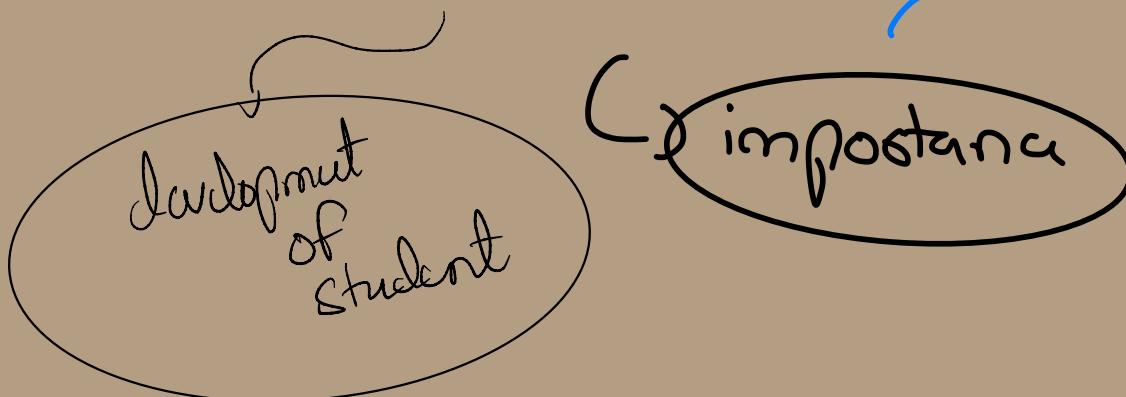


→ P6, P7, P4  
PS

# Advanced Performance Management

APM → PS



Statically  
↓  
Strong

By,

Abdul Basit

ICAEW, ACCA, BSC



# Advanced Performance Management → APM

## Orientations

FS

→ The best paper which provide greater information about business and its strategy

edge

→ understand question well

→ writing skills are good and can construct sentences

→ ATX → TX, AAA → AA, Afm → fm

↳ strong → topic revision

→ APM → PM

How is APM different from PM

→ PM tests the candidate's ability in the application and analysis of core management accountancy techniques

→ Banana ↗ ABC, TC, LCC, TQM

→ Building block FMA

→ APM develops key outputs introduced at the FS/PM level with more of a focus on the synthesis and evaluation of key topics and techniques

↳ discussion aspects

what is difference between SBL and APM

SBL → analysis of culture, environment, capability  
Structural analysis

→ terminology, accountancy

APM → more of an accountancy focus  
→ more specifically focused on controls, measurements, improvement of performance etc  
↳ elaborating facts

Fig

Post S forces, PESTEL

↳ SBL → investing something → PEST

→ Post S forces

→ Post diagnosis

APM → improvement → BPC ↑

→ Post diagnosis

GPS ↓ Threats of re-entering ↓

## Summary

→ to exercise professional judgment in selecting and applying strategic management accountancy techniques in different business contexts and to contribute evaluation of performance of an organisation.

↳ Business Consultant

Business  
information

## Course outline of APM

### Sections

→ Compulsory

lot of

lot of drafting questions

### A ① Strategic planning and control

↳ budgeting and control ✓

↳ Business structure ✓

↳ Environment, social and governance ✓

### B ② Performance management information systems and tech

↳ Performance reports for managers ✓

→ Performance measures in private and not-for-profit ✓

→ HR aspects of performance ✓

→ Divisional analysis ✓

### C ③ Strategic performance measurement

→ Financial performance measurement ✓

→ Non-financial performance indicators ✓

→ PM of private and not-for-profit ✓

### D ④ Performance evaluation

→ Comparisons of different financial measures ✓

→ role of quality in performance measurement ✓

### E ⑤ Professional skills

→ Analysis, scepticism, Evaluation, Communication

→ Professional skills, Communication

## APM → PI

↳ individual feedback → student mistakes get reduced  
↳ extensive practice of past papers

## Paper structure

→ 3 hours exam & 15 min in planning time 3:15

Section A → in exam time, so if this exam would be easy

→ 1 Compulsory question comprising of 50 marks

## Syllabus

↳ A, B, C → B

## SO

↳ 40 marks technical marks

↳ 10 marks professional marks

↳ behave/write in

→ All professional skills will be tested in Section A

## Section B

→ 2 Compulsory questions of 25 marks each

→ 20 technical marks and 5 professional marks

↳ minimum of 2 professional skills

## Professional Skills

→ Analysis

→ Evaluation

→ Communication

→ Scepticism

→ Commercial acumen

↳ Past papers →  
→ how to develop these skills

→ How we teach → English module number → Exam practice platform

→ live classes + recorded lectures

→ weekly live class → new past papers solve

→ notes

→ mock exams → individualised feedback

→ Grand session → last 2 weeks

↳ covering each topic, → past paper will be solved  
↳ how this topic is been

	SBL	SBR	Afm	APM	ATX	AAA
Dec 2023	52	50	45	34	49	34
Sep 2023	50	50	45	34	48	34

Registers

+92 331 2623 849

→ Admin contact → Mischaakala

→ website enrollment → MHA → www.mischaakala.com

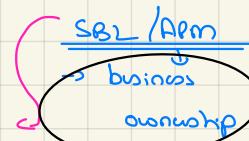
→ tutor +92 331 2623 849

(ATX) → tax specification

(PFM) → financial manager

(AAA) → Auditor

(SBR) → supporting ITAs



→ Study plan

## Course Breakdown & Planner

↳ Pattern of our study

→ Complete a lecture of topic → examples

→ Past papers → topical (1 topic & then

past papers to understand that

topically → completely topic)

→ Once we have covered all the topics, we will go and attempt all the past papers, but this time we will attempt the complete one

1/2

ISI

- ① Mission & vision ✓
- ② Financial performance indicators ✓
- ③ Performance management and measurement ] ✓
- ④ Non financial performance indicators ✓
- ⑤ Balance Scorecard model
- ⑥ Building block model
- ⑦ Performance & post
- ⑧ Performance pyramid
- ⑨ Budgeting
- ⑩ Current development → Quality costs
- ⑪ Current developments → Six sigma
- ⑫ Current developments → League tables

- ⑬ Current development → value based management
- ⑭ Current development → Environmental management Accounting
- ⑮ Divisional performance management
- ⑯ Transfer pricing
- ⑰ External influences
- ⑱ Business integration
- ⑲ Business structures
- ⑳ IT developments and information systems
- ㉑ Not for profit organisation
- ㉒ Strategic management
- ㉓ Lean management
- ㉔ Human resource management
- ㉕ Integrated reporting → total in multiple pages

↳ most recent attempts → exam platform

Accessories of  
exam platform  
and how it  
behaves

↳ do's and don'ts of APM

How APM should be covered? → student point of view

→ first, cover all lectures → 120-150 hours are covered

→ Read examine answers of attempted past papers in the class → (to get additional points)

→ try to attempt different papers (old past papers)

✓ (we had attempted in the class)

→ Start this to me for individual feedback so that student can work on their mistakes

→ attempt 3-4 marks in exam time and conditions and on exam platform (individual feedback of your tutor mandatory)

In an APM world, you are an Business Consultant.



each and every consultation regarding business - you can provide

PDF → LMS

↳ PDF → my detailed hand written notes

→ Examine articles

→ Icycan kit → (Solve some of the questions of it)

→ Book reading × (Lms / Platform)

→ my own hand written notes ✓

→ 4 weekly classes → live + recorded

↳ MHA LMS

## Topic 1 :- Mission & Vision / CSF / KPI's

Topical breakup  
of classes.

- ↳ detailed discussion theory
- ↳ Practical examples
- ↳ Past paper practice
- ↳ technical articles → read by students

### Mission

- purpose and aims of the organisation
- major stakeholders are interested in missions of an entity as they want to assort for long term

### Example

#### ① Cola Cola

- to infect the world
- to inspire moments of optimism and happiness
- to create value and make a difference

#### ② Samsung

- At Samsung, we follow a single business philosophy, to devote our talent to technology to create superior products and services that contribute to a better global society.

↳ basic  
↳ identify mission

### **June 2017 - Question 1** → Extract

The mission of DS is 'to give the shareholders maintainable, profitable growth by developing the best talent to provide world-class services with maximum efficiency.'

### **June 2013 - Question 1**

Its stated mission is: 'to become the No. 1 hotel chain in Ostland, building the strength of the Kolmog brand by consistently delighting customers, investing in employees, delivering innovative products/services and continuously improving performance'.

SBL & APM → Subjective, students answer cannot be same & yet they can score the same marks.

- ↳ multiple answers of a question
- Examiner allows to give a point and analyse - subjectivity

### Benefits

- prevents conflicts → one mission is clear
  - helps you in doing the decision making.
- you have to decide in a manner that mission gets successful.

### Drawbacks

- might be unclear of mission → misinterpret
- not represent actual values behind that mission. (undesired)

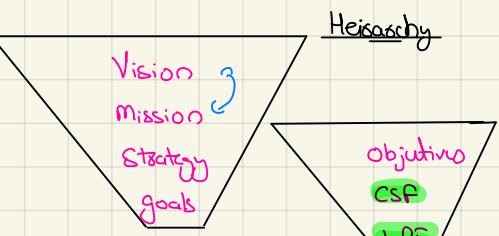
### Another exam example

Advise the directors of CFD regarding the appropriateness of its mission statement?

When CFD was formed, the directors created a mission statement which was 'to provide very high value for money to all of our clients'.

The directors have always attempted to manage CFD in a socially responsible manner. Indeed, they are now considering the creation of a 'Dog Sanctuary' for homeless dogs moving dogs which would involve an allocation of 20% of the total accommodation available for dogs to the Dog Sanctuary. The Dog Sanctuary would accommodate homeless dogs until such time as a new owner was found for them. CFD would not receive any revenue whatsoever in respect homeless dog.

↳ its mission is not been followed, rather providing value, it seems that CFD is doing socially responsible acts.



## Critical Success Factors (CSF)

CSF focus on the most important areas and get to the heart of both - what is to be achieved and how you will achieve? In simple words, The areas in which business should must win.

### How to determine the Critical Success Factors?

- ① industry structure → Education Service provider
  - ↳ quality education
  - no of positions → Good Grade
- ② Competitive strategy → Cost leadership → cheap products
  - Cost reductions
  - ↳ differentiation → innovative products
- ③ Environmental factors → oil company
  - ↳ pollute
  - ↳ Carbon reduction
  - reducing env damage
- ④ Temporary factors
  - Economic shift
  - ↳ Safety of citizens
  - ↳ Providing shelter
- ⑤ functional manager's position
  - ↳ Sales manager → high sales
  - high margins
  - your product is very user friendly
  - ↳ Marketing director
  - ↳ efficiently production availability of product

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

→ old one → handwritten  
→ practice platform

1 Film Productions Co (FP) is a small international company producing films for cinema release and also for sale on DVD or to television companies. FP deals with all areas of the production from casting, directing and managing the artists to negotiating distribution deals with cinema chains and TV channels. The industry is driven by the tastes of its film's audience, which when accurately predicted can lead to high levels of profitability on a successful film.

The company's stated mission is to 'produce fantastic films that have mass appeal'. The company makes around \$200 million of sales each year equally split between a share of cinema takings, DVD sales and TV rights. FP has released 32 films in the past five years. Each film costs an average of \$18 million and takes 12 months to produce from initial commissioning through to the final version. Production control is important in order to hit certain key holiday periods for releasing films at the cinema or on DVD.

The company's films have been moderately successful in winning industry awards although FP has never won any major award. Its aims have been primarily commercial with artistic considerations secondary.

The company uses a top-down approach to strategy development with objectives leading to critical success factors (CSFs) which must then be measured using performance indicators. Currently, the company has identified a number of critical success factors. The two most important of these are viewed as:

- (i) improve audience satisfaction
- (ii) strengthen profitability in operations

At the request of the board, the chief executive officer (CEO) has been reviewing this system in particular the role of CSFs. Generally, the CEO is worried that the ones chosen so far fail to capture all the factors affecting the business and wants to understand all possible sources for CSFs and what it means to categorise them into monitoring and building factors.

These CSFs will need to be measured and there must be systems in place to perform that role. The existing information system of the company is based on a fairly basic accounting package. However, the CEO has been considering greater investment in these systems and making more use of the company's website in both driving forward the business' links to its audience and in collecting data on them.

The CEO is planning a report to the board of Film Productions and has asked you to help by drafting certain sections of this report.

Required: → format → Professional marks

You are required to draft the sections of the CEO's report answering the following questions: → case → Potential  
(a) Explain the difference between the following two types of CSF: monitoring and building, using examples appropriate to FP. (industry) (4 marks)

(b) Identify information that FP could use to set its CSFs and explain how it could be used giving two examples that would be appropriate to FP. (6 marks)

(c) For each of the two critical success factors given in the question, identify two performance indicators (PIs) that could support measurement of their achievement and explain why each PI is relevant to the CSF. (10 marks)

(d) Discuss the implications of your chosen PIs for the design and use of the company's website, its management information system and its executive information system. (9 marks)

Professional marks will be awarded in Question 1 for appropriateness of style and structure of the answer. (2 marks)

(31 marks)

→ CSFs are those areas of business performance where the company must succeed in order to achieve its overall strategic objectives.

→ Building CSFs are those which look to the future of the organisation and its development, e.g. the launch of niche products or the use of new distribution methods, such as downloadable films.

→ monitoring CSFs are those that are used to maintain ongoing operations, for e.g., comparison of actual results to budget for each movie & industry average.

b

The Company can use information about the internal and external environment to set its CSF's.

Relevant external information would include the structure of industry of FP's competitors. The geographical location of production and the main sales markets may also be relevant.

Relevant internal information would include measures of seasonality on sales which will dictate the timing of film releases and effectiveness of marketing campaign. Track of the films and story that were successful to understand the customer.

c

### ① Audience Satisfaction

#### Performance indicators

#### No of repeat viewings

With TV showings, it will be possible to measure viewings for each showing of the film and monitor the decline in viewing over repetitions. The level of DVD purchases following a cinema will also indicate customer satisfaction with customers actively wanting to own this copy of favourite film.

#### Positive response of media

Scores by film critics often appear in the media and these give a measure of satisfaction. This category must be treated carefully as critics often look for artistic merit while FP is seeking commercial success and broad audience acceptance.

## ② Profitability

Performance indicators are

#### Costs breakup

Cost should be broken down into categories such as those for artists, production, technicians and marketing. Cost structure for each film should be compared internally to others that FP produces and externally – comparable figures in industry.

#### % of profit per film → margin per film

This will indicate the profits we are making on films and the reason could be identified of high and low profits trend analysis can be monitored and seasonal effects on profits can be considered.

→ making my own notes, will share in PDF, what app  
↳ suggest you send that

→ try to send scanned answer of question we have attempted in class.

→ Examining articles

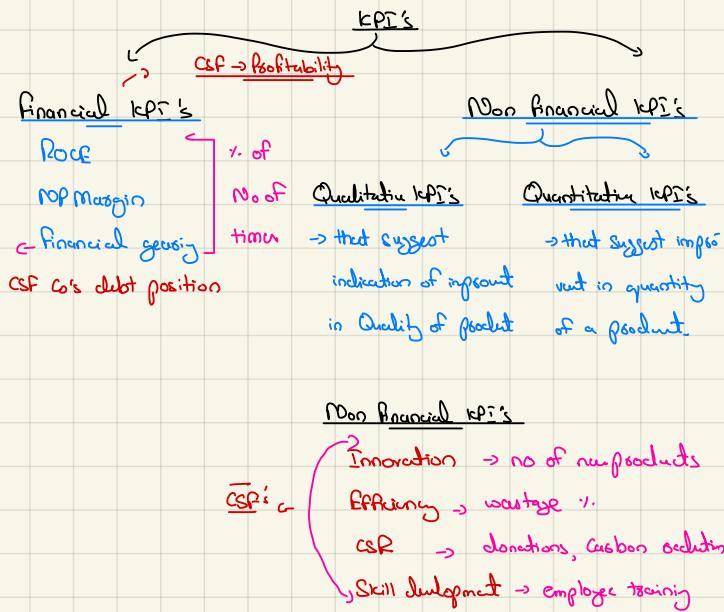
earlier studies → PS as well as other skills (law, physics) ↓  
 you are a Business Consultants  
 (Benefits business)

### Key Performance Indicators (KPI's)

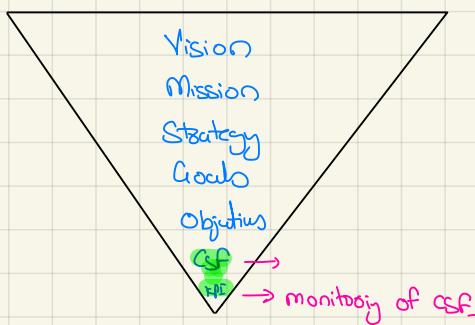
an indicators which indicates performance of business's

CSF (Critical Success Factors)

→ CSF checking & tracking



### Hierarchy



### Performance Measurement

- Return on Capital employed
- Asset turnover
- Gross profit margin
- Basic Performance indicators for Profitability
- Operating margin
- ROB profit margin

### ROE

Profit before int and tax × 100 → primarily indicators of profitability

Capital employed

$\frac{\text{total assets} - \text{current liability}}{\text{equity} + \text{long term debt}}$

### Asset turnover

Sales → what is sales being generated on employed money (capital).

Capital employed

### Gross profit margin

$\frac{\text{Gross profit}}{\text{Sales}} \times 100 = \dots$  → Primarily suggests product profitability.

### Operating profit margin

$\frac{\text{Operating profit}}{\text{Sales}} \times 100 = \dots$  → Co's profitability

### Basic indicators of liquidity

#### Current ratio

$\frac{\text{Current assets}}{\text{Current liability}}$  → liquidity (cash position of the Co.)  
 $\rightarrow 1.6 : 1$

#### Acid test ratio

$\frac{\text{Current assets} - \text{stocks}}{\text{Current liability}}$  → liquidity (cash position of the Co. but excludes inventories)

Inventory days → days

→ 0.8:1

→ days → week → month

$\times 365 \text{ days} \times 52 \times 12$

Cost of goods sold

#### Scalable days

→ days → week → month

$\times 365 \text{ days} \times 52 \times 12$

Credit Sales

#### Payable days

→ days → week → month

$\times 365 \text{ days} \times 52 \times 12$

Credit Purchases / COGS

### Cash operating cycle

inventory days = + 10

+ scalable days = + 10 →  $10 + 10 = 20$

- payable days = - 15 →  $20 - 15 = 5$

$15 + (-15) = 0$

Cash inflow → invest

### Financial Performance → Risk ratios

#### Financial gearing

$$\frac{\text{Debt}}{\text{Debt} + \text{Equity}} \times 100 \rightarrow \frac{80}{80 + 80} = \frac{80}{160} = 50\%$$

or

$$\frac{\text{Debt}}{\text{Equity}} \times 100 \rightarrow \frac{80}{80} = \frac{80 \times 100}{80} = 100\%$$

#### Operational gearing

→ burden of fixed cost  
 Fixed Cost × 100 (Sales goes down, FC goes down)  
 total Cost  
 how much cost position is fixed → ?

#### Interest cover

Profit before int & tax → how many times you can pay FC from profit  
 $\rightarrow 8 \text{ times}$

### Investment Appraisal → Risk & uncertainty

→ Risk = outcomes having Probability

uncertainty = outcomes having no probability → the things which you cannot estimate

#### Sensitivity Analysis

→ if a change in variable occurs, what would be the impact on other variable

→ through sensitivity analysis most critical variable which if changed will affect ultimate decision

formulae

$$\text{NPV} \times 100$$

Pound value of cashflows under consideration

Ex:

The total investment in the project is £80,000 having life of 4 years.

$$SP = \$30 \quad VC = \$6 \quad FC \text{ per annum} = \$600$$

Sales unit: 1000

Sensitivity

→ Calculate NPV of the project w.r.t. cost of capital.

