though Sberry may have developed many products, it has no experience of forecasting exchange rates and so the expected value approach may be inappropriate.

The expected value approach relies on estimates of probabilities, such as for average exchange rates. These may be subjective or difficult to make, which limits the value of this approach.

- (c) Identifies opportunities or threats

Analysing the external environment in Kayland will allow Sberry to identify opportunities and threats. It can maximise performance by taking actions to exploit opportunities, such as developing the new products to take advantage of growing income levels and the slower rate of technological obsolescence in Kayland.

A draft PEST analysis has indicated that the exchange rate between D\$ and K\$ is a key economic factor affecting performance. By identifying this, Sberry can act to maximise performance, such as by analysing the effect of exchange rates on profits of the new products or hedging against adverse exchange rate movements. A thorough analysis of safety regulations in Kayland may prevent the problems which occurred with the failure of the previous product launch.

#### Identifies CSFs, KPIs and helps set targets

PEST analysis can help identify critical success factors (CSFs) and key performance indicators (KPIs). Having identified product safety as a legal factor affecting performance, a CSF may be to abide by safety regulations in Kayland. The number of breaches of safety regulations would be a suitable KPI.

The PEST analysis can be used to set targets appropriate for the environment in Kayland. A CSF for Sberry is that it produces products for long enough to recover their development costs and make an acceptable profit. A target for the KPI of length of time in production could be 24 months in Kayland, where technical obsolescence is slower, rather than the target of 18 months in Deeland.

- 1 (a)** 1 mark per point – must be based on scenario information  
Breaking down mission – up to 2 marks  
e.g. identify priority of objectives, pick out strategies  
Assessment of whether report meets mission – up to 10 marks  
Other points – up to 4 marks  
e.g.  
Lack of targets  
Lack of information on capital and liquidity  
General presentation (lack of narrative)  
Maximum 13 marks
- (b)** Average calculations – up to 3 marks  
Calculation weightings – up to 2 marks  
Sampling issues – up to 6 marks  
Overview – 1 mark  
Maximum 9 marks
- (c) (i)** Identify type proposed – 1 mark  
External benchmarking – up to 3 marks  
Functional benchmarking – up to 3 marks  
Internal benchmarking for Rezillos – up to 5 marks  
Maximum 9 marks
- (ii)** Calculations:  
Inventory days – 1 mark  
Order book growth – 1 mark  
Percentage of revenue from new products introduced in the last three years – 1 mark  
Reduction in incident rate – 2 marks  
Utilisation of learning and development programme – 1 mark  
Comments:  
On choice of metrics and results – up to 14 marks  
Maximum 15 marks

Professional presentation: up to 4 marks

**Total 50 marks**

- 2 (a)** 1 mark per point:  
How performance pyramid helps to achieve Zones corporate vision – up to 7 marks  
Maximum 7 marks
- (b)** 1 mark per point:  
Each performance measure – up to 3 marks each  
General comments on operational coverage – up to 2 marks  
Maximum 9 marks
- (c)** 1 mark per point:  
Evaluating suitability of the two measures – up to 4 marks each  
Conclusion on the suitability of the two measures – up to 2 marks  
General comment on what six sigma should be measuring – 1 mark  
Maximum 9 marks

**Total 25 marks**



- 3 (a)** Calculations – 8 marks  
Exchange rates – 1 mark  
Revenue – 1 mark  
Converted revenues – 2 marks  
Total costs – 3 marks  
Expected values – 1 mark  
Justification of approach selected for each stakeholder group – up to 3 marks each  
Selection of correct product based on approach – 3 marks  
Explanation of the risk appetite of employees and directors – 2 marks  
Maximum 14 marks
- (b)** 1 mark per point:  
Problems in using the risk and uncertainty analysis techniques – up to 5 marks  
Maximum 5 marks
- (c)** 1 mark per point:  
How PEST analysis improves performance in Kayland – 6 marks  
Maximum 6 marks
- Total 25 marks**