

Strategic Professional – Options

# Advanced Performance Management (APM)

Wednesday 5 December 2018



**Time allowed:** 3 hours 15 minutes

This question paper is divided into two sections:

Section A – This ONE question is compulsory and MUST be attempted

Section B – BOTH questions are compulsory and MUST be attempted

**Present Value and Annuity Tables are on pages 10 and 11.**

**Do NOT open this question paper until instructed by the supervisor.**

**This question paper must not be removed from the examination hall.**

# APM

Think Ahead

**ACCA**

The Association of  
Chartered Certified  
Accountants

## Section A – This ONE question is compulsory and MUST be attempted

### 1 Rezillos: Company information

Rezillos Engineering (Rezillos) is a listed company, manufacturing pumps and valves for use in the chemical industries. These highly engineered components must be integrated into Rezillos' customers' own plant and equipment. The company has grown significantly via acquisition in the last 20 years to become a worldwide business.

The overall objective of the company is 'to deliver sustainable growth in value to the shareholders by working in partnership with customers to deliver innovative and value-for-money solutions utilising the skills of the highly-trained workforce.'

The chief executive officer (CEO) has recognised that the company has been so focused on making acquisitions that it has not improved other aspects of management. He has asked you to produce a report for the board of Rezillos to cover a number of areas.

#### Performance reporting system

The CEO would like an evaluation of the performance reporting system used at the strategic board level by Rezillos. The current performance report used for the annual review at board meetings is given as an example (Appendix 1).

#### Customer survey

At the most recent round of meetings with stock market analysts, the board has been criticised about a customer survey whose results were announced at these meetings. The criticisms centred on the method of calculation, sampling and the disclosures in the press release. The board of Rezillos is concerned by the impact of this on their reputation in the market and needs to understand whether the criticism is justified. The press release and some further internal details about the method and the results of the customer survey are given in Appendix 2.

#### Benchmarking proposal

Rezillos has three divisions based in its three countries of operation (Beeland, Teeland and Veeland). In order to drive forward the integration of the divisions, the CEO has decided that they should be benchmarked against each other. He is aware that this is not the only method of benchmarking and so, initially, wants you to provide an understanding of the different types of benchmarking and an evaluation of the usefulness of the proposed type of benchmarking for the divisions. Finally, he has supplied data in Appendix 3 to allow you to complete the benchmarking exercise and comment on the metrics used and the results.

It is now 1 December 20X8.

#### Required:

Write a report to the board of Rezillos to:

- (a) Evaluate the performance reporting system as requested. (13 marks)
- (b) Assess the analysts' criticisms of the customer survey results in Appendix 2. (9 marks)
- (c) Respond to the CEO's request for work on:
  - (i) the method of divisional benchmarking proposed; and (9 marks)
  - (ii) benchmarking the three divisions. (15 marks)

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

**(50 marks)**

## Appendix 1

### Rezillos

	Year to 30 September				Total	Growth	Profit as a % of revenue	
	Beeland	Teeland	Veeland	Total			Company	Industry average
	20X8 \$m	20X8 \$m	20X8 \$m	20X8 \$m			20X7 \$m	
Revenue	738	2,030	923	3,691	3,504	5.34%		
Cost of sales	497	1,391	601	2,489	2,363			
Gross profit	<u>241</u>	<u>639</u>	<u>322</u>	<u>1,202</u>	<u>1,141</u>		32.6%	29.8%
<b>Other operating costs</b>								
Selling and distribution costs	89	208	101	398	380			
Administration costs (note 1)	74	171	83	328	321			
Total	<u>163</u>	<u>379</u>	<u>184</u>	<u>726</u>	<u>701</u>			
Operating profit	<u>78</u>	<u>260</u>	<u>138</u>	<u>476</u>	<u>440</u>	8.18%	12.9%	9.7%
Finance costs				<u>88</u>	<u>88</u>			
Group profit before tax				388	352		10.5%	
Tax				<u>78</u>	<u>71</u>			
Group profit after tax				<u>310</u>	<u>281</u>		8.4%	
Return on capital employed (ROCE)				8.64%				

### Note

1 Administration costs contain an allocation of product development costs to each division.

## Appendix 2

### Press release from Rezillos: Customer survey results

Rezillos has performed an extensive survey of its customer base and is proud to announce an average customer rating of 7.0 (out of 10). This bears positive comparison with a leading competitor of Rezillos who performed a survey last year scoring an average rating of 6.0.

The survey asked for a customer rating on a scale of 0 to 10, where 10 was exceptional, 5 was good and 0 was unacceptable.

End of press release

### Extract from Rezillos internal document on calculation of customer rating

The survey was carried out by the staff at head office who sampled customers from all three divisions.

#### Raw data

Customer number	Rating	Account size (\$m)	Division
1	10	1.5	Beeland
2	9	3.3	Beeland
3	9	2.1	Beeland
4	6	6.4	Beeland
5	6	152.0	Teeland
6	6	11.2	Beeland
7	6	10.5	Beeland
8	6	74.0	Veeland
9	5	21.0	Veeland

#### Other notes:

- 1 The company has 180 customers in total.
- 2 The customer number is an identification number for administrative purposes.
- 3 Each division has its own marketing and customer support function although product development is a head office function.