Calculate Sensitivity analysis of following variables

- ↳ SP → instant → Cost of Capital
- ↳ VC → contribution
- ↳ FC → Sales volume

NPV

	0	1	2	3	4
investment (£80,000)					

SR	30000	30000	30000	30000
VC	(6000)	(6000)	(6000)	(6000)
FC	(5000)	(5000)	(5000)	(5000)
CF	14000	14000	14000	14000

$$DPF \rightarrow 10\% \rightarrow AF$$

$$(1+g)^{-n}$$

$$\delta \quad (\$80,000)$$

$$60280$$

$$\text{NPV} = 10,280 \text{ £}$$

Sensitivity Analysis

↳ Critical

$$\begin{aligned} \text{→ Selling price} &= \frac{10,280}{\text{PV}} \\ &= \frac{10,280}{95100} \\ &= 10.81 \quad (\text{Cost}) \end{aligned}$$

↳ 10.8% change in selling price would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{→ Variable cost} &= \frac{10,280}{\text{PV}} \\ &= \frac{10,280}{14020} \\ &\rightarrow 6000 \times 3.17 = 14020 \end{aligned}$$

↳ 8.7% change in fixed cost would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{→ Fixed Cost} &= \frac{10,280}{\text{PV}} \\ &= \frac{10,280}{15850} \\ &\rightarrow 6000 \times 3.17 = 15850 \end{aligned}$$

↳ 6.5% change in fixed cost would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{→ instant} &= \frac{10,280}{\text{PV}} \quad (\text{Year 0}) \\ &= \frac{10,280}{\$8000} \\ &\rightarrow \$8000 + 1 = \$8000 \end{aligned}$$

↳ 20.5% change in instant would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{→ Contribution} &= \frac{10,280}{\text{PV}} \\ &= \frac{10,280}{\$6000} \\ &\rightarrow 24000 \times 3.17 = \$7800 \end{aligned}$$

↳ 13.4% change in contribution would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{→ Sales volume} &= \frac{10,280}{\text{PV}} \\ &= \frac{10,280}{76080} \\ &\rightarrow 24000 \times 3.17 = \$76080 \end{aligned}$$

↳ 13.4% change in sales volume would result in 0 NPV, but the other factors remains same.

$$\begin{aligned} \text{Con} &= SP - VC \\ &\downarrow \\ \underline{\text{Con}} &= SP - VC \end{aligned}$$

→ if volume gets decreased

Risk & Uncertainty

+0233126238u9

APM 18QL

→ Sensitivity analysis

→ Expected value

→ Simulation

→ Discounted payback

→ Risk Specific cost of Capital

Advantages of Sensitivity

→ Simple to calculate

→ Not a decision rule

→ Critical variables

→ Change in isolation (Assumption)

→ Identifications

→ Does not incorporate risk

→ ignores probability

no space for probabilities

↳ chance %

Risk and uncertaintyProbability Analysis

A probability analysis of expected cashflows can be used both to calculate an expected NPV and to measure risk.

Steps

→ Calculate expected value of NPV

→ multiple outcomes will be considered by student.

→ Measure risk,

↳ by calculating the worst possible outcome and its probability

↳ by calculating the project will fail to achieve positive NPV

↳ by calculating the standard deviation of NPV

Expected Value

→ Considering multiple outcomes with different probability  
Weighted average as long term average provided once and one again.

Usefulness of EV

→ Relatively small and easy

→ Decision focused and lead you towards decision

→ estimates to be done on reasonable basis.

↳ justified with appropriate currency - key cost of no use.

Eg  
The company has calculate following NPV depending on market conditions - Good market NPV 20000 having following probability of 50%. Moderate market NPV 15000 having following probability of 30%. Poor market NPV 10000 and following probability of 20%. Calculate NPV of EV.

$$EV = \text{Outcome} \times \text{Probability}$$

Good	= 20000	x	50% =	10000
Moderate	= 15000	x	30% =	4500
Poor	= 10000	x	20% =	2000
				<u>2</u>
				EV = <u>16500</u>

log turn Averge value of project

### Extract of Project page

There is some uncertainty about what price can be charged for the units produced by the investment project, as this is expected to depend on the future state of the economy. The following forecast of selling prices and their probabilities has been prepared:

Future economic state	Weak	Medium	Strong	total EV
Probability of future economic state	35%	50%	15%	100%
Selling price in current price terms	\$25 per unit	\$30 per unit	\$35 per unit	Simple

These selling prices are expected to be subject to annual inflation of 4% per year, regardless of which economic state prevails in the future.

Forecast sales and production volumes, and total nominal variable costs, have already been forecast, as follows:

Year	1	2	3	4
Sales and production (units)	150,000	250,000	400,000	300,000
Nominal variable cost (\$'000)	2,385	4,200	7,080	5,730

Incremental overheads of \$400,000 per year in current price terms will also be required.

$$EV = \text{outcome} \times \text{Probability}$$

w =	25	x	35%	=	8.75
m =	30	x	50%	=	15
s =	35	x	15%	=	5.25
					29

example of real P/E / PBM  
part page

### Advantages

→ Does incorporates risk

→ Decision makes, Probability

### Disadvantages

→ Probability are estimates  
judgment, can be questionable

→ one off decision

- 2 The Superior Software House (SSH) commenced trading on 1 December 2002 in the country of Bonlandia. SSH develops bespoke software packages on behalf of clients. When requested to do so, SSH also provides training to clients' staff in the use of these software packages. On 1 December 2006, the directors of SSH established a similar semi-autonomous operation in Karendia. All software packages are produced in Bonlandia and transferred to Karendia at cost plus attributable overheads i.e. there is no mark-up on the software packages transferred from Bonlandia to Karendia.

Karendia is a country in which the structure of industry has changed during recent years. There has been a major shift from traditional manufacturing businesses to service orientated businesses which place a far greater emphasis upon the use of business software.

The operational managers in both Bonlandia and Karendia have no control over company policies in respect of acquisitions and financing.

The operational manager of Bonlandia receives a bonus of 40% of his basic salary for meeting all client delivery deadlines in respect of Karendia. At a recent meeting he instructed his staff to 'install client software by the due date and we'll worry about fixing any software problems after it's been installed. After all, we always fix software problems eventually'. He also stated that 'it is of vital importance that we grow our revenues in Karendia as quickly as possible. Our clients in Karendia might complain but they have spent a lot of money on our software products and will not be able to go to any of our competitors once we have installed our software as all their businesses would suffer huge disruption'.

Financial data (all stated on an actual basis) in respect of the two divisions for the two years ended 30 November 2007 and 2008 are shown on the next page:

### Summary Income Statements:

	Bonlandia	Karendia	Combined	Bonlandia	Karendia	Combined
2008	\$'000	\$'000	\$'000	2007	\$'000	\$'000
Revenue	14,600	2,800	17,400	14,000	2,000	16,000
Salaries	4,340	1,248	5,588	4,000	1,200	5,200
Software & consumables	2,040	486	2,526	2,000	450	2,450
Other operating costs	2,880	654	3,534	2,800	600	3,400
	9,260	2,388	11,648	8,800	2,250	11,050
Marketing	2,392	600	2,992	2,100	400	2,500
Interest (Group)	400	160	560	400	100	500
Depreciation and amortisation	2,792	760	4,402	2,500	500	3,900
Total costs	12,052	3,148	16,050	11,300	2,750	14,950
Profit/(loss) for the period	2,548	(348)	1,350	2,700	(750)	1,050

### Statements of financial position:

	Bonlandia	Karendia	Combined	Bonlandia	Karendia	Combined
2008	\$'000	\$'000	\$'000	2007	\$'000	\$'000
Assets						
Non-current assets	9,000	1,600	10,600	8,000	1,000	9,000
Current assets	4,550	1,000	5,550	5,000	800	5,800
Total assets	13,550	2,600	16,150	13,000	1,800	14,800
Equity and liabilities						
Share capital and reserves				9,150		7,800
Non-current liabilities						
Long-term borrowings (Group)				4,000		4,500
Current liabilities	2,400	600	3,000	2,000	500	2,500
Total equity and liabilities	16,150					14,800

### Required:

- Completely Divisions
- Assess the financial performance of SSH and its operations in Bonlandia and Karendia during the years ended 30 November 2007 and 2008.
  - Discuss the statements of the operational manager of Bonlandia and assess their implications for SSH.
  - Assess the likely criteria which would need to be satisfied for software to be regarded as 'quality software'.
  - Suggest a set of SIX performance measures which the directors of SSH could use in order to assess the quality of service provided to its clients.
- Note: you should highlight additional information that would be required in order to provide a more comprehensive assessment of the financial performance of each operation. (14 marks)
- (4 marks)
- (4 marks)
- (3 marks)
- (25 marks)

→ Calculating ratio's Basic + ratios made

↳ one that you made

→ Consider whether issued or claimed

→ Explain the reason → why?

→ Give your conclusion

↓

Ratios	Bonlandia	Karendia	Group
1. Sales growth	0.8	0.7	0.8
2. inc in Cost	6.65%	-	4.41%
3. ROE	22.85%	24.5%	(27.6%)
4. Asset turnover	1.81	1.27	1.4
5. OP margin	17.45%	14.28%	(12.6%)
6. C.R.	1.9	2.5	1.6
7. int cover	2.58	2.167	
8. Fbtida	2760	2453	

### Sales

The main reason for which an increase is because of the growth in sales by 40% from last year for Karendia which seems quite impressive - and also indicates shift from traditional manufacturing to service provided good for long term. However, the sales growth in Bonlandia was 13% which is the size of division.

## ROE

Although, the income is minus at young Rock, but main reason of Rock's profit seems to be from Kerosene's profit but still in negative. The reason of kerosene's such profit in Rock is derived from margin which has also increased. However, Asset turnover has an adverse impact on Rock which decreased by 0.13 times from last year, but acceptable as kerosene's operation are recently established. New investment would take time to realize. Assets increased by 44.1% compared to last year increase in Sales.

The ROE of kerosene affected the young Rock adversely as it decreased from 20.1% to 22.8%, mainly due to decline in operating profit margin which decreased by approx 2%. This seems because of last increased by 6.65% as compared to 4.1% increase in Sales. Asset turnover improved, so assets are old enough to generate sales. But change in asset turnover is a minor one indicating slow growth in sales possibly due to high competition in kerosene. Assets have increased by 42%, whereas sales have increased by 41%.

## Current Ratio

The main reason of such a decrease is a decrease in current section of kerosene by 0.6% because increase in current liability and decrease in current assets. On the other hand, the current ratio of kerosene improved slightly because of increase in current assets by 25% with 20% increase in liabilities.

## Acres

The reason for such a decrease is because of increase in equity financing by 17% approx. and decrease in debt by \$100 also lead towards gearing.

## Int Cover

Increase in int cover is because decrease in finance cost due to repayment of long term loans and increase in earnings per share from last year - Sales growth was higher than

Cost growth led high profit and int lower.

## Tip

any profit figure we have forecast, make sure you read the explanation of that forecast. (This is extra points) → Advanced candidate can be asked to analyse these points

→ Additional Performance measures  
→ EBITDA  
→ NPV → (mainly NPV is complex than APM)  
Advise C, In APM, it more descriptive rather calculating.

→ IRR → Adv I discuss  
→ Modified internal rate of return (MIRR)  
not covered  
→ Non financial performance indicators  
→ difference between performance management & performance measurement

## Note

Aim → calculation expertise  
In APM, discussion from the business consultants is focused with calculation, but to discuss a particular case there should be strong grip on calculation.

EBITDA Earnings before int and tax excluding  
↓  
why we need EBITDA → add back dep/amortisation  
→ sometimes organisations have higher dep/amort due to heavy machinery, heavy plants - EBIT would not be an accurate reflection of performance. (EBIT / operating profit will have dep/amortisation been deducted)

You get accurate performance of your business.

→ key performance indicators

EBIT / operating result =

## Add back

Depreciation + xxx

Amortisation + xxx

EBITDA l

Net income = xxx

## Add back

+ Depreciation = xx

+ Amortisation = xx

int & tax = xx

EBITDA

## Advantages

→ Substitute of cashflow, seems to be more accurate reflection of an business. (non cash expenses have been added)

→ ideally your options should be robust well  
→ non equity external cost → (int & tax), added back now EBITDA gives an performance of options  
↳ EBITDA can be termed as a good indicator of optional performance.

→ Control major decisions → business potential

↳ expanding your products/markets  
↳ business performance can be monitored through EBITDA, you can decide whether we have to expand in some business or not.

Net present value → (NPV) Complexity of NPVs are tested in APM

→ Decision limit of NPV are tested in APM.

→ PV of all cash inflows less the PV of all cash outflows. (Sum it all)

→ basic NPV calc question

Ex. The following are the cashflows

Yr 1	\$1000	Invest in year 0
Yr 2	\$1000	will be 11000
Yr 3	3000	<del>11000</del>
Yr 4	3000	NPV
	0 1 2 3 4	→ Basis of NPV

Invest	(11000)				
CF's	1000	1000	3000	3000	
NPF's	(11000)	5000	5000	3000	2000
DF	0.909	0.909	0.826	0.751	0.683
	10.1	10.1	10.1	10.1	10.1

NPV =	1977
DF of yr 0 = 1	11000
NPV =	1977
NPV =	1977

NPV is +ve 1977 → accept the project

NPV is -ve 1977 → reject the project

NPV is 0 → dual consider other factors

↳ location diversification

you are not adding value currently. customer etc  
but can add value in future.

### Advantages

→ time value of money

↳ IRR is considered so we can say that time value of money is considered)

→ Absolute measure

biz → number based rather than %

→ life of project

↳ since we have whole project life cycle considered

→ Complete cashing potential of project

→ Cashflow based

↳ cash generation through the project

→ Profit = Cash

### IRR → Internal rate of return

→ it's a rate at which NPV of a project gets 0

→ it identifies a maximum rate at which finances should be done

↳ maximum threshold that loan can be taken

$$IRR = \underline{12\%} \quad \text{↳ 0}$$

↳ financial constraint  
Cost of capital = 15%

negative  
choose selection between NPV and cost of capital

### formula

$$IRR = \frac{a + \frac{A}{B} \times (b-a)}{A-B}$$

a = rate of positive NPV

A = number of positive NPV  
higher

b = rate of negative NPV

B = number of negative NPV  
smaller

For IRR, you need 2 NPV's and 2 rates but in question it's only given 1. Calculate the 2nd rate & 2nd NPV by yourself)

through the relationship of COC and NPV

a = 10%

b = 15%

$$A = \underline{1000} \quad \rightarrow \quad B = \underline{-100} \quad \underline{-1000} \quad \underline{+10}$$

→ best practice is to use positive & negative but if both are +ve/-ve then higher and lower will be considered

### IRR example

Investment = 1600

life = 2 years

COC = 10%

Cashflows = 1000 / year

year

IRR

↳ NPV infact 2 NPV's

0 1 2

inv

(1600)

CF's 10% 1000 1000

DF →  $(\frac{1}{1+0.1})^1$  0.909 0.826 → given in exam

PV (1600) 909 826

$$NPV = +\underline{135}$$

$$10\% \rightarrow a$$

$$B = -73$$

$$20\% \quad 15\% \rightarrow b$$

0 1 2

inv (1600)

CF's  $\underline{20\%}$  1000 1000

DF →  $(\frac{1}{1+0.1})^1$  0.833 0.694

PV (1600) 833 694

→ given in exam

NPV -73 → B

20% b

$$IRR = \frac{a + \frac{A}{B} \times b-a}{A-B}$$

$$= 10\% + \underline{135} + (20\% - 10\%)$$

$$10\% + 0.649 \times (10\%)$$

$$\boxed{IRR = 10.0649\%}$$

### Advantages / Disadvantages of IRR

#### Adv

① Time value of money is considered

↳ discounted cashflow

↳ more sensible

② life of the project is considered

↳ whole life cycle is considered

↳ makes it more appropriate

③ IRR deals in only conventional projects

↳ non conventional projects

#### Conventional Projects

0 1 2

1000 800 700

↳ 1000 → 800+

↳ these scenarios

we have only one

IRR

↳ investment +, -ve

#### Non Conventional Projects

0 1 2 3

1200 1000 800 600

↳ 1200 → 1000 → 800 → 600

↳ correct w.r.t IRR

→ B.P. → B.P. ex

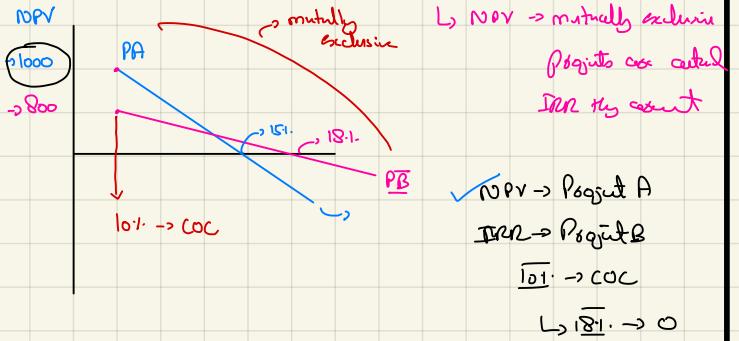
→ IRR is not an absolute measure

↳ it's in % terms

↳ NPV, we get exact figure  
(IRR → 1% terms) → difficult  
a figure

how much value will  
be created

Fig



→ IRR is an estimate

↳ you instead % on your  
wishes

→ estimates can be wrong  
as well

Modified internal rate of return → non conventional  
Projects.

IRR is the cosmetic measurement of NPV. This ignores  
the actual returns generated by the project - MIRR can  
deal with

↳ non conventional CP's

↳ scenario rates

↳ different rates

Fig

$$MIRR = \sqrt[n]{\frac{\text{terminal CashFlow}}{\text{initial outlay}}} - 1$$

Fig The following are the cashflows

$y_1 = 80,000$  - investment in year 0 will

$y_2 = 90,000$  - 100,000

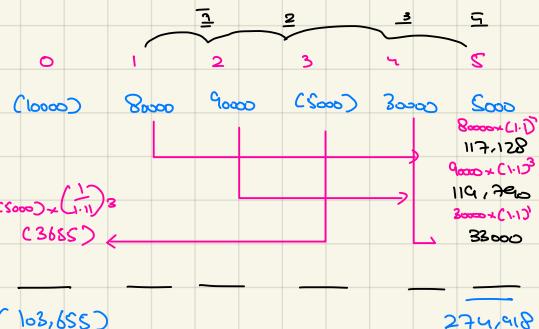
$y_3 = (-5,000)$  - ~~spent~~

$y_4 = 30,000$  - MIRR using borrowing  
rate (11%) and scenario  
rate 10%

$y_5 = 5,000$  - ~~spent~~ 10%

Sol

CP's



$$MIRR = \sqrt[5]{\frac{274,918}{103,655}} - 1$$

$$mIRR = 21.5\%$$

→ non conventional  
Project

Non financial KPI's

↳ don't always be a financial focus person

→ CSF's

→ KPI's

Good Financial  
Performance

① % ROCE  
② Net profit  
margin

③ Acquisition

non financial

Customer satisfaction

① % of satisfied  
customers  
② % Logistics  
③ % of profit  
Customer

Problems with assessing qualitative information

→ Assessing quality is not an easy task

→ Conflicts of higher management decision and consumer preferences

→ no specific formula to calculate qualitative factors

↳ tailor made solution  
non financial KPI's

## Performance Measurement

→ deals specifically with performance  
and measures

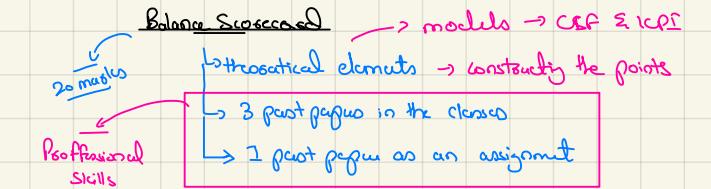
→ These are quantitative indicators  
you put in place to track the  
progress against your strategy

## Systematic Performance Management

→ A system which ensures  
that goals are consistently  
being met in an effective  
manner

→ An organisation, a department,  
an employee, or even the process  
to build a service

→ integrates organisational  
strategic management performance  
information, monitoring current  
and future performance



In order to achieve Company vision and strategy → 4 perspectives and each of the perspective is linked with assigned goals and KPI's

Kaplan & Norton → performance of 60  
→ developed Balance score

Perspectives → Developed by this model

→ Financial Perspective

→ Customer Perspective

→ Internal Perspective

→ Innovation and Learning

→ 3 heads forming non financial performance indicators

Financial Perspective (CFPI's)

→ adding shareholders value

→ improving the finance

Customer Perspective (COPPI)

→ adding customer value

CSF / Goals KPI's / Measures

→ Profit ROCE / CIP margin

→ Survival liquidity

(enough funds)

CSF / Goals KPI's / Measures

→ Quality

% of complaints  
% of return orders

→ Responsiveness % of time delivery

Internal Perspective (INPPIS)

→ process of an organisation are efficient or not

CSF / Goals KPI's / Measures

→ operational performance Cycle time (lead)

when an entity receives order &

when it's delivered.

Innovation, learning (INPPIS)

→ creating future value

Not stuck with current products, thinks of future

CSF / Goals KPI's / Measures

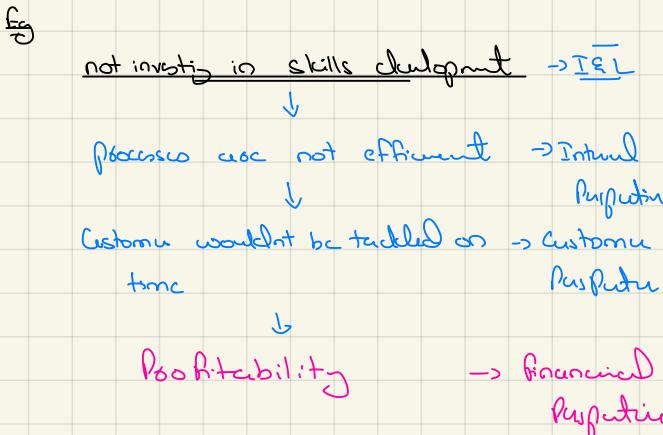
→ new products

no of new products

→ staff develop

training cost  
% of training offered

→ all those perspectives are interrelated with each other.



### Implementation of Balance Scorecard

Develop strategy → Cost produce as differentiator

Select measures → Right measures or right goals (but perhaps cumulative)

Define and refine → Management reporting system tracks

Measure against performance

Deal with people → Reward & career development

### Disadvantages

→ Complexity increases

→ entity wants CIP margin increase and customer wants good quality - Good quality can be expensive material that lead to lower margins

→ selection of measure

→ selecting a measure for any particular strategy is not easy

→ Interpretation and action

→ determination of correct interpretation is not easy

### Management Commitment

- observed that management commitment towards the others 3 perspectives lacks focus
- primarily profit / financial are somethings work for in the eye of senior management

→ Professional skills

Section A - BOTH questions are compulsory and MUST be attempted → absolute, read examining as well.