### Appendix 3 (all data is for 20X8 unless otherwise stated)

The benchmarking exercise is partly complete with the metrics requiring to be calculated identified by question marks.

	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	?
Order book growth	5.2%	5.3%	?
Number of face-to-face interactions with division's top 10 key customers	260	120	40
Percentage of revenue from new products introduced in the last three years	24.9%	29.0%	?
Reduction in incident rate	3.4%	0.0%	?
Utilisation of learning and development programme	1.20	1.26	?

#### Notes

- 1 The industry standard method of calculating incident rate is:  
Incident rate = number of incidents per year x 200,000/number of employee labour hours paid
- 2 The company's employees work on average 40 hours per week for 50 weeks per year.
- 3 Utilisation of learning and development programme is measured by the number of training days per employee.
- 4 Key customers are designated by the divisional management.
- 5 A single inventory management system has been implemented across the whole company.

The following data has been collected to assist in the completion of the benchmarking exercise:

	Veeland
Revenue from new products introduced in the last three years (\$m)	163
Cost of sales (\$m)	601
Inventory (\$m)	267
Number of incidents (20X8)	68
Number of incidents (20X7)	74
Number of employees (20X8)	6,600
Number of employees (20X7)	6,250
Order book (\$m) 20X8	932
Order book (\$m) 20X7	885
Number of training days	6,450

## Section B – BOTH questions are compulsory and MUST be attempted

### 2 Zones: Company information

Zones is an overnight parcel delivery business. Since it was founded by the current CEO, it has grown rapidly due to a boom in online shopping. It now operates 1,000 delivery vehicles of various sizes. Recently, financial performance and market share have deteriorated. Zones has had no clear corporate vision, an excessive focus on financial objectives and inadequate systems to measure and manage performance of the underlying processes driving its financial performance.

#### Business model

Zones' collection and delivery service uses delivery vehicles to transport parcels to and from local depots and individual addresses. Vehicles may also pick up parcels from the addresses to which they deliver. Each time the vehicle calls to pick up or deliver parcels is known as a stop, and the time of day for each stop is booked in advance. At the end of each day, vehicles, along with any parcels not delivered, return to the depot. Regardless of who pays for the service, Zones regards anyone to whom it delivers, or from whom it picks up parcels, as a customer. In the long term, the requirements of both of these groups for a competitively priced, reliable and flexible service will be similar.

#### Performance improvement proposals

The CEO believes that reductions in customer satisfaction and flexibility, caused by a decline in operational performance, may have led to the recent deterioration in financial performance and market share. It has been suggested that Zones use the Lynch and Cross performance pyramid (Appendix 1) to reverse this deterioration, and three new measures for operational performance have been suggested in Appendix 2. The CEO has stated that Zones' corporate vision should be:

'To increase shareholder wealth by becoming the leading overnight parcel delivery business, providing quality, reliability and value for customers.'

It is also proposed to use the DMAIC (define, measure, analyse, improve and control) method to implement the six sigma methodology to improve the quality of delivery. Two measures have been defined in Appendix 3 which may help improve Zones' delivery performance.

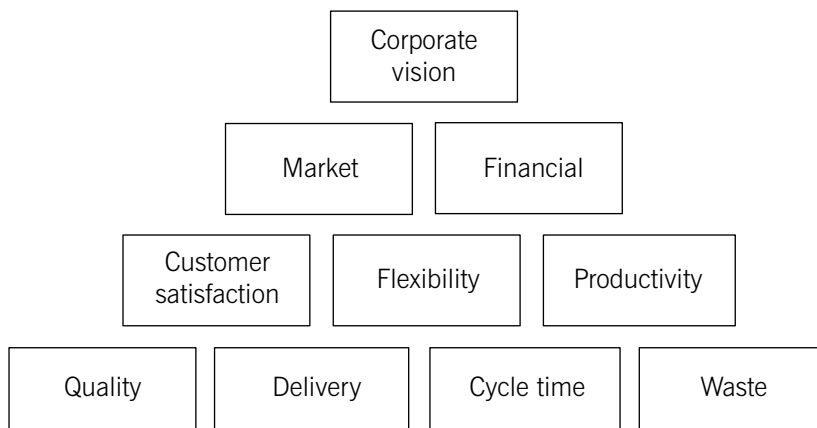
#### Required:

- (a) **Advise the CEO how the Lynch and Cross performance pyramid can help Zones achieve its corporate vision.** (7 marks)
- (b) **Using the performance pyramid, evaluate the extent to which the suggested new measures in Appendix 2 can be used to measure and manage operational performance at Zones.** (9 marks)
- (c) **Advise whether the two measures defined in Appendix 3 are suitable for use in the DMAIC method to implement the six sigma methodology in order to improve delivery performance.** (9 marks)

**(25 marks)**

## Appendix 1

### Lynch and Cross performance pyramid



## Appendix 2

### Suggested new measures for operational performance

Measure	Description
Vehicle utilisation	Average utilisation of all vehicle capacity. This is measured by taking the average of vehicle load as a percentage of capacity when the vehicle leaves the depot at the beginning of each day and the vehicle load as a percentage of capacity when the vehicle returns to the depot at the end of each day. Capacity is measured either according to the internal volume or the length of the vehicle, depending on the type of vehicle being used.
Fuel consumption	Average litres of fuel per kilometre travelled for all vehicles.
On-time stops	Percentage of stops made within 30 minutes* of the booked time.