	RLH Actual	RLH Budget	KHH Actual	KHH Budget
Total inpatients	37,000	36,500	40,000	36,500
Number of inpatients waiting > 5 weeks for admission	3,330	365	326	0
Number of inpatients waiting > 11 weeks for admission	740	0	0	0
Total outpatients	44,000	43,800	44,000	44,000
Number of outpatients waiting > 5 weeks for treatment	4,400	2,190	352	220
Number of outpatients waiting > 11 weeks for treatment	1,320	438	220	0
Achievement (% of target maximum waiting time of 2 weeks for admission) (%)	70	38	100	total
Number of emergency admissions	300	400	300	0
Achievement (% of target of 4 hours or less time spent in accident and Emergency ward)	96	98	100	total
Number of complaints received	1,620	803	420	0
Number of complaints responded to within 25 days	1,539	803	416	0
Number of deaths (all inpatients)	600	730	800	0
Infection control - number of instances of infections reported	2	6	0	0
Number of drug administration errors	80	100	20	0
Number of staff shortages	80	50	20	0
Staff productivity measure (number of patient days per staff member)	8.4	7.4	9.2	0
Number of times of Government or agency staff usage	60	60	20	0
Bad occupancy rate (number of inpatient bed days)	138,750	146,600	134,320	0
Theatre utilisation (%)	80%	80%	80%	total
% of inpatients requiring a single operation	80%	80%	80%	total
Number of operations performed	29,008	?	31,840	total
Medical staff costs (\$m)	54.2	55.2	60.2	total
Other staff costs (\$m)	22.0	22.0	4.0	total
Income and expenditure surplus margin	5.5	5.5	4.0	total
Number of days cash in hand	(1.0)	0.0	0.0	total
Additional information:	31	30	35	total
(1) Both hospitals were in operation for 365 days during the year.	26/7			
(2) Each hospital has 42 wards, each of which accommodates 10 beds				
(3) RLH budgeted that each inpatient would require a stay of four days and nights in hospital.				
(4) Each hospital has ten operating theatres in each of which an average of nine operations per day were undertaken.				
(5) No outpatient required an operation during the year.				
(6) The management of the trust uses a 'balanced scorecard' approach in order to assess the performance of each hospital. Their balanced scorecard has four dimensions which are as follows:				
(i) Access to services ✓				
(ii) Clinical				
(iii) Efficiency				
(iv) Financial management.				

→ we have seen these perspectives

beginning in an industry

$$\text{target} = \frac{\text{actual}}{\text{target}} \times 100 = 88.31$$

Required:

Prepare a report to the management of the Glasburgh Trust which:  $\text{actual} = \text{target}$   $\frac{\text{actual}}{\text{target}} \times 100 = 88.31$

(a) Critically assesses, on the basis of the above information, the performance of both hospitals for the year ended 31 May 2009. You should use the four dimensions to perform your assessment as per note (6) above; (20 marks)

(b) Evaluates the balanced scorecard used by the Glasburgh Trust and provides recommendations which would improve its usefulness as a performance measurement tool. (11 marks)

4 professional marks will be awarded in question 1 for the appropriateness of the format and presentation of the report and the quality of its content. (4 marks)

→ drafting skills in your blood

(35 marks)

## RH

→ Access to Services

<u>RH</u>	<u>RH</u>	<u>KHH</u>
Actual	Budget	Actual

% of inpatients who waited more than five weeks ✓

9.1.	11.1.	0.81. ✓
2.1.	0	0

% of inpatients who waited more than eleven weeks ✓

10.1.	5.1.	0.81. ✓
3.1.	1.1.	0.51. ✓
0.51.	-	- ✓

% of outpatient who waited more than eleven weeks

% of outpatient who waited more than thirteen weeks

Report access chart points to 98 100

number of emergency admissions	200	400	300
no of 12 hour trolley	4	0	0
Achieved % of target	96.1.	98.1.	100.1.

→ professional tone → Skill questions will be done

The statistics in respect of inpatients to each hospital reveal that KHH provided superior access to service than RH. At RH 9.1% patients waited for more than five weeks and 2.1% patients had to wait for more than 11 weeks. Both which are poorer to its own budget and Cognititio.

As for outpatient again, the KHH was far better in appointment the RH. The RH didn't even meet the budget 10.1% of all outpatients who waited more than five weeks for an

appointment at RH which was exactly twice the target of 5.1%. Also, 3.1% of all outpatients at RH waited more than 11 weeks for an appointment against a target of 1.1%. Moreover, 0.51% outpatients at RH had to wait more than 13 weeks for an appointment

The RH emergency admissions were same as KHH but it was below the target of 400 admissions.

RH had targeted that no patient admitted to hospital on emergency basis would have to spend 12 hours before being admitted to hospital but actual number suggest poor performance compared to budget and the Cognititio who had no patient who had to wait 12 hours before allocated an hospital bed.

RH was unable to meet the target of 98.1% patients admitted to the accident and emergency ward would spend less than four hours in the ward - RH achieved a percentage of 96.1% whereas Cognititio achieved 100.1%

## Clinical

<u>RH</u>	<u>RH</u>	<u>KHH</u>
Actual	Budget	Actual

number of Complaints

number of deaths (inpatient)

infusion control

number of day adm cases

The RH the complaints (comparing clinical) were more than double compared to budget and almost 4 times greater when compared to KHH - indicating poor customer satisfaction

→ The death rate of KHH is higher than RH but solving this with clinical efficiency might be questionable as death depends more on the seriousness of the illness

→ The team was excellent in infection control case. RH actual performance was good compared to the nine instances as we set in the budget

→ KHH performance is commendable in doing adm cases as they have done only 20 cases in respect to RH they have done 80 cases which are about from the target that anticipated less cases.

## Efficiency

<u>RH</u>	<u>RH</u>	<u>KHH</u>
Actual	Budget	Actual

number of patients days per member

number of times of government

no agency staff

number of staff shortages

→ tailors made LPI

→ tailors made LPI

→ tailors made LPI

→ As for staff productivity, comparative actual and target statistics for RH are 8.4 and 7.4 days respectively, KHH has a higher figure at 9.2 patient days per member of medical staff implies greater level of efficiency.

Against the number of staff shortages of 80 at RHM who was twice higher than that of KHM it is reasonable to conclude that such staff shortages will lead to problems especially within organisation such as hospitals which are so dependant upon staff being available according to hospital schedule.

The average patient stay at RHM was 3.75 bed night which compares favourably with a target of 4 bed night - KHM had an average patient stay of 3.66.

There's utilisation at RHM amounted to 88.3% of available capacity which was below the target level of 88.9%. In comparison with KHM used 96.4% of available capacity which is significantly higher than RHM.

The RHM was only 95% in operating margins with 23 days successfull when compared with budget of 20 days again in this aspect KHM were better the RHM.

## Financial

	RHM	RHM	KHM
	Actual	Budget	Actual
Revenue from clinical & non-clinical activities	£12.4	£12.2	£10.2
Medical staff cost	22.3	22.2	19.6
Other staff cost	£5.5	£5	£4.0
Operating cost	27.8	27.7	23.6
Income / expenditure surplus/deficit	-1	0	4
Number of days cash in hand	31	20	25

The financial information contained within the scenario is extremely limited, however it can be deduced that RHM had a deficit of £1 million - it was targeted to operate at 0 surplus / deficit other than with regard to medical staff cost were 0.1m above budget. RHM appears to have excellent cost control given that it treated more outpatients but with lesser staff cost. This shows good control over cost.

In comparison, KHM had an operating surplus of 94 million it is noticeable that its level of operating cost 23.6 is lower than RHM. Cash in hand days at RHM are 31 days which is slightly above target - KHM had 25 days in cash in hand.

## Conclusion

RHM performance was well below than KHM and also in many areas it was behind its own budget.

## 30 Victoria-Yeeland Logistics (June 2015, amended)

49 mins

### Exhibit 1: Company background and objectives

→ detail of the industry

Victoria-Yeeland Logistics (Victoria) is a logistics support business, which operates a fleet of lorries to deliver packages of goods on behalf of its customers within the country of Yeeland. Victoria collects packages from its customers' manufacturing sites or from the customers' port of importation and delivers to the final user of the goods. The lorries are run and maintained from a set of depots spread throughout Yeeland.

The overall objective of Victoria is to maximise shareholder wealth. The delivery business in Yeeland is dominated by two international companies and one other domestic business and profit margins are extremely tight. The market is saturated by these large operators and a number of smaller operators. The cost base of Victoria is dominated by staff and fuel, with fuel prices being highly volatile in the last few years.

### Exhibit 2: Balanced scorecard

→ major cost  
staff < fuel

In order to improve performance measurement and management at Victoria, the chief financial officer (CFO) plans to use the balanced scorecard (BSC). However, they have been pulled away from this project in order to deal with an issue with refinancing the business's principal lending facility.

The CFO has already identified some suitable metrics but needs you, as their assistant, to complete their work and address any potential questions which might arise when they make their presentation on the BSC to the board. The CFO has completed the identification of metrics for three of the perspectives (Appendix) but has yet to complete the work on the metrics for the customer perspective. This should be done using the data given in Appendix 2.

Therefore the CFO has requested a justified recommendation, and calculation, of a suitable performance metric for each customer perspective success factor. The CFO also wants a commentary on the problems of using customer complaints to measure whether packages are delivered safely and on time. ↗ Customer perspective efficiency

### Exhibit 3: Reward management issues

Additionally, two issues have arisen in the reward management system at Victoria, one in relation to senior management and the other for operational managers. Currently, senior management gets a fixed salary supplemented by an annual bonus awarded by the board. Shareholders have been complaining that these bonuses are not suitable. The operational managers also get bonuses based on their performance as assessed by their management superiors. The operational managers are unhappy with the system. In order to address this, it has been suggested that they should be involved in bonus target setting as otherwise there is a sense of demotivation from such a system.

The CFO wants an evaluation of this system of rewards in light of the introduction of the BSC and best practice.

### Exhibit 4: Appendix 1

#### Financial perspective (How do we appear to our shareholders?)

Return on capital employed

Profit margin

Revenue growth

#### Customer perspective (How do we appear to our customers?)

Success factors:

Ability to meet customers' transport needs

Ability to deliver packages quickly

Ability to deliver packages on time

Ability to deliver packages safely

#### Internal process perspective (What business processes must excel?)

Time taken to load and unload

Lorry capacity utilisation

#### Learning and growth perspective (How do we sustain and improve our ability to grow?)

Leadership competence (qualitative judgement)

Training days per employee

### Exhibit 5: Appendix 2

The process: A customer makes a transport request for a package to be collected and delivered to a given destination. The customer is supplied with a time window in which the delivery will occur. Packages are then loaded onto lorries and delivered according to a route specified by the depot's routing manager.

Total number of customer transport requests	610,000
Total number of packages transported	548,000
Total number of lorry journeys	73,000
Total package kilometres	65,760,000
Total package minutes	131,520,000
Number of delivery complaints from customers:	
from damaged packages	8,220
from late delivery (outside agreed time window)	21,920

#### Notes

1 All figures are for the last financial year.

2 A package kilometre is defined as a kilometre travelled by one package.

3 A package minute is defined as a minute spent in transit by one package.

#### Required

Respond to the CFO's requests for work on the following areas:

- Performance metrics for each customer perspective success factor and comments on using customer complaints. ↗ Calculatory (11 marks)
- Reward management issues. ↗ Calculatory (9 marks)

Professional marks will be awarded for the demonstration of skill in analysis and evaluation, scepticism and commercial acumen in your answer.

→ Point two student can draft (5 marks)

Total = 25 marks

Chatty soundin formal professional skills ↗ (5 marks)

## Performance Measures

Verb - Justified Recommendation -Object - Suitable performance metric for each customer success factor

Verb - Calculate -Object - Suitable performance metric for each customer success factor

## Ability to meet customer transport need

% customer request fulfilled -  $548000/610000 * 100 = 89.8\%$  (1m)

This measure will focus on whether the company was able to cater to maximum customer request or not in this competitive environment. (1m)

## Ability to delivery quickly

Time taken per KM -  $131520000/65760000 = 2\text{min} / \text{KM}$  - This will measure the speed with which the packages have been delivered considering the time and Km.

*→ squat that we are offering  
→ high → customer  
Suggest customer profit*

## Ability to delivery on time

% late deliveries -  $21920/548000 = 4\%$  - This will measure the C's ability to deliver packages on time to customers which is important for customer satisfaction.

## Ability to delivery safely

% of packages damaged deliveries -  $8220/548000 = 1.5\%$  - This will help to measure how safely the deliveries were made to customers or in other words it will measure the deliveries not made safely which will affect the customer satisfaction.

Verb- Commentary Object - Problems on using customer complains (Safety and on time)

- Unjustified complains - Overstate the indicators - Refunds or some the financial benefit - Wrong performance assessment will be made about company as it will show adverse performance.

- Customers not willing to complains ( less value or they think nothing will be done) this will understate the issues - indicator will show positive and wrong assessment.

## Part B

## Verb - Evaluation - Object Systems of rewards in light BSC and best practice

## Senior Management 4.5

*→ apply Balance Scorecard → evaluating the future  
good  
measures  
for  
bonus  
These measure will limit the managers performance.  
→ useful tool now to give*

## Operational Managers 4.5

*→ Pointers*

- Issue is operational managers not happy -
- May be due to things not clear and high targets
- BSC will links the strategic performance and objectives with operational performance and objectives - So measures for these will come from (*Customer and internal perspective*) *→ manager* *↳ link with this function with customer perspective*
- So strategic and operational measures will be properly aligned.
- Operational manager should not be allowed to be part of target settings however, complete clear communication needs to be made as to *what and why the targets have been set*.
- Getting their confidence is important.

*↳ manager are demotivated, they might not work accordingly and business would suffer.*

- Strategy* *→ BSC → reflecting future first → link scenario*
- theoretically explain model* *→ coincide they loss*
- Evaluate or Assess performance with or without model* *↳ no model* *↓ customer is quiet*
- Connect on performance system*

*key* *↳ Performance system*

*→ Suggest important in relation to performance measurement system as business performance*

## H.W

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

## 2 Company information

**Veyatie** is a fashion clothing retailer which caters for both male and female customers of all adult age groups. Veyatie has 10 retail stores. The company's information systems are basic for a business of its size and focus solely on financial information.

Veyatie's strategic objectives are 'To maximise shareholder wealth by increasing the number of retail stores, making our customers completely satisfied, ensuring our stores are attractive and offering the widest range of fashion clothing in our market.'

The Veyatie board has seen little need for non-financial performance indicators (NFPIs) so far, preferring instead to focus attention on cost control and working capital management. As a result, all senior managers are appraised against targets for operating profit margin, inventory turnover and the current ratio.

## Customer satisfaction

Following a period of poor financial performance, Veyatie began collecting data on one aspect of non-financial performance, customer satisfaction, as the board had been advised that this is a key driver of financial performance.

The data collection began at the start of Quarter 3 20X3 and there is now data available for two complete years (Appendix 1). Veyatie has found it difficult to interpret this qualitative data and also the trends in this data. Some board members question its usefulness and propose reverting back to reporting just the financial indicators which they are used to.

Veyatie collects this data by asking customers to rate their satisfaction with their visit to the store as they are paying for their items. The scores range from 1 (completely dissatisfied) to 5 (completely satisfied). The mean score is the performance indicator reported to the board and the senior managers. Customers are encouraged to leave a score by having their names entered into a quarterly prize draw to win tickets to major football matches, concerts and amusement parks.

## Balanced scorecard

A consultant has suggested to the board that the introduction of a balanced scorecard approach may improve business performance, as Veyatie is unlikely to achieve all of its strategic objectives in the near future. The board has already heard what the benefits of the balanced scorecard are, but are sceptical about these.

The board has asked for your advice on the problems of implementing and using the balanced scorecard approach at Veyatie. One aspect of this advice should focus on the selection of suitable performance measures and the consultant has already chosen some performance measures which could be included in a balanced scorecard at Veyatie (Appendix 2). These have been provided to help you illustrate your advice on the problems of using the balanced scorecard.

Note: The board would welcome your advice on how to refine the performance measures as part of your advice on the problems of using and implementing the balanced scorecard, but does not want you to give a detailed evaluation of the advantages and disadvantages of each performance measure, or to suggest completely new measures.

## Required:

It is now 1 September 20X5.

(a) Assess the difficulties in using and interpreting the customer satisfaction data at Veyatie. (10 marks)

(b) Advise the board as requested of the problems of implementing and using the balanced scorecard approach at Veyatie. (15 marks)

(25 marks)

## Appendix 1

## Customer satisfaction data

## Percentage of customers giving customer satisfaction scores\* between 1 and 5

Narrative	Score	20X3		20X4		20X5	
		Q3	Q4	Q1	Q2	Q3	Q4
Completely satisfied	5	5%	5%	50%	5%	5%	45%
Very satisfied	4	10%	5%	0%	14%	15%	5%
Satisfied	3	70%	65%	0%	56%	50%	65%
Somewhat dissatisfied	2	10%	20%	0%	20%	25%	25%
Completely dissatisfied	1	5%	5%	50%	5%	5%	45%
Mean score		3.00	2.85	3.00	2.94	2.90	2.70
						2.95	2.93

\* Satisfaction scores were collected from a large number of customers when paying for their items.

## Appendix 2

## Perspective

## Financial

## Performance measure

Operating profit margin

Inventory turnover

Current ratio

## Customer

Customer satisfaction

Market share

## Internal business processes

Stock out percentage<sup>1</sup>

## Learning and innovation

Total employee training days<sup>2</sup>

## Notes:

1. Stock out percentage is the percentage of product lines which are unavailable for sale in each store at the beginning of each trading day.

2. The human resources department already records the total number of employee training days. Employee training covers the three main areas of health and safety training, training in handling customer complaints and training staff to understand the range of products available and how to display them attractively in the store.

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

1 **Monza Pharma** Monza is a developer and manufacturer of medical drugs, based in Beeland but selling its products all over the world. As a listed company, the overall objective of the company is to maximise the return to shareholders and it has used return on capital employed (ROCE) as its performance measure for this objective. There has often been comment at board meetings that it is good to have one, easily-understood measure for consideration.

The company has three divisions:

- the drug development division develops new drug compounds, taking these through the regulatory systems of different countries until they are approved for sale;
- the manufacturing division then makes these compounds;
- the sales division then sells them.

Monza's share price has underperformed compared to the market and the health sector in the last two years. The chief executive officer (CEO) has identified that its current performance measures are too narrow and is implementing a balanced scorecard (BSC) approach to address this problem. The current performance measures are:

- Return on capital employed
- Average cost to develop a new drug
- Revenue growth

The CEO engaged a well-known consulting firm who recommended the use of a BSC. The consultants began by agreeing with the board of Monza that the objective for the organisation's medium-term strategy was as follows:

- Create shareholder value by:  
Innovating in drug development  
Efficiency in drug manufacturing  
Success in selling their products

The consulting firm has presented an interim report with the following proposed performance measures:

- Financial: ROCE
- Customer: Revenue growth
- Internal business process: Average cost to develop a new drug
- Learning and growth: Training days provided for employees each year

The CEO and the lead consultant have had a disagreement about the quality and cost of this work and as a result the consultants have been dismissed. The CEO has commented that the proposed measures lack insight into the business and do not appear to tackle issues at strategic, tactical and operational levels.

The CEO has decided to take this work in-house and has asked you as the performance management expert in the finance department to assist him by writing a report to the board to cover a number of areas. First, following the disagreement with the consultants, the CEO is worried that the consultants may not have been clear about the problems of using the BSC in their rush to persuade Monza to use their services.

Second, he wants you to evaluate the choice of performance measures currently used by Monza and those proposed by the consulting firm.

Third, there has been a debate at board level about how ROCE should be calculated. The marketing director stated that she was not sure what profit figure (of at least four which were available) should be used and why, especially given the large variation in result which this gives. She also wondered what the effect would be of using equity rather than all capital to calculate a return on investment. Some basic data has been provided in Appendix 1 to assist you in quantifying and evaluating these possibilities.

In addition to these concerns, the board is considering introducing a total quality management approach within Monza. Obviously, quality of output is critical in such a heavily regulated industry where the products can be a matter of life and death. There has been discussion about testing this idea within the manufacturing division. The CEO wants to understand, first, the costs associated with quality issues within that division. To aid your analysis, he has supplied some detailed information in Appendix 2. Next, the board requires an outline evaluation of how a total quality management (TQM) approach would fit within the manufacturing division.

## Required:

## Write a report to the board of Monza to:

(i) Assess the problems of using a balanced scorecard at Monza. (8 marks)

(ii) Evaluate the choice of the current performance measures and the consulting firm's proposed performance measures for Monza. (12 marks)

(iii) Evaluate the effect of choosing different profit and capital measurements for different measures of return on investment and recommend a suitable approach for Monza. (11 marks)

(iv) Analyse the current quality costs in the manufacturing division and then briefly discuss how implementation of total quality management would affect the division. (10 marks)

(v) Briefly advise on how the drug development division can aim to make the new information system 'lean'. (5 marks)

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

(50 marks)

## Building block model

agenda

- ↳ theoretical discussions ✓
- 2 part papers to solve in class
- assignments
- check on more part papers of building block

↳ mainly designed

→ Building block model is highly recognized in Service Sectors



evaluation of performance in service is difficult.

### Characteristics of Service Sectors

↳ which distinguish Service Sectors

→ Simultaneity → Same time → Services are delivered at the same time.

→ Heterogeneity → different → Services are different every time

→ Intangibility → Services are not touchable

→ Perishability → Cannot be stored

→ No transfer of ownership ↓

↳ through these factors building block come into light

Building block → factors

- Dimensions
  - Standards ]
  - Resources ]
- ↳ anything can be tested

Dimensions → CSF → Critical Success Factors

Six dimensions in BB, The first two are consultants and next four are determinants

consultants

↳ determinants

① Financial performance

③ Quality      ⑤ Flexibility

② Competitiveness

④ Resource utilization      ⑥ Innovation

## Financial performance

- It measures profitability, liquidity and capital structure

### Competitiveness

- It focuses on factors which determines sales growths, market share and Co's competitive positions.

### Quality

- It measures quality of a service delivered, reliability and customer feedback

### Resource utilization

- It focuses on effective utilization of all resources (Capital, labour etc)

### Flexibility

- It determines how much an organization is flexible, such as speed of delivery, mode of delivery, payment methods, coping with customer demands.

### Innovation

- It measures the ability to innovate in terms of both innovation process and success of individuals innovation such as new products launched.

Standards → KPI of those dimensions 3

- Ownership
  - Achievable
  - Equity
- ↳ Considered while targeting performance  
↳ performance won't be well  
↳ not focusing on these standards

### Ownership

It is important that employees take ownership of the standards.

## Achievable

Standards that have been set shall be achievable. So to make such achievable standards it is quite clear that organization shall be considering the standards taking employees mind. (you know what they can achieve)

↳

flexible hours → lets writing ↗ come late

### Equity

Standards should be fair to all employees. Two should not be unfairness - (Gender, departmental etc)

### Rewards

→ KPI's → tracks down the performance

→ Clarity

→ Motivation

→ Controllability

### Clarity

Employees needs to be clear about the organization objectives and goals. On basis of those objectives, performance can be measured.

### Motivation

It is important to motivate the individuals to make sure that standards are achieved to get the rewards that are motivating.

### Controllability

Performance of employees shall be in a controllable manner. They can control this performance and align according toward the achievement of targets.



## → Exam Ans of APX

### 3 (a) Fitzgerald and Moon's building block approach

The building block model is an analysis that aims to improve the performance measurement systems of service businesses such as APX. It suggests that the performance system should be based on three concepts of dimensions, standards and rewards.

Dimensions fall into two categories: downstream results (competitive and financial performance) and upstream determinants (quality of service, flexibility, resource utilisation and innovation) of those results. These are the areas that yield specific performance metrics for a company.

Standards are the targets set for the metrics chosen from the dimensions measured. These must be such that those being measured take ownership of them, possibly by participating in the process of setting the standard. The standard must be achievable in order to motivate the employee or partner. The standards must be fairly set, based on the environment for each business unit so that in the lower growth areas of, say, audit do not feel prejudiced when compared to the growing work in business advisory.

Rewards are the motivators for the employees to work towards the standards set. The reward system should be clearly understood by the staff and ensure their motivation. The rewards should be related to areas of responsibility that the staff member controls in order to achieve that motivation.

### (b) The current system

APX's performance management system does not cover all the areas that the building block model would suggest are necessary. The downstream dimensions appear to be covered as the competitive performance (market share) and financial performance (revenue growth and profit margin) can be measured. However, the determinants of this performance appear less well covered with only the quality of service aspect handled by the customer satisfaction rating.

The standards are unclear from the information provided. It appears that the industry averages can be used to compare competitive performance but there are no figures for the industry on profitability. The measure must therefore be internal, comparing practice areas to each other. This may breach the fairness criterion as it is likely that business advisory can negotiate better fees than audit or tax due to market conditions being favourable from that area. No standard is mentioned on the document for quality of service.

The non-partner reward system at APX is related to performance as assessed by the line manager but this will be compromised by the limited measurement of the dimensions of performance. The partner reward system appears to be based on the level of responsibility of the partner and the performance of the whole firm rather than that individual's contribution to performance. Therefore, there is a strong probability that the reward level is not controllable by the partner and this may affect their motivation. For example, a tax partner may view the growth in recovery work as sufficient to merit reward to all partners and so not optimise the performance of their own area of the practice.

### (c) Main building block improvements

The first improvement obtained by using this model will be to ensure that all the key determinants of success in performance are being measured. The next benefit will be that the targets set for each measure are set in such a way as to engage the staff. Finally, the reward system will operate in a way to optimally motivate the individual staff members.

#### Improvements to existing performance measurement system

The existing performance measurement system requires measures for flexibility which address the speed of delivery of the service (e.g. a punctuality measure of percentage of jobs delivered on time), the customer's attitude (e.g. the existing customer service survey could be broken down to include the customer's perception of whether objectives were achieved) and the degree to which the practice handles busy periods (e.g. amount of overtime worked). It is surprising that APX does not seem to measure resource utilisation, for example, by considering the percentage of billable hours worked to the total working hours of the firm. This is a commonly used measure of the productivity of staff in accounting practices. Finally, the dimension of innovation is not measured. Innovation is an important source of competitive advantage. The efficiency of the innovation process can be measured by the time it takes to launch a new service once the initial customer need is identified. The outputs of innovation process within APX could be measured by the number of new customer initiatives launched or by the revenue that they generate.

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

**Kolmog**

Kolmog Hotels is a large, listed chain of branded hotels in Ostland. Its stated mission is: 'to become the No. 1 hotel chain in Ostland, building the strength of the Kolmog brand by consistently delighting customers, investing in employees, delivering innovative products/services and continuously improving performance'. The subsidiary aims of the company are to maximise shareholder value, create a culture of pride in the brand and strengthen the brand loyalty of all stakeholders.

The hotels in the Kolmog chain include a diverse range of buildings and locations serving different customer groups (large conference venues, city centre business hotels and country house hotels for holidays). For reporting purposes, the company has divided itself into the four geographical regions of Ostland as can be seen in a recent example of the strategic performance report for the company used by the board for their annual review (see appendix 1). At the operational level, each hotel manager is given an individual budget for their hotel, prepared in the finance department, and is judged by performance against budgeted profit.

Kolmog is planning a strategic change to its current business model. The board has decided to sell many of the hotels in the chain and then rent them back. This is consistent with many other hotel companies who are focusing on the management of their hotels rather than managing a large, property portfolio of hotels.

In order to assist this strategic change, the chief executive officer (CEO) is considering introducing the balanced scorecard (BSC) across Kolmog. He has tasked you, as a management accountant in the head office, with reviewing the preliminary work done on the development of the scorecard in order to ensure that it is consistent with the goal of meeting the strategic objectives of the company by tying operational and strategic performance measurement into a coherent framework.

The CEO is worried that the BSC might be perceived within the organisation as a management accounting technique that has been derived from the manufacturing sector. In order to assess its use at Kolmog, he has asked you to explain the characteristics that differentiate service businesses from manufacturing ones.

Senior executives at the head office of Kolmog have drawn up a preliminary list of perspectives and metrics as an outline of the balanced scorecard in table 1:

Table 1

**Key strategic perspective**  
Strategic financial performance

**Metric**  

- financial performance benchmarked to Kolmog's main competitors (share price and return on capital employed)
- customer satisfaction survey scores
- variance analysis for each hotel
- staff turnover

The history of rewards at Kolmog has not been good, with only 1% of staff receiving their maximum possible bonus in previous years and 75% of staff receiving no bonus. This has led to many complaints that targets set for the reward system are too challenging.

Under a new performance reward system, employee targets are to be derived from the above BSC strategic measures depending on the employee's area of responsibility. The new system is for hotel managers to be given challenging targets based on their hotel's performance against budgeted profit, industry wide staff turnover and the company's average customer satisfaction scores. The hotel managers will then get up to 30% of their basic salary as a bonus, based on their regional manager's assessment of their performance against these targets. The CEO wants you to use Fitzgerald and Moon's building block model to assess the new system. He is happy with the dimensions of performance but wants your comments on the standards and rewards being applied here.

### Appendix 1

#### Strategic performance report for review

##### Kolmog Hotels Year to 31 Mar 2013

	East Region	West Region	North Region	South Region	Total	Total 2012	As % of revenue for 2013
	\$m	\$m	\$m	\$m	\$m	\$m	
Revenue	235	244	313	193	985	926	
Cost of sales	28	30	37	21	116	110	11.78%
Gross profit	207	214	276	172	869	816	
Staff costs	61	65	78	54	258	245	26.19%
Other operating costs							
hotels	68	70	97	54	289	270	29.34%
head office						158	16.04%
Operating profit	78	79	101	64	164	151	16.60%
Financing costs						78	7.92%
Profit before tax						86	8.73%
							Growth Year on Year
Capital employed					\$1,132m	\$1,065m	6.29%
EPS					\$1.36	\$1.27	7.09%
Share price					\$12.34	\$11.76	4.93%
ROCE					14.49%	14.18%	

#### Required:

##### Write a report to the CEO to:

(i) explain the characteristics that differentiate service businesses from manufacturing ones, using Kolmog to illustrate your points; (5 marks)

(ii) evaluate the current strategic performance report and the choice of performance metrics used (Appendix 1); (8 marks)

(iii) evaluate the outline balanced scorecard (Table 1) at Kolmog, suggesting suitable improvements; (12 marks)

(iv) describe the difficulties in implementing and using the balanced scorecard at Kolmog; (7 marks)

(v) explain the purpose of setting targets which are challenging, and evaluate the standards and rewards for the hotel managers' performance reward system as requested by the CEO. (14 marks)

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

(50 marks)

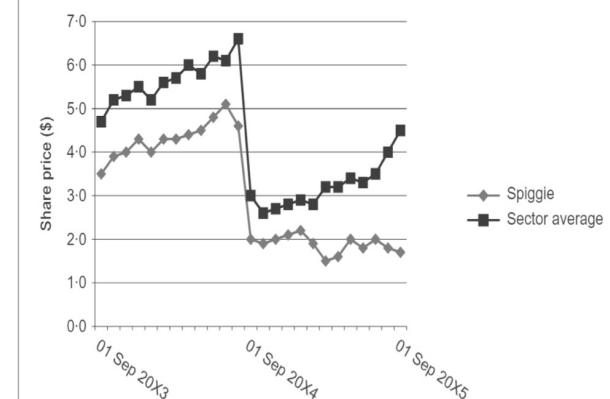
The shareholders have been told that the use of Fitzgerald and Moon's building block model for service businesses may help improve Spiggle's performance. The shareholders are not familiar with the model and have asked you, as a performance management expert, for your advice.

The shareholders want a specific explanation of each of the four determinants (quality of service, flexibility, resource utilisation and innovation) in the dimensions block and why measuring them would help to improve Spiggle's performance. Then, for each determinant, they would like you to recommend a justified performance measure.

The shareholders also believe that Spiggle's recent poor performance may be due to its reward systems. They have asked for your advice on the benefits and problems of a proposed executive share option scheme (ESOS) for the board of directors. To help you, you have been given an extract from a recent press article, which includes historical data on the share prices of Spiggle and the insurance sector average (Appendix 1).

The shareholders have been negotiating the terms of the ESOS with the board for some time. Subject to your advice, they are about to approve a deal where each director will be given an option to buy 200,000 shares in two years' time at today's market price of \$1.70 per share. In two years' time, each director can decide whether or not to exercise their share options depending upon the prevailing share price. The directors' basic salary will not change following the introduction of the ESOS.

Share price history of Spiggle and the average share price of insurance company shares on the Seeland stock exchange



**Spiggle**

The following exhibits, available on the left-hand side of the screen, provide information relevant to the question:

1. Company information – the background, key objective and recent performance of the company: Spiggle.
2. Building block model – use of the Fitzgerald and Moon building block model to improve performance at Spiggle.
3. Proposed ESOS – details of the executive share option scheme (ESOS) being proposed by Spiggle's shareholders.
4. Appendix 1 – share price history of Spiggle and average share price information for insurance companies on the Seeland Stock Exchange and extract from the Seeland Financial Gazette.

This information should be used to answer the question requirements within the response option provided.

Spiggle is a listed company based in Seeland and sells insurance products, such as home and vehicle insurance, directly to consumers. Unlike its competitors, who do most of their business online, most of Spiggle's business is done over the telephone although it does some limited business online. Most of Spiggle's 3,500 staff are telephone call centre operators who sell insurance products to customers, handle insurance claims and deal with customer queries. Spiggle's annual payroll cost for the call centre operators is \$84m.

Spiggle's objective is to maximise long-term shareholder wealth. The majority of shares are held by a small number of institutional investors who tend to retain their shareholdings for many years. The institutional investors are unhappy with the company's recent performance, in particular its share price relative to that of other companies listed in the insurance sector of the Seeland Stock Exchange.

There are 12 directors on the board. Currently, each is paid an annual salary of \$850,000, which contains only a small performance-related element.

In order to manage Spiggle's overall risk, the directors can choose to transfer some of this risk to other insurance companies by taking out its own insurance with them, known as re-insurance. The cost of doing this reduces Spiggle's profit. Currently, around half of Spiggle's risk is re-insured in this way.

#### More bad news for Spiggle investors

The price of shares in Spiggle has fallen for the second month in a row. A recent consumer survey voted customer service at the company's call centre the poorest in the industry. Many customers complained that they had waited up to an hour for their calls to be answered at busy times and often ended the call before the call was answered. Customers also said that call centre staff were impolite and did not take the time to fully understand what they had called about.

It is now 1 September 2015.

Respond to Spiggle's shareholders' request for work on the following areas:

(a) building block model; (12 marks)

(b) proposed executive share option scheme (ESOS) (8 marks)

Professional marks will be awarded for the demonstration of skill in analysis and evaluation, scepticism and commercial acumen in your answer.

(5 marks)

## Performance pyramid

### Dashboard

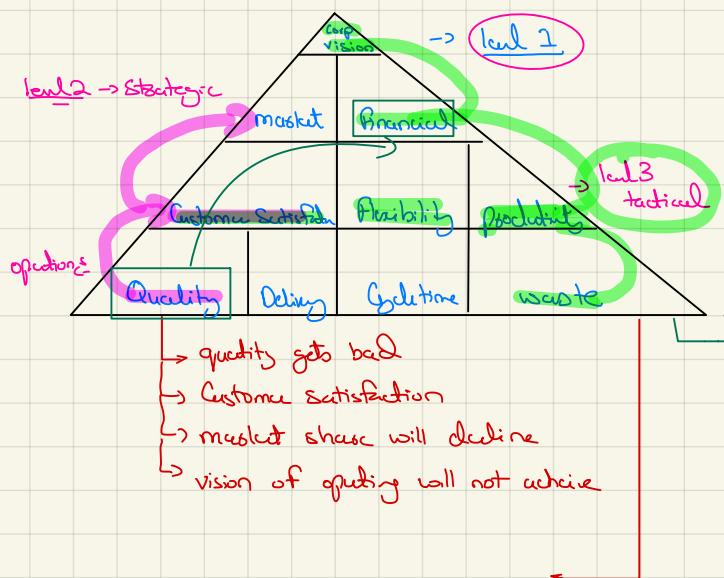
- theoretical outputs
- past papers
- other papers to be attempted
- exam answers of every question attempted

## Performance Pyramid

- A tool to measure financial and non financial performance of an entity
- positive point of this tool → it considers "hierarchy"

This tool emphasizes on "Hierarchy"

## Performance Pyramidal



## Advantages

- it links the performance measures with organisation hierarchy thus making it possible to think the strategic vision with day to day operations.

## Disadvantages

- There may be a conflict between measures such as cost vs quality.

## Performance report / Dashboard

- A report presented to audience for performance of an entity

↳ Several characteristics to be made sure that it is effective for the users

## Purpose

- what is fundamental purpose of report?
- ↳ not by writing
- enough content in the report that it justifies the purpose

## Audience

- Audience should be considered while writing the report
- words to be used for
  - BOD
  - chairman
  - Sh/s
- your report terms have considered eight arguments
- Considering the audience

## Information

- Consideration while writing a report that what information is required.
- shouldn't be too much information provided
- specific to the point that have highlighted

## Layout

- it must help users to understand the information presented and to see quickly the important amounts, trends, results and explanation.

- you can be asked

(1) performance report

(2) evaluating a performance report

①

The Better Electricals Group (BEG) which commenced trading during 2002 manufactures a range of high quality electrical appliances such as kettles, toasters and steam irons for domestic use which it sells to electrical stores in Voltland.

The directors consider that the existing product range could be extended to include industrial sized products such as high volume water boilers, high volume toasters and large steam irons for the hotel and catering industry. They recently commissioned a highly reputable market research organisation to undertake a market analysis which identified a number of significant competitors within the hotel and catering industry.

At a recent meeting of the board of directors, the marketing director proposed that BEG should make an application to gain 'platinum status' quality certification in respect of their industrial products from the Hotel and Catering Institute of Voltland in order to gain a strong competitive position. He then stressed the need to focus on increasing the effectiveness of all operations from product design to the provision of after sales services.

An analysis of financial and non-financial data relating to the application for 'platinum status' for each of the years 2011, 2012 and 2013 is contained in the appendix.

The managing director of BEG recently returned from a seminar, the subject of which was 'The Use of Cost Targets'. She then requested the management accountant of BEG to prepare a statement of total costs for the application for platinum status for each of years 2011, 2012 and 2013. She further asked that the statement detailed manufacturing cost targets and the costs of quality.

The management accountant produced the following statement of manufacturing cost targets and the costs of quality:

	2011 Forecast \$000	2012 Forecast \$000	2013 Forecast \$000
Variable manufacturing costs	8,400	10,500	12,600
Fixed manufacturing costs	3,000	3,400	3,400
Prevention costs	4,200	2,100	1,320
Appraisal costs	800	700	700
Internal failure costs	2,500	1,800	1,200
External failure costs	3,100	2,000	980
Total costs	22,000	20,500	20,200

#### Required:

(a) Explain how the use of cost targets could be of assistance to BEG with regard to their application for platinum status. Your answer must include commentary on the items contained in the statement of manufacturing cost targets and the costs of quality prepared by the management accountant. (8 marks)

(b) Assess the forecasted performance of BEG for the period 2011 to 2013 with reference to the application for 'platinum status' quality certification under the following headings:

- (i) Financial performance and marketing;
- (ii) External effectiveness; and
- (iii) Internal efficiency.

(12 marks)  
(20 marks)

#### Appendix

##### 'Platinum status' quality certification application – Relevant statistics

	2011 Forecast	2012 Forecast	2013 Forecast
Total market size (\$m)	300	320	340
BEG – sales (\$m)	24	30	36
BEG – total costs (\$m)	22	20.5	20.2
BEG – sundry statistics:			
% of products achieving design quality standards and accepted without further rectification	92	95	99
Rectification claims from customers (\$m)	0.96	0.75	0.1
Cost of after sales rectification service (\$m)	1.8	1.05	0.8
% of sales meeting planned delivery dates	88.5	95.5	99.5
Average cycle time:			
customer enquiry to product delivery (days)	49	45	40
Product enquiries not taken up by customers (% of enquiries)	10.5	6	3
Idle capacity of manufacturing staff (%)	12	6	1.5

② Cod Electrical Motors (Cod) manufactures electrical motors for some of the 24 different European domestic appliance manufacturers. Their motors are used in appliances such as washing machines and refrigerators. Cod has been in business for over 50 years and has obtained a reputation for producing reliable, low cost motors. *good entity*

Cod has recently rewritten its mission statement, which now reads:  
'Cod Electrical Motors is committed to providing competitively priced, high quality products, with service exceeding customer expectations. We will add value to our business relationships by investing in product development and highly trained personnel.'

The board have recognised that their existing key performance indicators (KPIs) do not capture the features of the corporate mission. They are worried that the staff see the mission statement as a public relations exercise rather than the communication of Cod's vision.

The monthly board papers contain a simple performance summary which is used as the key performance measurement system at that level.

Example of board papers for November 2011:

#### Cod Electrical Motors

##### Key performance indicators for November 2011

	This month	YTD	Comparative
Profit (\$m)	2.1	25.6	1.9
Free cashflow (\$m)	3.4	17.6	1.6
Return on capital employed (%)	12.4	11.7	11.8

#### Notes:

- (a) The year end is 31 December.
- (b) The comparative figure is for the same month in the previous year.
- (c) ROCE is an annualised figure.
- (d) YTD means year to date.

There are additional performance indicators not available to the board that line management use for a more detailed picture.