\* Zones receives complaints from customers relating to deliveries not made on time. Of these, less than 0.0001% relate to deliveries made within 30 minutes of the booked time.

## Appendix 3

### Suggested new measures for improving quality of delivery using the DMAIC methodology

Measure	Description
On-time stops	Percentage of stops made within 10 minutes of the booked time.
Failed deliveries	Percentage of deliveries which cannot be made due to the customer being unavailable to take the delivery, or by parcels being incorrectly addressed. Currently, 5% of deliveries are failed and have to be returned to the depot.

### 3 Sberry: Company information

Sberry manufactures products which have a short lifecycle due to technological obsolescence. It aims to keep each product in production for at least 18 months so that it can recover the high cost of product development and make an acceptable profit before the product becomes obsolete. Sberry has always manufactured its products in its home country of Deeland, from where all materials are also sourced.

#### Sales opportunity in Kayland

An opportunity has been identified to export one of three newly developed products, Red, Blue and Green, to Kayland, due to citizens' increasing levels of income there. The rate of technological obsolescence is slower in Kayland than in Deeland. The estimated levels of demand, selling prices and costs of the three products are shown in Appendix 1.

#### Stakeholders' views on the risks of the Kayland opportunity

Three of Sberry's key stakeholder groups, employees, directors and shareholders, have been consulted for their views on the proposal to export to Kayland and, in particular, on which of the three newly developed products to export there.

The employees have a cautious approach to the proposal following the recent failure of another product launch. That product was withdrawn as it breached poorly understood safety regulations and a number of employees lost their jobs as a result.

The directors, all of whom are individually wealthy, have served on the board for many years and are keen to earn the large bonus which is currently offered solely on the total profit made by the new product over its lifecycle.

The shareholders neither avoid nor seek risk, but they are keen that the company considers the external environment in Kayland in order to maximise performance there, whichever of the products is chosen to be exported. They have asked for a PEST\* analysis of the environment in Kayland to be produced. A first draft of this has indicated that the exchange rate between the Deeland dollar (D\$) and the Kayland dollar (K\$) is a key economic factor which may affect performance.

\*Political, economic, socio-cultural and technological

#### Required:

- (a) **Advise which of the three newly developed products each of the three key stakeholder groups would choose to export to Kayland based on their respective risk appetites.** (14 marks)
- (b) **Explain the problems of using the risk and uncertainty analysis techniques which you have used in part (a).** (5 marks)
- (c) **Advise the shareholders how analysing the external environment in Kayland using a PEST analysis can help Sberry maximise its performance there. You are NOT required to produce a PEST analysis.** (6 marks)

**(25 marks)**



## Appendix 1

### Estimated levels of demand, selling prices and costs of the three newly developed<sup>1</sup> products

	Red	Blue	Green
Total demand (units) <sup>2</sup>	50,000	60,000	160,000
Selling price (K\$) <sup>3</sup>	8.00	9.00	6.00
Total unit cost (D\$) <sup>4</sup>	2.40	3.00	2.50

#### Notes to the appendix

- <sup>1</sup> Development costs are sunk costs and can be ignored.
- <sup>2</sup> The estimated product life of each of the three products is the same and the total demand is for the whole life of the product.
- <sup>3</sup> The current exchange rate between the D\$ and the K\$ is D\$1.00 = K\$2.00. Sberry's finance director has estimated that over the life of the product there is a 75% probability that the average exchange rate of the D\$ will strengthen by 10% against the K\$, and a 25% probability that the average exchange rate of the D\$ will weaken by 10% against the K\$.
- <sup>4</sup> At the current exchange rate, 50% of the total costs for each product is for materials which are imported from Kayland and invoiced in K\$. There will be no opening or closing inventory, whichever of the three new products is chosen.

### Present Value Table

Present value of 1 i.e.  $(1 + r)^{-n}$

Where  $r$  = discount rate  
 $n$  = number of periods until payment

		<i>Discount rate (r)</i>									
<i>Periods</i>											
<b>(n)</b>	<b>1%</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>	<b>5%</b>	<b>6%</b>	<b>7%</b>	<b>8%</b>	<b>9%</b>	<b>10%</b>	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
<b>(n)</b>	<b>11%</b>	<b>12%</b>	<b>13%</b>	<b>14%</b>	<b>15%</b>	<b>16%</b>	<b>17%</b>	<b>18%</b>	<b>19%</b>	<b>20%</b>	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

### Annuity Table

Present value of an annuity of 1 i.e.  $\frac{1 - (1 + r)^{-n}}{r}$

Where  $r$  = discount rate  
 $n$  = number of periods

<i>Discount rate (r)</i>											
<i>Periods</i>											
(n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	15
<hr/>											
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15

**End of Question Paper**