#### Additional performance information:

	Note	2011	2010
<b>Activity</b>	1		
No of orders		2,560	2,449
No of deliveries		1,588	1,660
<b>Staff</b>			
No of staff (FTE basis)	2	1,229	1,226
No of staff training days		2,286	1,762
No of vacant posts	3	11	17
<b>Customers</b>			
No of orders with a complaint	4	26	25
late delivery		39	31
product quality		21	24
customer service		52	43
other			
<b>Preferential supplier status</b>	5	14	12
<b>Production</b>			
New products			
begin in year to date	2	1	
in development at month end	4	3	
launched in year to date	1	1	
<b>Quality</b>			
internal failure costs (\$000)		3,480	2,766
external failure costs (\$000)		872	693

#### Notes:

- 1 Figures are year to date with comparatives from the previous year quoted on the same basis.
- 2 FTE = Full-time equivalent staff numbers.
- 3 Post is considered vacant if unfilled for more than four months.
- 4 Complaints are logged and classified into the four categories given when received.
- 5 Number of customers where Cod holds preferred supplier status.

#### Required:

③ *Assess whether the current key performance indicators (KPIs) meet the expected features of a modern performance measurement system.* (7 marks)

④ *Explain how the performance pyramid (Lynch and Cross) can help Cod's board to reach its goal of a coherent set of performance measures.* (6 marks)

⑤ *Evaluate the current system using the performance pyramid and apply the performance pyramid to Cod in order to suggest additional KPIs and a set of operational performance measures for Cod.* (12 marks)

*Examine → children board segment* (25 marks)

*↳ theoretical aspect* (6 marks)

*↳ Cod's pyramid* (6 marks)

*↳ appropriate pattern* (6 marks)

*↳ theoretical logic* (6 marks)

*→ linking it with scenario* (6 marks)

*→ pointing to the point* (6 marks)

*+923312623826*

③

### 31 Graviton (December 2013, amended)

49 mins

#### Exhibit 1: Company background

Graviton Clothing (Graviton) is a listed manufacturer of clothing with a strong reputation for producing desirable, fashionable products which can attract high selling prices. The company's objective is to maximise shareholder wealth. Graviton's products are sold through its own chain of stores. Graviton's markets demand designs which are in tune with current fashion trends which can alter every few weeks. Therefore, the business's stated aim is to focus production on these changing market trends by maintaining flexibility to adapt to that market demand through close control of all stages of the supply chain (design, manufacture and distribution).

Although rapidly growing, Graviton has had some problems in the last few years which have appeared on recent internal audit reports. It was found that a senior manager at factory site 1 has been delaying invoicing for completed orders in order to ensure that profit targets are met in both the current and the next accounting period. At factory site 2, there has been excellent return on a low capital employed figure although there is a significant adverse variance in the equipment repairs account.

#### Exhibit 2: Performance measurement system

The chief executive officer (CEO) is unhappy with the current performance measurement system at Graviton. The system was created about five years ago by the finance director who has subsequently retired. The aim of the system was to provide the company with a list of measures which would cover performance at the strategic, tactical and operational levels of management. An example of the most recent performance report is given in Appendix 1.

#### Exhibit 3: Recent events

Recent press reports about Graviton have been mixed, with positive comments about the innovative new designs and much admiration over the growth of sales which the business has achieved. However, there has been some criticism from customers of the durability of Graviton's clothes and from institutional investors that the dividend growth is not strong.

The CEO believes that there are major gaps in the current list of key metrics used by Graviton.

They want you to provide an evaluation of the current system (and suggestions for improvement) using the performance pyramid of Lynch and Cross. However, they have warned you that the board wants a reasoned argument for each measure to be included in the list in order to avoid overloading each level of management with too much data.

#### Exhibit 4: Problems with performance measures

The board is dominated by long-serving executives who are sceptical of change, given Graviton's growth over the past three years. At a recent board meeting, they have shared the CEO's concern about data overload and also have pointed out a variety of problems with the use of performance measures including overly focussing on short-term objectives (myopia) and data manipulation (gaming). They argued that the current good performance of the business did not justify changing the performance measurement system.

The CEO needs you to assess if these problems apply to Graviton and if they do, to suggest appropriate performance management solutions to them.

#### Exhibit 5: Appendix 1

##### GRAVITON PERFORMANCE DASHBOARD REPORT FOR THE YEAR TO SEPTEMBER 20X3

	20X3	20X2	20X1	Change 20X3/20X2
<b>Financial</b>				
Revenue (\$m)	1,723	1,570	1,413	9.7%
Operating profit (\$m)	320	314	308	1.9%
ROCE	15.8%	15.9%	15.9%	
<b>Design</b>				
Design awards won	3	2	3	50.0%
<b>Manufacture</b>				
Average time to market (days)	22.2	22.3	22.1	-0.4%
<b>Distribution</b>				
Deliveries on time	87.0%	86.8%	87.3%	0.2%
<b>Commentary:</b>				

- The revenue growth of the business remains strong in a difficult market.
- Return on capital employed matches the industry average of about 16%.
- Time to market for new designs has been maintained at 22 days by paying overtime to designers in order to meet production schedules.

#### Required

Respond to the CEO's requests for work on the following areas:

- (a) The current performance measurement system. (13 marks)
- (b) The problems identified by the board. (7 marks)

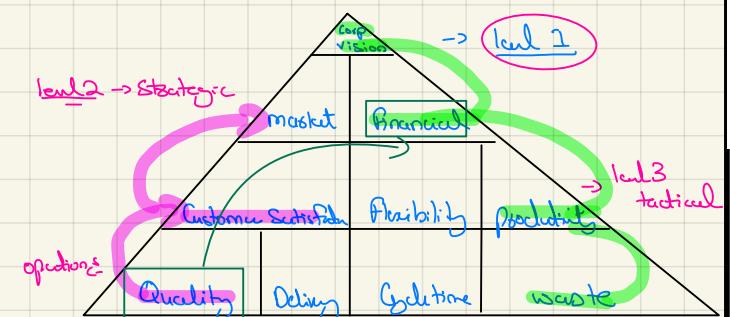
Professional marks will be awarded for the demonstration of skill in analysis and evaluation, and commercial acumen in your answer. (5 marks)

(Total = 25 marks)

- Coal → theoretical aspects
- Questions for performance measurement are:
- it should contain external as well as internal measures of performance
  - they should link with targets for employee motivation
  - flexible enough to respond to environmental change
  - should be to measure effectiveness of business and process b. measure they are meeting organisation objectives
  - they should be cover short term as well as long term goals.
- The KPI's at COO fail to have many of these key features. KPI's presented currently purely emphasise on financial performance. They don't address issues like quality, customer satisfaction, product innovation.
- Similarly, it is unclear that how these KPI's are been linked with employee motivations due to absence of information.

The current performance measurement system doesn't suit the flexibility required by the system to incorporate changes by the environment. So far this system seems to be a traditional system followed by COO.

(b)



→ The pyramid focuses on cohort set of objectives from overall corporate vision. It has range of objectives categorised in levels termed as **strategic**, **tactical** and **operational** levels. These are the measures for internal and external effectiveness.

→ Strategic level concerns related to market and financial factors which are decided by tactical management which focus customer satisfaction, flexibility and productivity. These measure reflects the business systems and helps entities like COO to give a detailed picture of performance at senior level.

→ The performance measurement system would be enhanced by application of performance pyramid and objectives of an organisation will be much more clearer for the board as well as for the manager to track down the performances.

This will help COO to achieve the coherence discussed by COO's BOD for performance measurement system.

c

↳ Exam answer

it might be a slight  
more than in student  
and tutor answer

(c) The driving forces, according to Lynch and Cross, that are appropriate to meeting an organisation's objectives are **customer satisfaction, flexibility and productivity**. At present COO's KPIs do not address these as they lack any mention of areas of customer satisfaction (quality and service standards), flexibility (innovation and the ability to adapt to change in the external business environment) and productivity (efficiency and waste). It could be argued that some of these are more appropriate at the tactical and operational levels of the management hierarchy but the existing measures have only a tenuous link to them and hence the board is right to be concerned by the current KPI system.

Luminous  
indirect link

COO is lacking

- The additional performance information provided would allow the calculation of various indicators appropriate to these driving forces. For example:
- Customer satisfaction: Percentage of orders generating a complaint (5.4% in 2011 compared to 5.0% in 2010) measures customer satisfaction.
- Preferred supplier status (58% of market in 2011 and 50% in 2010 (if we assume that there are only 24 possible customers that offer this status)) → **would increase in supplier list**
- Flexibility: New products launched in the year (one each of 2011 and 2010) measures innovation.
- Productivity: Quality costs (\$4.35m in 2011 and \$3.46m in 2010) measures inefficient production.
- These should be added to the current KPIs used by the board.
- The operational performance measures suggested by the pyramid will involve the four areas of quality, delivery, cycle time and waste.
- Quality: The existing measures of failure costs supply a measure of quality, although variances to budget may be a more helpful presentation. The customer complaint numbers also address this issue, although they are a weak measure as no indication of the strength or ease of resolution of the complaint is given. It should be noted that the complaint category of 'other' is unacceptably large compared to the other categories and it should be broken down into further subcategories. The level of training days and long-term unfilled posts indicates the employee environment that will also impact on quality and delivery. It would be helpful to have industry benchmarks for these figures in order to understand them better.
- Delivery: The preferred customer status indicates customer satisfaction and is fed by the complaint numbers on delivery and service. As before, it is worth noting that the severity of the complaint is not being measured, for example, by discounts offered or orders lost as a result.
- Cycle time: There is no useful information currently collected to allow measurement of the cycle times of processes. Possibly the indicative numbers on products being developed may give an idea of time to market, however, an average measure of this in months would be more useful.
- Waste: No figures are collected that indicate waste in production. Variance analysis of idle time for employees and materials usage would be helpful in measuring this area.

critically diff  
innovation

→ reflect on

**Exhibit 1: 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.

**Exhibit 2: Business model**

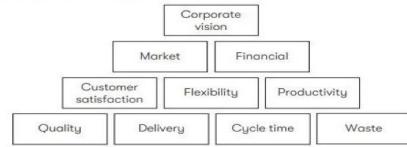
Zones' collection and delivery service uses delivery vehicles to transport parcels to and from local depots and individual addresses. Vehicles may also pick up parcels from the addressees to which they deliver. Each time the vehicle calls to pick up or deliver parcels is known as a stop, and the time 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.

**Exhibit 3: 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 uses 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.'

To assist with these proposals, the CEO has requested you to:

- Advise on the features of the Lynch and Cross performance pyramid that can help Zones achieve its corporate vision.
- 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.

**Exhibit 4: Appendix 1****Lynch and Cross performance pyramid****Exhibit 5: Appendix 2****Suggested new measures for operational performance**

Measure	Description
<b>Vehicle utilisation</b>	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.
<b>Fuel consumption</b>	Average litres of fuel per kilometre travelled for all vehicles.
<b>On-time stops</b>	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.

**Required**

Respond to the CEO's requests for work on the following areas:

- (a) The Lynch and Cross performance pyramid. **(8 marks)**
- (b) The new measures in Appendix 2. **(12 marks)**

Professional marks will be awarded for the demonstration of skill in analysis and evaluation, and commercial acumen in your answer. **(5 marks)**

Performance report & dashboard**Section A – BOTH questions are compulsory and MUST be attempted**

- 1 Metis is a restaurant business in the city of Urbanton. Metis was started three years ago by three friends who met at university while doing courses in business and catering management. Initially, their aim was simply to 'make money' although they had talked about building a chain of restaurants if the first site was successful.

The three friends pooled their own capital and took out a loan from the Grand Bank in order to fit out a rented site in the city. They designed the restaurant to be light and open with a menu that reflected the most popular dishes in Urbanton regardless of any particular culinary style. The dishes were designed to be priced in the middle of the range that was common for restaurants in the city. The choice of food and drinks to offer to customers is still a group decision amongst the owners.

Other elements of the business were allocated according to each owner's qualifications and preferences. Bert Fish takes charge of all aspects of the kitchen operations while another, Sheila Plate, manages the activities in the public area such as taking reservations, serving tables and maintaining the appearance of the restaurant. The third founder, John Sum, deals with the overall business issues such as procurement, accounting and legal matters.

Competition in the restaurant business is fierce as it is easy to open a restaurant in Urbanton and there are many competitors in the city both small, single-site operations and large national chains. The current national economic environment is one of steady but unspectacular growth.

The restaurant has been running for three years and the founders have reached the point where the business seems to be profitable and self-sustaining. The restaurant is now in need of refurbishment in order to maintain its atmosphere and this has prompted the founders to consider the future of their business. John Sum has come to you as their accountant looking for advice on aspects of performance management in the business. He has supplied you with figures outlining the recent performance of the business and the forecasts for the next year (see the performance report below). This table represents the quantitative data that is available to the founders when they meet each quarter to plan any short-term projects or initiatives and also, to consider the longer-term future. Bert and Sheila have often indicated to John that they find the information daunting and difficult to understand fully.

John Sum has come to you to advise him on the performance reporting at Metis and how it could be improved. He feels that the current report is, in some ways, too complex and, in other ways, too simple. He wants to look at different methods of measuring and presenting performance to the ownership group. As a starting point, he has suggested to you that you consider measures such as NPV, EVA™, MIRR as well as the more common profit measures. John is naive and wants the NPV and MIRR to be appraised as if the business was a three-year project up to 2012 so he knows the performance of the business to date. He has requested that other calculations in your performance review should be annual based on the 2012 figures although he is aware that this may be omitting in his words 'some important detail'.

At recent meetings, Sheila has been complaining that her waiters and waitresses are not responding well to her attempts to encourage them to smile at customers although her recent drive to save electricity by getting staff to turn off unnecessary lights seems to be working. Bert stated that he was not convinced by either of Sheila's initiatives and he wants her to make sure that food is collected from the kitchen swiftly and so delivered at the right temperature to the customer's table. Also, Bert has said that he feels that too much food is becoming rotten and having to be thrown out. However, he is not sure what to do about it except make the kitchen staff go through lengthy inventory checks where they review the food held in store. John is worried about these complaints as there is now an air of tension in the owners' meetings. He has been reading various books about performance management and has come across the quote, 'What gets measured, gets done.' He believes this is true but wants to know how it might apply in the case of his business.

**Metis Performance Report****Metis Restaurant**

	Year to 31 March				Latest quarter to 31 March 2012 (Q4 2012)	Previous quarter (Q3 2012)
	Actual 2010 \$	Actual 2011 \$	Actual 2012 \$	Forecast 2013 \$		
Revenue						
Food	617,198	878,220	974,610	1,062,180	185,176	321,621
Wine	127,358	181,220	201,110	219,180	38,211	66,366
Spirits	83,273	118,490	131,495	143,310	24,984	43,394
Beer	117,562	167,280	185,640	202,320	35,272	61,261
Other beverages	24,492	34,850	38,675	42,150	7,348	12,763
Outside catering	9,797	13,940	15,470	16,860	2,939	5,105
Total	979,680	1,394,000	1,547,000	1,686,000	293,930	510,510
Cost of sales						
Food	200,589	285,422	316,748	345,209	60,182	104,527
Wine	58,585	83,361	92,511	100,821	17,577	30,528
Spirits	21,651	30,807	34,189	37,261	6,496	11,283
Beer	44,673	63,566	70,543	76,882	13,403	23,279
Other beverages	3,674	5,228	5,801	6,323	1,102	1,914
Outside catering	3,135	4,461	4,950	5,395	941	1,634
Total	332,307	472,845	524,742	571,891	99,701	173,165
Gross profit	647,373	921,155	1,022,258	1,114,109	194,229	337,345
Staff costs	220,428	313,650	348,075	379,350	66,134	114,865
Other operating costs						
Marketing	25,000	10,000	12,000	20,000	3,000	3,000
Rent/mortgage	150,800	175,800	175,800	193,400	43,950	43,950
Local property tax	37,500	37,500	37,500	37,500	9,375	9,375
Insurance	5,345	5,585	5,837	6,100	1,459	1,459
Utilities	12,600	12,978	13,043	13,173	3,261	3,261
Waste removal	6,000	6,180	6,365	6,556	1,591	1,591
Equipment repairs	3,500	3,658	3,822	3,994	956	956
Depreciation	120,000	120,000	120,000	120,000	30,000	30,000
Building upgrades					150,000	
Total	360,745	371,701	374,367	550,723	93,592	93,592
Manager salary	35,000	36,225	37,494	38,806	9,373	9,373
Net profit/loss before interest and corporate taxes	31,200	199,579	262,322	145,230	25,130	119,515
Net margin	3.2%	14.3%	17.0%	8.6%	8.5%	23.4%

**Additional notes:**

1. The business was founded with \$600,000 which comprised \$250,000 of equity from the founders and the remainder in a loan from Grand Bank. Under the terms of the loan, all principal is repayable in 10 years' time and interest is charged at a fixed rate of 8.4% per year.
2. John has estimated the overall cost of capital to be 12.5%.
3. The company earns 4.5% on any returns in its deposit account.
4. John wishes you to use the \$600,000 original investment as the capital employed figure for analysis purposes as no new capital has been input and the owners have taken out all residual earnings so far as dividends.
5. The corporation tax rate for Metis is 30%, paid in the same year as profits are generated. Accounting depreciation is a tax allowable cost.
6. Marketing spending is for the short-term promotion of offers only.

**Required:**

Prepare a report to Mr John Sum addressing the following issues:

- (i) Critically assess the existing performance report and suggest improvements to its content and presentation; (12 marks)

**(ii) Calculate and briefly evaluate**

- (a) the use of John's suggested performance measures and  
(b) other profit-based measures, using the most recent year's actual figures where appropriate as examples; (14 marks)

**(iii) Assess how the quote 'What gets measured, gets done' could apply to Metis. (10 marks)**

Professional marks will be awarded in question 1 for format, style, structure and clarity of the discussion. (4 marks)

(40 marks)

The following exhibits, available on the left-hand side of the screen, provide information relevant to the question:

1. Organisation information
2. Performance hierarchy
3. Performance dashboard
4. Benchmarking exercise
5. Project Fresh Air
6. Appendix 1 – Performance dashboard
7. Appendix 2 – Benchmarking information

This information should be used to answer the question requirement within your chosen response option(s).

Woodcote Management Services (WMS) is the waste collection and disposal management department for the Teesshire Local Government (TLG). TLG is the local government body which is tasked by the national government of Teeland with providing services, including waste management, for the region of Teesshire. The overall budget of TLG is set by the national government.

The strategy of TLG has been presented in a set of pledges to its citizens. The pledges relevant to WMS are under the over-arching heading 'maintaining and enhancing the quality of life in Teesshire'. Under this heading, TLG has then identified the following more detailed aims, to:

- Prioritise keeping public spaces clean and attractive;
- Continue to increase recycling levels and reduce the proportion of waste going to landfill dumping sites;
- Oppose the large-scale burning of organic matter.

The board of WMS has discussed this hierarchy of strategies at length and agreed the following response:

'WMS will achieve the detailed aims of TLG by being recycling friendly, winning the annual national clean region competition and instituting project Fresh Air.'

The aim of project Fresh Air is to 'oppose the large-scale burning of organic matter'. This is related to a desire to reduce air pollution and carbon dioxide emissions in line with national plans. It is planned that this project will be targeted at the farming industry in Teesshire to educate them in alternative uses for the wheat and sugar cane stubble which remains in a field after harvesting as, at present, these are commonly burnt in the field creating large, choking clouds of smoke which diffuse across the region.

The chief executive officer (CEO) of WMS has a number of concerns around performance management and has asked you, as a performance management expert, for help on some tasks.

The CEO considers himself a logical manager and so wants to be able to explain how his department's performance measurement system fits with the overall strategy of TLG. He would like you to assess how a cascade down from the mission to critical success factors (CSFs) to key performance indicators (KPIs) could be achieved at WMS.

The CEO would like you to provide an evaluation of whether WMS's current performance dashboard measures the achievement of both TLG's and WMS's detailed aims. At this stage, he has instructed you to limit your work to considering those metrics in the current dashboard. He has supplied you with a copy of the most recent performance dashboard for WMS (Appendix 1).

The CEO has collected data from other organisations (Appendix 2) and wants you to perform a benchmarking exercise using WMS's performance dashboard and the data in Appendix 2.

The details of project Fresh Air are being worked out and a budget drawn up. However, the CEO of WMS is worried about this project, as WMS has only once undertaken such a public education project, and this was about littering to the schoolchildren of Teesshire. All of this work must be done in the context of TLG being under pressure from the national government to control costs.

Currently, at TLG, all departments use incremental budgeting for most of their work as there are few dramatic changes year to year. The CEO wants to consider if this method of budgeting is appropriate for project Fresh Air. He has heard that there are alternative approaches, in particular, he was told by a fellow TLG senior manager that zero-based budgeting (ZBB) might be helpful.

The CEO would like you to explain the steps involved in ZBB highlighting the differences compared to the current budgeting system at WMS and evaluate whether WMS should change their budgeting system to ZBB for project Fresh Air.

#### Appendix 1

Woodcote Management Services (WMS)	Performance dashboard for year to 30 June 20X5	20X5	20X4	20X3
Frequency of waste collection (every x days) from:				
Private homes	14	14	7	
Commercial premises	7	7	7	
Waste containers on the street	14	14	7	
Volume of waste collected (in million tonnes) from:				
Private homes	1.0	1.0	0.9	
Commercial premises	1.4	1.3	1.2	
Volume of waste disposed of (in million tonnes) from:				
Landfill sites	1.9	1.9	2.0	
Recycling facilities	1.2	1.1	0.8	
<b>Total</b>	<b>3.1</b>	<b>3.0</b>	<b>2.8</b>	
<b>Total costs of WMS (\$m)</b> including	<b>245</b>	<b>238</b>	<b>231</b>	
Labour costs (\$m)	108	105	102	

#### Appendix 2

The CEO has obtained the following information about three organisations to help in benchmarking:

##### Organisation A

A is a neighbouring local government to Teesshire which has a very similar population and waste disposal needs and volumes

##### Organisation B

B is a local government in the neighbouring country of Veedland, both of which have strong reputations for being clean.

##### Organisation C

C is a multinational company based in Teeland which has multiple industrial sites and organises all of its own waste disposal.

##### WMS

##### Benchmarking comparator data (note 1)

Organisation	A	B	C
Frequency of waste collection (every x days) from:			
Private homes	7	7	NA
Commercial premises	7	7	NA
Waste containers on the street	7	7	NA
Volume of waste collected (in million tonnes) from:			
Private homes	1.0	2.2	0.0
Commercial premises	1.5	2.00	0.4
Volume of waste disposed of (in million tonnes) from:			
Landfill sites	1.5	1.3	0.1
Recycling facilities	1.6	3.0	0.3
<b>Total</b>	<b>3.1</b>	<b>4.3</b>	<b>0.4</b>
<b>Total costs of waste management (\$m)</b> including	322	548	55
Labour costs (\$m)	177	241	NA

Notes:

1. All data is relevant for the year to 30 June 20X5.

2. NA means not available.

It is now 1 September 20X5.

Write a report to the CEO of WMS to response to his request for work on the following areas:

(i) Performance hierarchy

(11 marks)

(ii) Performance dashboard

(8 marks)

(iii) Benchmarking exercise

(12 marks)

(iv) Project Fresh Air

(9 marks)

Professional marks will be awarded for the demonstration of skill in communication, analysis and evaluation, scepticism and commercial acumen in your answer.

(10 marks)

Budgeting

- Significant importance  
in PS → 20-30%.
- Linkage of PS → good in PS I/PM

### types of budgets

- Fixed budget ✓
- Flexible budget ✓
- Incremental budget ✓
- Zero based budget ✓
- Rollly budget ←
- Activity based budget ←
- ↑ raise ABC

### Fixed budgets

In fixed budget, activity level never changes

→ Broad objectives (things stay the same)  
→ Controlling Fixed Cost

no of units  
any unit divided  
it cannot be changed

### Flexible budgets

In flexible budgets, activity levels can be changed

→ to compare the information with actual result

7000 units → 6000 units      7000 units

PAT \$50      \$51      'not like with like'

flexibly activity levels

### Incremental budgeting

→ Incremental budgeting starts with previous period budget or actual results and adds or subtracts incremental amount to cover inflation and known changes.

### Suitable

→ Stable environment or economic conditions

→ Previous year → Controlling

### Advantages

- time saving → justify the increments
- Resource conflicts → steady basis of decision making
- lesser conflicts previous years

### Disadvantages

- uneconomic activity
- inefficiencies

### Zero based budgets

→ this budget starts from a base of zero (no carried over from last year). Every activity which is included needs to be justified. Assumptions on each activity is been undertaken first time.

### Steps

- Define Decision package
- Evaluate and rank each package → no decision to be taken.
- on the basis of ranking, allocate resources
- ↑ list decide what?

### Advantages

- Staff involvement & high motivation of staff is high
- Efficient allocation
- Remove previous period problems
- more consuming activity
- Ranking of Decisions is subjective
- Skill full resources for ZBB which is costly

### Disadvantages

- more consuming activity
- Ranking of Decisions is subjective
- Skill full resources for ZBB which is costly

### Rolling budgets

→ Short term budgets → continuously update that

A budget prepared on short term basis as long term budgets may result in time getting consumed and incur cost as well when there are uncertain economic conditions

Rolling budgets provides short term targets to be focused on.

### Advantages

- Budget will always be updated
- wastage of time and cost will be avoided

### Disadvantages

- too much focus on budget may hinder actual operations

### Section B - TWO questions ONLY to be attempted

2 Framiltone is a food manufacturer based in Iceland, whose objective is to maximise shareholder wealth. Framiltone has two divisions: Dairy division and Luxury division. Framiltone began manufacturing dairy foods 20 years ago and Dairy division, representing 60% of total revenue, is still the larger of Framiltone's two divisions.

#### Dairy division

This division manufactures cheeses and milk-based desserts. The market in Iceland for these products is saturated, with little opportunity for growth. Dairy division has, however, agreed profitable fixed price agreements to supply all the major supermarket chains in Iceland for the next three years. The division has also agreed long-term fixed volume and price contracts with suppliers of milk, which is by far the most significant raw material used by the division.

In contrast to Luxury division, Dairy division does not operate its own fleet of delivery vehicles, but instead subcontracts this to a third party distribution company. The terms of the contract provide that the distribution company can pass on some increases in fuel costs to Framiltone. These increases are capped at 0.5% annually and are agreed prior to the finalisation of each year's budget.

Production volumes have shown less than 0.5% growth over the last five years. Dairy division managers have invested in modern production plant and its production is known to be the most efficient and consistent in the industry.

This division was set up two years ago to provide an opportunity for growth which is absent from the dairy foods sector. Luxury division produces high quality foods using unusual, rare and expensive ingredients, many of which are imported from neighbouring Veeland. The product range changes frequently according to consumer tastes and the availability and price of ingredients. All Luxury division's products are distributed using its own fleet of delivery vehicles.

Since the company began, Framiltone has used a traditional incremental budgeting process. Annual budgets for each division are set by the company's head office after some consultation with divisional managers, who currently have little experience of setting their own budgets. Performance of each division, and of divisional managers, is appraised against these budgets. For many years, Framiltone managed to achieve the budgets set, but last year managers at Luxury division complained that they were unable to achieve their budget due to factors beyond their control. A wet growing season in Veeland had reduced the harvest of key ingredients in Luxury's products, significantly increasing their cost. As a result, revenue and gross margins fell sharply and the division failed to achieve its operating profit target for the year.

Framiltone has just appointed a new CEO at the end of Q1 of the current year. He has called you as a performance management expert for your advice.

'In my last job in the retail fashion industry, we used rolling budgets, where the annual budget was updated to reflect the results of every quarter's trading. That gives a more realistic target, providing a better basis on which to appraise divisional performance. Do you think we should use a similar system for all divisions at Framiltone? he asked.

You have obtained the current year budget for Luxury division and the division's Q1 actual trading results (Appendix 1) and notes outlining expectations of divisional key costs and revenues for the rest of the year (Appendix 2).

→ Rolling budget is always applied on Actual numbers

#### Appendix 1

##### Luxury division current year budget

CS'000	Q1	Q2	Q3	Q4	Total	Q1 Actual
Revenue	10,000	12,000	11,000	7,000	40,000	10,400
Cost of sales	(6,100)	(7,120)	(6,460)	(4,720)	(24,400)	(16,240)
Gross profit	3,900	4,880	4,540	2,280	15,600	4,160
Distribution costs	(600)	(720)	(660)	(420)	(2,400)	(564)
Administration costs	(2,300)	(2,300)	(2,300)	(2,300)	(9,200)	(2,296)
Operating profit	1,000	1,860	1,580	(440)	4,000	1,240

#### Appendix 2

##### Expected key costs and revenues for remainder of the current year

1. Sales volumes are expected to be 2% higher each quarter than forecast in the current budget.
2. Average selling price per unit is expected to increase by 1.5% from the beginning of Q3.
3. The exchange rate between the Icelandic Dollar (CS) and the Veeland Dollar (VS) is predicted to change at the beginning of Q2. CS1.00 buys VS1.50. For several years up to the end of Q1, CS1.00 has been equivalent to VS1.40 and this exchange rate has been used when producing the current year budget. Food produced in the luxury division is despatched immediately upon production and Framiltone holds minimal inventory. The cost of ingredients imported from Veeland represents 50% of the division's cost of sales and suppliers invoice goods in VS.
4. The rate of tax levied by the Icelandic government on the cost of fuel which luxury uses to power its fleet of delivery vehicles is due to increase from 60% which it has been for many years, to 63% at the beginning of quarter 3. 70% of the division's distribution costs are represented by the cost of fuel for delivery vehicles.
5. The CEO has initiated a programme of overhead cost reductions and savings of 2.5% from the budgeted administration costs are expected from the beginning of Q2. Q3 administration costs are expected to be a further 2.5% lower than Q2, with a further 2.5% saving to be made over the Q3 costs.

### Rolling budget

(a) Using the data in the appendices, recalculate the current year budget to the end of the current year and briefly comment on the overall impact of this on the expected operating profit for the year. (12 marks)

(b) Evaluate whether a move from traditional incremental budgeting to a system of rolling budgets would be appropriate for Dairy and Luxury divisions. (12 marks)

Simply for discussion (25 marks)

## Ams framton

Recalculate the budget for luxury division for the end of current year

	<u>Q1 Actual</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>total</u>
scv	10400	12240	11388.3	7247.1	412784
Cost	(6240)	(720.2)	(6369.2)	(4653.8)	(24083.6)
C.P	4160	5220	5018	2548	16991
DC	(624)	(734.4)	(682)	(434)	(2474.4)
AC	(2296)	(2242.5)	(2186.4)	(2131.7)	(8856.6)
O.P	1240	2243	2160	27	5660

woes

	<u>Q1 Actual</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>total</u>
① scv	10400	12240	11000	7000	40,400
2: Sal volume	240	220	140	600	600
15 & P input	-	168.3	107.1	228.4	
	10400	12240	11388.3	7247.1	412784

	<u>Q1 Actual</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>total</u>
② LOS	6240	7120	6460	4720	24540
2: Sal volume	-	162.4	124.2	94.4	366
exchange rate $\times 6.71 -$	(242.2)	(219.7)	(160.6)	(62.5)	
	6240	7020.2	6369.2	4653.8	24083.6

$$* = 1 - (1.4 \cdot 1.5) = 0.067$$

$$\times 100 = 6.71.$$

<u>Admin cost</u>		<u>21-1</u>	<u>22-1</u>	<u>23-1</u>	<u>24-1</u>	<u>total</u>
original	2296	2300	2300	2300	9196	
21-1 legend		(57.5)	(113.5)	(168.3)	(339.4)	
Savings		—	—	—	—	
	2296	2242.5	2186.4	2131.7	8856.6	

$2300 - 57.5 = 2242.5$

21-1

56.06

57.46

113.5

b → Single strategy

→ definitions → Rolling & measured

→ link it will scenario

Examine answer → more price can be written.

5 of 11

### (b) Incremental budgeting

Framton currently uses this type of budgeting, the starting point of which is usually the previous year's actual performance or budget. This is then updated for any known changes in costs, or for inflation. The budget would normally remain unchanged for the remainder of the year.

Incremental budgeting is suitable for use in organisations which are stable and not undergoing significant changes. This is the case for Dairy division, which operates in a saturated market and has little opportunity to grow.

Production volumes in Dairy division have only increased by 0.5% over a full five years, so it is a very stable business. Dairy division has stability of both revenues and costs. It has long-term fixed cost and volume supply agreements with its supermarket customers. It also has similar fixed contracts with its suppliers of milk, the most significant raw material ingredient used in its products.

Though the third party distribution company is able to pass on some increases in fuel costs to Dairy division, these are capped at only 0.5% per year. This is significantly less than the tax increases which will increase Luxury division's fuel costs after the start of Q3. It appears that Dairy division has relatively little exposure to rising fuel prices.

Furthermore, these increases are agreed prior to the setting of the current year budget, so there is no need to update these costs on an ongoing basis throughout the year.

As the dairy foods market is saturated and stable, there is little opportunity for the division to incur discretionary costs such as research and development of new products.

Incremental budgeting is only suitable for business where costs are already well controlled. This is because a big disadvantage of incremental budgeting is that it perpetuates inefficient activities by often simply building inflation into previous year results or budgets. It appears that Dairy division, having been in existence for a relatively long time, does have good cost control as it has modern production plant and is recognised as having the most efficient production processes in the industry.

Incremental budgeting may, however, build in budget slack. Managers may spend up to their budgeted amounts in one year, so that their budget is not cut the next, which may affect their appraisal and reward in the future. It is unclear whether this is occurring at Dairy division, though for many years (while Dairy division was the only division at Framton), the budgets set following consultation with divisional managers have just been achieved. This may be consistent with the stability of the division, but could also indicate that budgets were not set at a challenging enough level, even though Dairy division had the best performance of the two divisions last year.

It is not therefore advisable that rolling budgets are introduced in Dairy division, as the current incremental process appears satisfactory. This is especially so since divisional managers have little experience of setting their own budgets, and the time and cost of using rolling budgets would exceed the value of them to the division.

**Rolling budgets**

Rolling budgets are continually updated to reflect current conditions and are usually extended by budgeting for an additional period after the current period, for example, a quarter, has elapsed. That way, the budget always reflects the most up to date trading conditions and best estimates of future costs and revenues, usually for the next four quarters.

Rolling budgets are suitable for businesses which change rapidly or where it is difficult to estimate future revenues and costs.

Luxury division was only set up two years ago, and is therefore a relatively new business. It also operates in quite a different sector of the industry to that in which Dairy division operates and where Framton has most experience. There is likely to be considerable uncertainty as to future costs and revenues as Framton has little direct experience on which to base its forecasts.

Whereas Dairy division operates in a saturated and stable market, Luxury division uses rare ingredients which are subject to variations in availability and cost, for example, as a result of poor harvests. There is no indication that Luxury division has fixed price and volume contracts with its customers or suppliers and is therefore likely to suffer from instability of supply as well as demand resulting from changes in consumer tastes.

The frequent changes in the product range are also likely to make forecasting for a year ahead difficult. The fact that a large proportion of ingredients are imported from Veeland, makes costs susceptible to changes in the CS:VS exchange rates which can quickly make an annual budget out of date, though managers may use methods such as forward contracts to reduce these movements. If managers are appraised on a budget which is out of date or unrealistic, they are likely to give up trying to achieve the budget, which will negatively affect the performance of Framton.

Rolling budgets will provide a more accurate basis on which to appraise managers at Luxury division. They incorporate the best known estimates of future costs and revenues. It can be seen that the recalculation following Q1 results that Luxury division's required budget increases after the first quarter increased significantly by 42% ( $5,660/4,000$ ), most of which is due to exchange rate changes. Where costs and revenues are likely to change during the period, rolling budgets give a much more realistic basis on which to appraise divisional performance and appraise and reward divisional managers. Budgets are likely to be achievable, which will motivate managers to try and achieve them.

Though the regular updating of the budget required in rolling budgeting is costly, time consuming and possibly a distraction for divisional managers, it does seem that rolling budgets are more suitable for Luxury division than the current incremental approach, particularly as being realistic and achievable, they will increase managers' motivation to achieve the budget and so improve the performance of the business.

### ③ Distribution cost

	<u>Q1 Actual</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>total</u>
original	6240	720	660	120	24260
2: Sal volume	14.4	13.2	8.4	3.6	
fuel tax $\times 1.31 -$	-	8.8	5.6	1.4	
	6240	731.4	682	434	24746.4

$$23 \times 20\% = 1.31\%$$

$$1601.$$

## ABC → Activity Based Costing

→ modern technique to deal with OH's  
→ ABC previous technique → Absorbtional Costing → allocation

F2 → theoretically  
FS → question based scenario

Difference between ABC / Abs → major difference is of OH's

In ABC and absorbtional costing, material and labour is treated as same - The main difference is treatment of OH's.

Absorbtional Costing follows concept of totality i.e. Absorbtional OH's are totalled by department and then totalled OH's are divided by machine hours or labour hours. This leads to unfair allocation because some of the dept might not consume much hours or labour hours. However, In ABC, overheads are divided into cost pools - means ABC does not follow concept of totality.

## Steps of Activity based Costing

- ① No totality → each OH will have separate pool.
- ② each pool will have separate cost driver → divisor
- ③ Cost pool's cost ÷ Cost driver = rate
- ④ charge rate on basis of each pool

### Practice question

Q1: Suppose that Cooplan manufactures four products W, X, Y and Z. Output and cost data of the period just ended are as follows.

Products	Output units	Number of production runs in the period	Material cost per unit \$	Direct labour hours per unit	Machine hours per unit
(W)	10	2	20	1	1
(X)	10	2	80	3	3
(Y)	100	5	20	1	1
(Z)	100	5	80	3	3
		14			

Direct labour-cost per hour is \$5. Overhead costs are as follow

OH's	Short-run variable costs	Set-up costs	Production and scheduling costs	Material handling costs	Total
	3080\$		10,920\$		30,800\$
			9,100\$		
			7,700\$		
Required:					

Calculate product costs using the following approaches.

a) Absorption costing → direct labour hours

b) ABC → no of prod runs → cost driver / cost divisor

## Q Cooplan

### Absorbtional Costing

W	X	Y	Z
200	800	2000	8000
(20×10)	(80×10)	(20×100)	(80×100)
Cost/unit × units	"	"	"

	W	X	Y	Z
labours	50	150	500	1500
(1×10×5)	(3×10×5)	(1×100×5)	(3×100×5)	
hours × units	"	"	"	"
OH	700	2100	7000	21000
(70×10)	(70×30)	(70×100)	(70×300)	
Rate × hours	"	"	"	"
PoolCost	950	3050	9500	30500

→ overhead absorption rate

$$\text{OAR} = \frac{\text{total OH}}{\text{labour hours}} = \frac{30800}{440} = 70/\text{labour}$$

Lab × unit

$$W = 1 \times 10 = 10$$

$$X = 3 \times 10 = 30$$

$$Y = 1 \times 100 = 100$$

$$Z = 3 \times 100 = 300$$

labour hours 440

### Activity based Costing

	W	X	Y	Z
mat	200	800	2000	8000
lab	50	150	500	1500
OH	440	440	1100	1100
SRVC	440	440	1100	1100
SVC	1560	1560	3900	3900
PES	1300	1300	3250	3250
MHC	1100	1100	2750	2750
PoolCost	4650	5350	13500	20500

### Cost pool

$$\text{① Short run Variable cost} = \frac{3080}{14} = \frac{220}{\text{Prod sum}}$$

$$\text{② Set up cost} = \frac{10,920}{14} = \frac{780}{\text{Prod sum}}$$

## ③ Prod & Scheduling Cost

$$\frac{9500}{14} = 650/\text{Prod sum}$$

$$\frac{7300}{14} = 550/\text{Prod sum}$$

### PM Test

#### 4 ABKABER PLC

Abkaber plc assembles three types of motorcycle at the same factory: the 50cc Sunshine; the 250cc Roadster and the 100cc Fireball. It sells the motorcycles throughout the world. In response to market pressures Abkaber plc has invested heavily in new manufacturing technology in recent years and, as a result, has significantly reduced the size of its workforce.

Historically, the company has allocated all overhead costs using total direct labour hours, but is now considering introducing Activity Based Costing (ABC). Abkaber plc's accountant has produced the following analysis.

Annual Output (units)	Annual direct labour hours	Selling price (\$ per unit)	Raw material cost (\$ per unit)
Sunshine 2,000	200,000	4,000	400
Roadster 1,600	220,000	6,000	600
Fireball 400	80,000	8,000	900

The three cost drivers that generate overheads are:

- o Deliveries to retailers - the number of deliveries of motorcycles to retail showrooms.
- o Set-ups - the number of times the assembly line process is re-set to accommodate a production run of a different type of motorcycle.
- o Purchase Order - the number of purchase orders.

The annual cost driver volumes relating to each activity and for each type of motorcycle are as follows:

Product wise break-up of cost drivers	Number of deliveries to retailers	Number of set-ups	Number of purchase orders
Sunshine	100	35	400
Roadster	80	40	300
Fireball	70	25	100
	250	100	800

The annual overhead costs relating to these activities are as follows:

	\$	total
Deliveries to retailers	2,400,000	
Set-up costs	6,000,000	
Purchase orders	3,600,000	13,000,000

All direct labour is paid as \$5 per hours. The company holds no inventories.

Required:

(a) Calculate the total profit on each of Abkaber plc's three types of product using each of the following methods to attribute overheads:

(i) the existing method based upon labour hours → Absorbtional (13 marks)

(ii) activity based costing (7 marks)

(b) Explain the implications of activity based costing for Abkaber plc, and so doing evaluate the issues raised by each of the directors. (Total 20 marks)

## Q Abkaber

### Absorbtional Costing

Sunshine	Roadster	Fireball
800,000	960,000	360,000
(400×1000)	(600×1000)	(400×400)
1000,000	1000,000	400,000
(200,000×5)	(220,000×5)	(80,000×5)

	Sunshine	Roselene	Football
OH	4800,000	5280,000	1920,000
total cost	(24 * 200,000)	(24 * 220,000)	(24 * 80,000)
EW	6600,000	7340,000	2680,000
Profit	(4000 + 200)	(6000 + 160)	(8000 + 400)
	1400,000	2260,000	520,000

$$\rightarrow \text{OAR} = \frac{\text{total OM's}}{\text{labour hours}} = \frac{12000,00}{500,000} = 24 \text{ lab hour}$$

$$\text{lab hour} = 200000 + 220000 + 80000$$

### Activity based Costing

	Sunshine	Roselene	Football
mat	800,000	960,000	360,000
lab	1000,000	1160,000	400,000

	(9600 * 100)	(9600 * 80)	(9600 + 70)
DTR	960000	768000	672000
SU	(60000 + 35)	(60000 * 40)	(60000 + 25)
MOPD	2100,000	2400,000	1500,000
Product Cost	1800,000	1350,000	450,000
Revenue	8000,000	9600,000	3200,000
Profit / (loss)	1340,000	3022000	(182000)

	① Delivery to customer	② Set up cost	③ Purchase orders
=	$\frac{2400,000}{250} = 9600 / \text{deliv to customer}$	$\frac{600,000}{100} = 6000 / \text{no of set ups}$	$\frac{3600,000}{800} = 4500 / \text{no of PO's}$
		=	

- Assignment
- Q) BH  
Q) BBB → brick by brick  
Q) Duff Co

Please write your answers to all parts of these questions on the lined pages within the Candidate Answer Booklet.

1. Beckley Hill (BH) is a private hospital carrying out two types of procedures on patients. Each type of procedure incurs the following direct costs:

Procedure	A	B
Surgical time and materials	1,200	2,640
Anaesthesia time and materials	800	1,620

BH currently calculates the overhead cost per procedure by taking the total overhead cost and simply dividing it by the number of procedures, then rounding the cost to the nearest 2 decimal places. Using this method, the total cost is \$2,475.85 for Procedure A and \$4,735.85 for Procedure B. -absorption answer

Recently, another local hospital has implemented activity-based costing (ABC). This has led the finance director at BH to consider whether this alternative costing technique would bring any benefit to BH. He has obtained an analysis of BH's total overheads for the last year and some additional data, all of which is shown below:

Cost	Cost driver	\$	total time	total cost of product
Administrative costs	Administrative time per procedure	1,870,160		
Nursing costs	Length of patient stay	6,215,616		
Catering costs	Number of meals	966,976		
General facility costs	Length of patient stay	8,553,600		
Total overhead costs		17,606,352		

Procedure	A	B	allocation total
No. of procedures	14,600	22,400	37,000
Administrative time per procedure (hours)	1	1.5	
Length of patient stay per procedure (hours)	24	48	
Average no. of meals Required per patient	1	4	

Required:

- (a) Calculate the full cost per procedure using activity-based costing.

- (b) Making reference to your findings in part (a), advise the finance director as to whether activity-based costing should be implemented at BH.

(4 marks)

(10 marks)

ALL FIVE questions are compulsory and MUST be attempted

PM A-2

1. Brick by Brick (BBB) is a building business that provides a range of building services to the public. Recently they have been asked to quote for garage conversions (GC) and extensions to properties (EX) and have found that they are winning fewer GC contracts than expected.

BBB has a policy to price all jobs at budgeted total cost plus 50%. Overheads are currently absorbed on a labour hour basis. BBB thinks that a switch to activity based costing (ABC) to absorb overheads would reduce the cost associated to GC and hence make them more competitive.

You are provided with the following data:

Overhead category	Annual overheads \$	Activity driver	Total number of activities per year
Supervisors	90,000	Site visits	500
Planners	70,000	Planning documents	250
Property related	240,000	Labour hours	40,000
Total	400,000		

A typical GC costs \$3,500 in materials and takes 300 labour hours to complete. A GC requires only one site visit by a supervisor and needs only one planning document to be raised. The typical EX costs \$5,000 in materials and takes 500 hours to complete. An EX requires six site visits and five planning documents. In all cases labour is paid \$15 per hour.

Required:

- a) Calculate the cost and quoted price of a GC and of an EX using labour hours to absorb the overheads.

(5 marks)

- b) Calculate the cost and the quoted price of a GC and of an EX using ABC to absorb the overheads.

(5 marks)

- c) Assuming that the cost of a GC falls by nearly 7% and the price of an EX rises by about 2% as a result of the change to ABC, suggest possible pricing strategies for the two products that BBB sells and suggest two reasons other than high prices for the current poor sales of the GC. (6 marks)

- d) One BBB manager has suggested that only marginal cost should be included in budget cost calculations as this would avoid the need for arbitrary overhead allocations to products. Briefly discuss this point of view and comment on the implication for the amount of mark-up that would be

applied to budget costs when producing quotes for jobs.

(4 marks)

(20 marks)

ALL FIVE questions are compulsory and MUST be attempted

pm A-3

1. Duff Co manufactures three products, X, Y and Z. Demand for products X and Y is relatively elastic whilst demand for product Z is relatively inelastic. Each product uses the same materials and the same type of direct labour but in different quantities. For many years, the company has been using full absorption costing and absorbing overheads on the basis of direct labour hours. Selling prices are then determined using cost plus pricing. This is common within this industry, with most competitors applying a standard mark-up.

Budgeted production and sales volumes for X, Y and Z for the next year are 20,000 units, 16,000 units and 12,000 units respectively.

The budgeted direct costs of the three products are shown below:

Product	X	Y	Z
Direct materials	\$ 25	\$ 28	\$ 22
Direct labour (\$12 per hour)	30	36	24
Op. overheads	25	35	24
	30 = 12 x hours	36 = 12 x hours	24 = 12 x hours
	2.5	3	2
	30 = 12 x hours	36 = 12 x hours	24 = 12 x hours

In the next year, Duff Co also expects to incur indirect production costs of \$1,377,400, which are analysed as follows:

Cost pools	\$	Cost drivers
Machine set up costs	280,000	Number of batches
Material ordering costs	316,000	Number of purchase orders
Machine running costs	420,000	Number of machine hours
General facility costs	361,400	Number of machine hours
	1,377,400	

The following additional data relate to each product:

Product	X	Y	Z
Batch size (units)	500	800	400
No. of purchase orders per batch	4	5	4
Machine hours per unit	1.25	1.25	1.25
	1.25	1.25	1.25

Duff Co wants to boost sales revenue in order to increase profits but its capacity to do this is limited because of its use of cost plus pricing and the application of the standard mark-up. The finance director has suggested using activity based costing (ABC) instead of full absorption costing, since this will alter the cost of the products and may therefore enable a different price to be charged.

Required:

- Calculate the budgeted full production cost per unit of each product using Duff Co's current (a) method of absorption costing. All workings should be to two decimal places.

(3 marks)

- Calculate the budgeted full production cost per unit of each product using activity based costing. (b) All workings should be to two decimal places.

(11 marks)

Discuss the impact on the selling prices and the sales volumes of EACH PRODUCT which

- a) change to activity based costing would be expected to bring about.

(6 marks)

(20 marks)

### Advantages / Disadvantages of ABC

#### Advantage

- It leads to fair allocation of OM's which leads in determining true profitability as OM's will be charged on their specific cost drivers rather than on machine hours or labour hours.

- Through true profitability, management would be able to take appropriate decisions regarding production and viability of product.

- ABC would allow managers to cut losses as they will be keeping a new modern technique -  
↳ opportunity of employing for less environment.

## Disadvantage

- ABC is a lengthy technique as multiple OH drivers are determined which consumes time.
- ABC would require staff training to get your staff trained on ABC which would require training cost which will impact entity's profit.
- initial application would require justification cost as unfamiliar staff could make mistakes. This suggest ABC might be a costly technique.
- For better comparisons, existing data will need to be reoriented on Activity based Costing for better analysis.

## Answer BBB

### a) Absorptional Costing

	<u>GC</u>	<u>fx</u>
mat	3500	8000
lab	4500	7500
OH	(300+15)	(500+15)
	3000	5000
Cost	11000	20500
+Soli. markup	<u>x 1.5</u>	<u>1.5</u>
Price	<u>16500</u>	<u>30750</u>

→ OAR =  $\frac{\text{total OH's}}{\text{lab hours}} = \frac{40000}{4000} = 10/\text{labhr}$

### b) Activity Based Costing

	<u>GC</u>	<u>fx</u>
mat	3500	8000
lab	4500	7500
OH	(180+1)	(180+6)
Supervisors	180	1080
Planner	280	280+5
Proof related	180	3000
Cost	10260	20980
+Soli. markup	<u>x 1.5</u>	<u>1.5</u>
Price	<u>15390</u>	<u>31470</u>

#### Cost pools

① Supervisors	② Planner	③ Proof related
= <u>90000</u>	= <u>70000</u>	= <u>240000</u>
500	250	40000
= <u>180/sitvisit</u>	= <u>280/Plan doc</u>	= <u>6/labhr</u>

H.W Attempt MCQ's of last from 29 to 41 → ABC

↓ Explain

↳ Sec A  
↳ Sec B & C

## Answer Berkley Hills

### Activity Based Costing

A	B
material	
→ 1200	2640
→ 800	1620
(c38.8 × 1)	(38.8 × 1.5)
OH → Admin	38.8
→ Nursing	(436 × 2)
→ Catering	104.64
→ General	(9.28 × 1)
	(9.28 × 1.5)
	9.28
	37.12
	144
	288
	(6 × 2)
ABC	
Cost per procedure	2296.72
Cost per procedure	2475
Absorption	4735

### ① Admin

$$= \frac{1870160}{48200} = 38.8 \text{ adm/time per floor}$$

A B

$$(1 \times 14600) + (1.5 \times 22400)$$

$$\sim 1425600$$

$$(24 \times 14600) + (4 \times 22400)$$

### ② Nursing

$$= \frac{5215616}{1425600} = 3.6 \text{ pt/stay}$$

$$\sim 1425600$$

$$(24 \times 14600) + (4 \times 22400)$$

### ③ Catering

$$= \frac{966976}{104200} = 9.28 \text{ meal/stay}$$

$$\sim 104200$$

$$(1 \times 14600) + (4 \times 22400)$$

### ④ General

$$= \frac{8553600}{1425600} = 6 \text{ patient stay}$$

$$\sim 1425600$$

### → schedule of live class

→ class going pattern

June 1/July

Mon	4:00 : 6:00	3 - 5:30
Tues	4:00 : 6:00	"
Sat	3 : 6:00	"
Sun	12:00 - 4:00	"
		1

Answer Duff CoAbsorptive Costing

	X	Y	Z
mat	500,000	448,000	484,000
lab	(25 × 20,000)	(28 × 16,000)	(22 × 22,000)
OH	600,000	576,000	528,000
	(30 × 20,000)	(36 × 16,000)	(24 × 22,000)
Cost units	1,585,000	1,489,600	1,438,800
Cost/unit	79.25	93.1	65.4
OAR - total OH	1377400	= 9.7/lab	
lab hours	142000	hour	

$$\begin{aligned} X & (2.5 \times 20,000) = 50,000 \\ Y & (3 \times 16,000) = 48,000 \\ Z & (2 \times 22,000) = 44,000 \\ & \underline{142000} \end{aligned}$$

Activity based Costing

	X	Y	Z
mat	500,000	448,000	484,000
lab	600,000	576,000	528,000
OH			
Setup	97280	48680	138870
	(2434+40)	(2434+20)	(2434+55)
mat ord	105320	65830	144820
	(658.3 × 160)	(658.3 × 100)	(658.3 × 220)
mach	155700	103800	159850
	(5.19 × 30000)	(5.19 × 20000)	(5.19 × 30800)
genl	134100	89400	137670
	(4.47 × 30000)	(4.47 × 20000)	(4.47 × 30800)
Cost units	1,592,400	1,381,710	1,588,210
Cost/unit	20000	16000	22000

Cost pools① Setup Costs

$$= 28000$$

115

no of batches

$$X = 20000 = 40$$

500

$$Y = 16000 = 20$$

800

$$Z = 22000 = 55$$

400

$$= 2434.78 / \text{no of batches}$$

② Mat handling

$$= 316000$$

480

no of PO's

$$X = 40 \times 4 = 160$$

$$Y = 20 \times 5 = 100$$

$$Z = 55 \times 4 = 220$$

$$= 658.3 / \text{PO}$$

③ Machine running cost

$$420000$$

80,800

Machine hours

$$X = 20000 \times 1.5 = 30000$$

$$Y = 16000 \times 1.25 = 20000$$

$$Z = 22000 \times 1.4 = 30800$$

5.19 / mach hrs

$$= 80800$$

④ General factory

$$361400 = 4.47 / \text{mach hour}$$

80800

C Since Duff Co is using Cost + pricing i.e adding a certain profit ∵ after lost. If Duff Co is switching to ABC then cost of product X will have an minor impact therefore minor impact on Sales Volume. whereas Product Y has observed a significant decline in cost therefore price will decrease and volume will increase. However, Product Z have followed vice versa that means product Z price will increase therefore demand will decline if shifted to ABC.

⑤ Cost/unit

79

83

72

→ topic

4-5 past papers ✓

Schrodinger

Study hub, Q&Q's, Q

# Q DUFFCO

ALL FIVE questions are compulsory and MUST be attempted

Duff Co manufactures three products, X, Y and Z. Demand for products X and Y is relatively **elastic** whilst demand for product Z is relatively **inelastic**. Each product uses the same materials and the same type of direct labour but in different quantities. For many years, the company has been using full absorption costing and absorbing overheads on the basis of direct labour hours. Selling prices are then determined using cost plus pricing. This is common within this industry, with most competitors applying a standard mark-up.

Budgeted production and sales volumes for X, Y and Z for the next year are **20,000 units**, **16,000 units** and **22,000 units** respectively.

The budgeted direct costs of the three products are shown below:

Product	X	Y	Z
	\$ per unit	\$ per unit	\$ per unit
Direct materials	25	28	22
Direct labour (\$12 per hour)	30	36	24

→ Pricing

Tricky one

In the next year, Duff Co also expects to incur indirect production costs of \$1,377,400, which are analysed as follows:

Cost pools	\$	Cost drivers
Machine set up costs	280,000	Number of batches
Material ordering costs	316,000	Number of purchase orders
Machine running costs	420,000	Number of machine hours
General facility costs	361,400	Number of machine hours
	1,377,400	

The following additional data relate to each product:

Product	X	Y	Z
Batch size (units)	500	800	400
No of purchase orders per batch	4	5	4
Machine hours per unit	1.5	1.25	1.4

Duff Co wants to boost sales revenue in order to increase profits but its capacity to do this is limited because of its use of cost plus pricing and the application of the standard mark-up. The finance director has suggested using activity based costing (ABC) instead of full absorption costing, since this will alter the cost of the products and may therefore enable a different price to be charged.

- Required:
- Calculate the budgeted full production cost per unit of each product using Duff Co's current (a) method of absorption costing. All workings should be to two decimal places. (3 marks)
  - Calculate the budgeted full production cost per unit of each product using activity based costing. (b) All workings should be to two decimal places. (11 marks)
  - Discuss the impact on the selling prices and the sales volumes of EACH PRODUCT which a (c) change to activity based costing would be expected to bring about. (6 marks)
- (20 marks)

## Absorbtional Costing

	X	Y	Z
mat	500,000	448,000	484,000
	(25+2000)	(28+1600)	(22+2000)
lab	600,000	576,000	528,000
	(30+2000)	(36+1600)	(24+2200)
OH	488,000	465,600	426,800
	(9.7×5000)	(4.7×4800)	(9.7×4000)
Cost/unit	1585,000	1484,600	1438,800
	79.25	93.1	97.1
	total OH	1377400	1377400
	lab hours	142,000	142,000

## lab hours

$$X = \frac{30}{12} = 2.5 \times 2000 = \$6000$$

$$Y = \frac{36}{12} = 3 \times 1600 = \$4800$$

$$Z = \frac{24}{12} = 2 \times 2200 = \$4400$$

lab hours 142,000

## Activity based costing

	X	Y	Z
mat	500,000	448,000	484,000
lab	600,000	576,000	528,000
OH	488,000	465,600	426,800
	(9.7×5000)	(4.7×4800)	(9.7×4000)
	1585,000	1484,600	1438,800
	93.1	97.1	97.1
	total OH	1377400	1377400
	lab hours	142,000	142,000

## ① mat and cost

$$\frac{316000}{480} = X = 1 \times 40 = \$160$$

$$Y = 5 \times 20 = \$100$$

$$Z = 4 \times 55 = \$220$$

= 658.3 / PO

## ② machine cost

$$\frac{420000}{80800} = X = 1.5 \times 1000 = \$1500$$

$$Y = 1.25 \times 1000 = \$1250$$

$$Z = 1.4 \times 1000 = \$1400$$

= 65.14 / mach hrs

## ④ facility cost

$$\frac{361400}{142000} = 4.47 / mach hrs$$

80,800

APM → Dec 10

- 2 Robust Laptops Co (RL) make laptop computers for use in dangerous environments. The company's main customers are organisations like oil companies and the military that require a laptop that can survive rough handling in transport to a site and can be made to their unique requirements.

The company started as a basic laptop manufacturer but its competitors grew much larger and RL had to find a niche market where its small size would not hinder its ability to compete. It is now considered one of the best quality producers in this sector.

RL had the same finance director for many years who preferred to develop its systems organically. However, due to fall in profitability, a new chief executive officer (CEO) has been appointed who wishes to review RL's financial control systems in order to get better information with which to tackle the profit issue.

The CEO wants to begin by thinking about the pricing of the laptops to ensure that selling expensive products at the wrong price is not compromising profit margins. The laptops are individually specified by customers for each order and pricing has been on a production cost plus basis with a **mark-up of 45%**. The company uses an absorption costing system based on labour hours in order to calculate the production cost per unit.

The main control system used within the company is the annual budget. It is set before the start of the financial year and variances are monitored and acted upon by line managers. The CEO has been reading about major companies that have stopped using budgets and wants to know how such a radical move works and why a company might take such a step. He has been worried by moves from RL's market with impressive new products. This has created unrest among the staff at RL with two experienced managers leaving the company.

Financial and other information for Robust Laptops

Robust Laptops	
Data for the year ended 30 September 2010	
Volume (units)	23,800
Direct variable costs	Total \$'000
Material	40,650
Labour	3,879
Packaging and transport	2,118
Subtotal	46,647
Overhead costs	
Customer service	CS
Purchasing and receiving	PR
Inventory management	IM
Administration of production	PP
Subtotal	14,190
Total	60,837
Labour time per unit	3 hours
Data collected for the year:	
No of minutes on calls to customer	899,600
No of purchase orders raised	91,400
No of components used in production	618,800

Order 11784

Units ordered	
Direct costs for this order:	
Material	\$ 27,328
Labour	2,608
Packaging and transport	1,424
Other activities relating to this order:	
No of minutes on calls to customer	1,104
No of purchase orders raised	64
No of components used in production	512
Administration of production (absorbed as general overhead 3 Labour hrs per unit)	

Required:

Write a report to the CEO to include:

- (a) An evaluation of the current method of costing against an Activity Based Costing (ABC) system. You should provide **illustrative calculations** using the information provided on costs for 2010 and Order 11784. Briefly state what action management might take in the light of your results with respect to this order. (15 marks)

- (b) An explanation of the operation of a beyond budgeting approach and an **evaluation of the potential of such a change at RL**. (10 marks)

Professional marks will be awarded in Question 2 for appropriateness of format, style and structure of the report. (4 marks)

discuss

verb

→ P60's and Con's

→ linking it with a scenario

(29 marks)

# Ans RL

## Report

To: CEO

From: Accountant

Date: Dec 2010

## Subject: Costing Systems and budgetary Controls at RL

### Introduction

Firstly, the costing and pricing methods are reviewed and then compared results of ABC and Absorptive costing. Then the choice of costing systems would be evaluated. Lastly, the idea of eliminating budget and still remain in control will be discussed.

a) Absorptive and  
appendix → Price under ABC for each unit of order 11784

### Absorptive Costing

#### Standard Cost

$$\text{Direct} = (46,647,000 \div 23,800) = 1960$$

$$\text{OH allocation} = 198.7 \times 3 = \underline{\underline{596}}$$

$$\text{Cost} = \underline{\underline{2556}}$$

$$\text{markup} = 45\% = \underline{\underline{1150}} \quad \text{B}$$

$$\text{Price} = \underline{\underline{2556}} \times \underline{\underline{1150}} = \underline{\underline{3706}}$$

$$\text{OPR: } \frac{1419000}{23800 \times 3} = 198.7 \text{ /labour hrs}$$

$$23800 \times 3 = 71400$$

### Activity based Costing → per unit cost

$$\text{Direct Cost} = 1960$$

OH

$$\underline{\underline{CS}} = 859 \times 11.64 = 9483 \div 16 = 593$$

$$\underline{\underline{PR}} = 114.5 \times 64 = 7328 \div 16 = 458$$

$$\underline{\underline{IM}} = 2.37 + 512 = 1213 \div 16 = 76$$

$$\underline{\underline{AP}} = 35.5 + 3 = \underline{\underline{106.6}}$$

each unit requires 3 hours  $\hookrightarrow$  labour hours 3144 Cost

$$\text{Cost} = 3194$$

$$\text{markup} 45\% = \underline{\underline{1437}}$$

$$\text{Price} = \frac{3194 + 1437}{100\%} = \underline{\underline{4631}}$$

### Pools

$\frac{\text{Total pool cost}}{\text{Total pool done}}$

#### (1) Customer Service

$$= \frac{7738,000}{8591 \text{ cells}} = \underline{\underline{8.91 \text{ cells}}}$$

846,600

#### (2) Purchase and delivery

$$= \frac{2461,000}{21400} = \underline{\underline{114.5 \text{ PO}}}$$

21400

#### (3) Inventory management

$$\frac{1467,000}{618,800} = \underline{\underline{2.37 \text{ Longout}}}$$

618,800

#### (4) Admin → partly 1st co general overhead

$$\frac{2537,000}{71400} = \underline{\underline{35.5 \text{ / lab hour}}}$$

71400

The Costing system is important in RL not just as a method of reporting to senior management but it helps RL to determine price that customer pays so a competitive price needs to be present.

Absorptive Costing is a traditional system that provides overhead allocation on labour hours or machine hours. ABC is a modern technique that suggest to have overhead allocation on an activity level that consider that overhead instead of only using machine hours or labour hours.

ABC is appropriate where major OH's belong to other activity levels as directly their OH's from M&L would result in unfair allocation.

using order 11784 as example, normal cost per unit for RL would be 2556 and price 3706 under ABC, cost of 11784 order is 3194 and price of 4631. This represent an increase in cost because OH allocated have been on activities that have driven those cost and hence provide a fair view.

major cost arises due to Customer service and Purchase orders which have been allocated fairly. Now management have to decide whether to sacrifice the profit or try to control cost associated with cells to Customer and Purchase order by scaling.

The impact on Customer and competitive position of RL should be considered while increasing the price.

### b) beyond budgeting

↳ we will solve it later

+92 331 2623844

#### ABB & ABM

A budget prepared while using principles of Activity based costing principles.

Ex Y72 had two three major activities

Delivery deliveries = 260 →

Setup Cost = 100 →

Purchase order = 800 →

Budgeted Cost for the coming period are :-

Total  $\rightarrow$  Allocated to

Sales 60,000 admin 10,000, Supervision 50,000

general 80,000 Delivery 40,000, Setup 30,000, PO 10,000

overheads 20,000 Delivery 15,000, PO 5,000

Basic O/Pay 10,000 Setup Cost 8,000, PO 2,000

O/P�niture 15,000 Supervision 3,000, admin 7,000, Delivery 5,000

Total  $\rightarrow$  ABB Cost/unit

ABB Cost/unit

SolCost / activity unit

	DtoR	SV <sub>cost</sub>	PO
Salaries	-	-	-
General	10000	30000	10000
OTs	1500	-	5000
OT basis pay	8000	8000	2000
OT premium	5000		
	—	—	—
	60000	38000	17000
divers	250	100	800
lost / unit	240	380	2125

↳ under ABB

ABB → Activity based budgets

Method of budgeting based on activity framework and utilising cost driver data in budget setting and variances feedback process

Steps for ABB implementation

→ Production volume → divers

→ Demand for activities → sever costs are incurred

→ Resources → allocate resources appropriately

Activity based management

Resources



Activities → Activity based management



Products &amp; Services

Management of Activities

- Driver analysis
- Activity analysis
- Performance evaluation

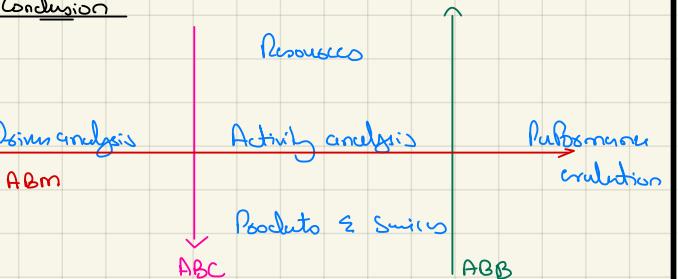
Driver analysis solves what exactly drives your cost  
Activity analysis solves what activities are been done

- ↳ analyse activity necessary
- ↳ ABCM → Controlling → why ??

Performance evaluation

- ↳ responsible one performance can be evaluated

makes you more focused towards controlling activities and having a good eye on the cost

ConclusionBeyond Budget Systems

Beyond Budgeting means moving away from old traditional budgets.

- ↳ time consuming
- ↳ unrealistic
- ↳ assumptions driven
- ↳ financial key metrics

Budget → USD 200  
Actual → USD 300

Difference between traditional & beyond budgetingTraditional

Budget type: Fixed annual plan

Previous years

Targets &amp; rewards: incremental targets

Fixed rewards

Beyond budgeting

Budgeting budgets, focus on non-financial perf target

Relative targets, copy

Strategic - selective and

targets can be demand

on demand resources

Resources: Pre-defined resources

Culture: Centralised budgeting and focus numbers

7.4 The principles of BB

→ Beyond budgeting → books BPP

There is no defined list of BB principles that should be adopted by an organisation in order to succeed at this approach. However, the following is a list of common best practices adopted by organisations using a BB approach:

Area of best practice	Explanation
Governance and transparency	<ul style="list-style-type: none"> <li>Employees are bound by a clear organisational mission and set of values, to a common cause, rather than being controlled by a central plan.</li> <li>Governance is through shared values and sound judgement, not detailed rules and regulations.</li> <li>Information is open and transparent; not restricted and controlled. For example, information systems may be activity-based, reporting on activities for which managers and teams are responsible.</li> </ul>
Accountable teams	<ul style="list-style-type: none"> <li>The organisation consists of a network of accountable teams who are empowered and trusted to regulate their performance with limited centralised and hierarchical control and no micro management.</li> <li>Team managers and employees are given a high degree of freedom to make decisions that generate value. This is consistent with concepts such as Business Process Re-engineering (Chapter 4) and total quality management (Chapter 12).</li> <li>Teams are responsible for relationships with customers, suppliers and other stakeholders.</li> <li>Budgets may still be used but these will be set at local level (bottom-up) using local knowledge.</li> </ul>
Goals, targets and rewards	<ul style="list-style-type: none"> <li>Managers will be given a range of challenging, but controllable, goals and targets linked to shareholder value, e.g. recognising the importance of both financial measures (such as gross profit margin or ROCE) and non-financial measures (such as customer satisfaction, innovation or sustainability). A performance management model such as the balanced scorecard (Chapter 11) may be used.</li> <li>Targets will often be based on external benchmarks.</li> <li>Innovation and continuous improvement is encouraged and rewarded.</li> </ul>

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Planning and control

top goals will be decided  
down goals will be following

- Planning is a continuous and inclusive process, not a top-down annual event.

Rolling budgets may be used. These are flexible and can be quickly adjusted to changes in the organisation's environment and should result in more timely allocation of resources.

- The focus is on future events, not the past. Controls that do exist are based on fast, frequent feedback and not budget variances.

e.g.

Illustration 4 – Toyota, a world class management model

For APM

→ to read some chapters from BPP

ExampleIllustration 4 – Toyota, a world class management model

**Toyota** is an example of an organisation that has moved away from traditional budgetary methods for organisational control.

Toyota is one of the best-managed manufacturing companies in the world. Its Toyota Production System is legendary. Management focuses on continuous improvement and meeting customers' needs. Everyone has a voice and is expected to contribute to the continuous improvement of their work. Medium-term goals aimed at best practice are set at every level. Planning takes place at team level and happens monthly within a clear strategic framework (12 month rolling forecasts support capacity planning). Resources are made available just-in-time to meet each customer order. There are no fixed targets, no annual budget constraints and people are trusted with information to make the right decisions).

7.5 Advantages and disadvantages of BB

adv/adv  
↳ linking it with  
Scenario

**Advantages**

- Planning is continuous and the organisation is more likely to be proactive rather than reactive to changes in its environment. Lower costs should result from a move away from the concept of a budget entitlement towards a focus on the purpose for which costs are being incurred.
- Targets become more challenging and have a more external focus. They stretch staff and encourage staff to find better ways to do things. They also make the organisation more customer and supplier focused, improving relationships with key stakeholders.
- The organisation becomes more innovative and continuously improves.

New system implementation is always a difficult one

- Managers are more involved in the decision making process, which provides better information for decisions as well as providing better motivation for managers.

- Managers can take decisions much more quickly. They are empowered to make decisions and are not constrained by traditional budgets and fixed resources.

- It creates information systems which provide fast and open information throughout the organisation.

**Disadvantages**

- Planning, coordination and performance evaluation become more complicated. This has the added impact that reward systems also become more complex.

↳ doing a reward system is not as easy this

- If benchmarks and targets are viewed as being unachievable then effort to achieve them is reduced rather than improved. (Targets should be viewed as challenging 'stretch' targets rather than unachievable, uncontrollable or out of reach).

- Although employees should be bound by a clear mission and set of values, sometimes organisational goals are less clear and are not communicated throughout the organisation. This means, for example, that many key stakeholders such as providers of finance and shareholders may lose out as the organisation focuses more on customers and innovation.

- Organisations that move to a BB structure can often face a lot of resistance from staff and managers where traditional budgets may be very deeply ingrained in the organisation's culture. If staff fail to fully embrace the new system and targets then the system is set to fail. For example, this may be the case in public sector organisations (discussed in Chapter 10) where managers are under pressure to adhere to traditional budgets in a resource constrained environment.

- It may be very difficult or impractical for organisations to adopt the culture of decentralisation on which successful BB depends.
- The need for more up-to-date and accurate information requires costly investment. (Information systems will be discussed in Chapter 5).

RL(b)

examine answer → RL(b)  
↳ beyond budgeting

## (b) Beyond Budgeting

The monitoring of variances between actual and budgeted variance is often the primary control mechanism available to the management of a company. Therefore, the suggestion of dropping the process which forms a major part of the finance department's efforts in a year is likely to be greeted with surprise.

The process known as going beyond budgeting involves replacing the annual system of a centrally created budget with a more flexible system of targets. Performance measurement changes from monitoring variances from the budget towards measuring achievement of strategic goals, adding value and performance against suitable benchmarks.

The new system will use forecasts produced and revised regularly by the line managers, thus devolving decision-making. The targets will often be more important for cashflow monitoring rather than cost control. The targets are intended to guide rather than constrain the line managers thus improving their motivation.

The approach of going beyond budgeting is considered appropriate in industries where there are rapid changes in the business environment and where intangibles such as know-how are key to competitive advantage. This appears to be the case for RL as it operates in a sector dominated by technological change. The traditional budgetary approach has drawn criticism as it sets fixed targets which are not responsive to change during the budget period. The method also sits uncomfortably with management methods such as total quality approaches since they tend to preach a continuous improvement to processes. Budgets can also struggle in organisations using other radical change approaches to management such as business process reengineering. As RL has been going through a period of poor performance, change is likely to be a feature of its operation in the near future.

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↳ linking with  
a scenario

Budgets are also criticised as stifling creativity in organisations. This creativity may help RL in finding solutions to its current financial difficulties. Budgets can be perceived as an imposition of top-down control and so conflict with giving all employees power to make decisions. A culture of innovation and employee empowerment would help to combat the problems faced by RL of losses of competitive position and key staff.

Finally, budgets can encourage gaming behaviour where staff act in the interests of expanding or padding their own budgets without considering the overall impact on the company. The focus on value-added targets of going beyond budgeting can help to avoid such dysfunctional behaviour.

## Conclusion

A costing system change may be warranted as ABC appears to provide valuable additional information that will assist RL in addressing its financial problems. A detailed cost benefit analysis will have to be undertaken to identify if the extra work in collecting data on activities is warranted by this improvement in information for decision-making.

Additionally, RL appears to derive its advantage from the quality of its products and so innovation and flexibility in manufacturing and handling customers' needs will be paramount. Therefore, a non-budgetary system of control could be used at RL provided sources for appropriate alternative targets can be found.

## Appendix:

→ I always read, quickly examine answer, it would allow you to note down some extra points.

→ 10 marks → 6-7 points  
→ don't expect from a student to write like this,

Points that examiner marks

- mechanism change → suggestive
- defining beyond budgeting
- justified by industry
- involving employees → decentralised structure
- dysfunction behaviour
- RL performance → change might result that

Questions to attempt

- (1) Alfonso
- (2) Diblic
- (3) Pelcins
- (4) CRC

→ attempted three questions on sum practice past papers  
→ what happened me  
+92 331 2623849

## Case Study Platform

**Alfonso** is a large producer of industrial chemicals, with divisions in 25 countries. The agrochemicals division produces a chemical pesticide, known internally as 'ALF', to control pests in a crop which is of worldwide significance, economically and for food production. Pesticides such as ALF only remain effective for a limited time, after which pests become resistant to them and a replacement product needs to be found. A scientific study has shown that the current variant, ALF6, is becoming ineffective in controlling pests and in some places, it has accumulated in the soil to levels which may significantly reduce crop yields in the future if it is continued to be used. The agrochemicals division is evaluating three new products to find one replacement for ALF6.

**ALF7**  
ALF7 is produced by a small chemical modification to the existing product and requires little research and development (R&D) resources to develop it. As it is closely related to the current variant, it is only expected to remain effective, and in use, for three years. It is unclear whether ALF7 will accumulate in the soil in the same way as ALF6 does.

**Red**  
Red is a new type of pesticide which will incur large amounts of R&D expenditure to develop a commercial version. In addition, the agrochemicals division will have to fund a long-term scientific study into the effect of Red on the environment at a cost of \$4m for each of the 15 years that the product will be in use, and for five years afterwards. Production of Red generates large amounts of toxic by-products which must be treated in the division's waste treatment facility. The production plant used to produce Red must also be decommissioned for cleaning, at an estimated cost of \$45m, at the end of the life of the product.

**Green**  
Green is a form of a naturally occurring chemical, thought to be safe and not to accumulate in the environment. It is expected to remain in use for eight years. Production of Green requires relatively large amounts of energy. Significant R&D expenditure is also needed to produce an effective version, as Green remains active in the environment for only a short time. Because of this, Green is unsuitable for use in climates where crop production is already difficult.

The Global Food Production Organisation (GFPO) is a non-governmental organisation which funds new ways to increase global crop production, especially in regions where food for human consumption is already scarce. The GFPO has agreed to make a significant contribution to the R&D costs of producing a replacement for ALF6, but will be unwilling to contribute to the R&D costs for Green because it cannot be used in every region. Similarly, a number of governments, in countries where Alfonso has licences to operate its other chemical businesses, have warned the company of the potential public disapproval should the agrochemical division choose to replace ALF6 with a product unsuitable for use in areas where food production is scarce.

The newly appointed chief financial officer (CFO) for the agrochemicals division has asked you as a performance management consultant for your advice. 'One of our analysts in the agrochemicals division', she said, 'has produced a single period statement of profit or loss (Appendix 1) to show the profitability of the three new products we are considering as replacements for ALF6.'

'I think the analyst's calculations are too simplistic', she continued. 'The costs of the waste treatment are apportioned based on the expected revenue of the new products. This is consistent with Alfonso's traditional group accounting policy, but I don't think this gives an accurate costing for the new products. Also, I watched a presentation recently about the use of lifecycle costing and also how environmental management accounting (EMA) can help reduce costs in the categories of conventional, contingent and reputation costs and as a result improve performance.'

### Appendix 1

#### Single period statement of profit or loss for the replacement products for ALF6<sup>1</sup>

	ALF7	Red	Green
Revenue per litre (\$)	8.00	13.00	11.00
Quantity sold and produced (million litres)	100	85	75
	\$m	\$m	\$m
Revenue	800	1,105	825
Direct material, labour and energy	(524)	(724)	(565)
Factory overheads	(80)	(122)	(74)
Environmental study	—	(4)	—
Waste treatment of toxic by-products <sup>2</sup>	(54)	(63)	(71)
Net profit <sup>3</sup>	142	192	115
Average profit per litre (\$)	1.42	2.26	1.53

#### Notes to the statement of profit or loss:

<sup>1</sup> – All figures exclude the contribution from the GFPO towards the R&D costs of the new product.

<sup>2</sup> – Waste treatment is an overhead cost incurred in the division's waste treatment facility. Currently, costs of waste treatment are apportioned to products according to expected revenue. The total annual cost of the waste treatment facility, which processes a total of 85m litres of waste each year, is \$300m. Any waste treatment capacity not used by any of the three new products can be used to treat waste created during the manufacture of other products in the division. One litre of waste by-product is produced for every 2.5 litres of ALF7 produced, for every 2.5 litres of Red produced and for every 100 litres of Green.

<sup>3</sup> – R&D costs are incurred in the division's R&D facility. In accordance with the group's accounting policy, R&D expenditure is not currently apportioned to individual products. The annual cost of the R&D facility is \$60m and has a total of 30,400 R&D hours available, of which 800 hours would be required to develop ALF7, 8,500 hours to develop Red, and 4,000 hours to develop Green.

#### Required:

- (a) (i) Explain how activity based costing may help the agrochemicals division in assessing the profitability of the three new products. → *theoretical discussion of ABC* (5 marks)
- (ii) Using activity based costing, and excluding the value of the grant from the GFPO, calculate the total R&D costs and waste treatment costs of the three new products. → *Application of ABC* (3 marks)
- (b) Using your answers from part (a) (ii), calculate the average net profit per litre of each of the three alternative new products over their expected lifecycles and comment on the results. → *UUC* (9 marks)
- (c) Advise how environmental management accounting (EMA) may help improve the performance of the agrochemicals division. (8 marks)

**Dibble** is formed of two autonomous divisions, Timber and Steel, and manufactures components for use in the construction industry. Dibble has always absorbed production overheads to the cost of each product on the basis of machine hours.

#### Timber Division

Timber Division manufactures timber frames used to support the roofs of new houses. The timber, which is purchased pre-cut to the correct length, is assembled into the finished frame by a factory worker who fastens the components together. Timber Division manufactures six standard sizes of frame which is sufficient for use in most newly built houses.

#### Steel Division

Steel Division manufactures steel frames and roof supports for use in small commercial buildings such as shops and restaurants. There is a large range of products, and many customers also specify bespoke designs for short production runs or one-off building projects. Steel is cut and drilled using the division's own programmable computer aided manufacturing machinery (CAM), and is bolted together or welded by hand.

Steel Division's strategy is to produce novel bespoke products at a price comparable to the simpler and more conventional products offered by its competitors. For example, many of Steel Division's customers choose to have steel covered in one of a wide variety of coloured paints and other protective coatings at the end of the production process. This is performed off-site by a subcontractor, after which the product is returned to Steel Division for despatch to the customer. Customers are charged the subcontractor's cost plus a 10% mark up for choosing this option. The board of Steel Division has admitted that this pricing structure may be too simplistic, and that it is unsure of the overall profitability of sales of some groups of products or sectors of the market.

Recently, several customers have complained that incorrectly applied paint has flaked off the steel after only a few months' use. More seriously, a fast food restaurant has commenced litigation with Dibble after it had to close for a week while steel roof frames supplied by Steel Division were repaired. Following this, the production manager has proposed increasing the number of staff inspecting the quality of coating on the frames, and purchasing expensive imaging machinery to make inspection more efficient.

The chief executive officer (CEO) at Dibble has approached you as a performance management expert for your advice. 'At a conference recently', he told you, 'I watched a presentation by a CEO at a similar business to ours talking about the advantages and disadvantages of using activity based costing (ABC) and how over several years the adoption of activity based management (ABM) had helped them to improve both strategic and operational performance.'

'I don't want you to do any detailed calculations at this stage, but I'd like to know more about ABC and ABM, and know whether they would be useful for Dibble', he said.

You are provided with extracts of the most recent management accounts for Timber and Steel Divisions:

Division (\$000)	Timber	Steel
Revenue	25,815	20,605
Materials	12,000	10,100
Direct labour	4,500	850
Subcontract costs	75	650

Analysis of production overheads (\$000)		
Set up time for CAM machinery	—	575
Machining time	—	2,777
Storage of goods awaiting or returned from subcontractors	120	395
Transfer of goods to and from subcontractors	50	300
Inspection and testing	35	425
Total production overheads	205	4,472
Gross profit	9,035	4,533

#### Required:

- (a) (i) Advise the CEO how activity based costing could be implemented. (4 marks)
- (ii) Assess whether it may be more appropriate to use activity based costing in Timber and Steel Divisions than the costing basis currently used. (8 marks)
- (b) Advise the CEO how activity based management could be used to improve business performance in Dibble. (13 marks)
- (c) Advise the CEO how activity based management could be used to improve business performance in Dibble. (25 marks)

**Perkin** manufactures electronic components for export worldwide, from factories in Ceeeland, for use in smartphones and hand held gaming devices. These two markets are supplied with similar components by two divisions, Phones Division (P) and Gaming Division (G). Each division has its own selling, purchasing, IT and research and development functions, but separate IT systems. Some manufacturing facilities, however, are shared between the two divisions.

Perkin's corporate objective is to maximise shareholder wealth through innovation and continuous technological improvement in its products. The manufacturers of smartphones and gaming devices, who use Perkin's components, update their products frequently and constantly compete with each other to launch models which are technically superior.

Perkin has a well-established incremental budgeting process. Divisional managers forecast sales volumes and costs months in advance of the budget year. These divisional budgets are then scrutinised by the main board, and revised significantly by them in line with targets they have set for the business. The finalised budgets are often approved after the start of the accounting year. Under pressure to deliver consistent returns to institutional shareholders, the board does not tolerate failure by either division to achieve the planned net profit for the year once the budget is approved.

Last year's results were poor compared to the annual budget. Divisional managers, who are appraised on the financial performance of their own division, have complained about the length of time that the budgeting process takes and that the performance of their divisions could have been better but was constrained by the budgets which were set for them.

In P Division, managers had failed to anticipate the high popularity of a new smartphone model incorporating a large screen designed for

high costs of doing so, which had not been budgeted for. Based on the original sales forecast, P Division had already committed to manufacturing large quantities of the existing version of the component and so had to heavily discount these in order to achieve the planned sales volumes.

A critical material in the manufacture of Perkin's products is silver, which is a commodity which changes materially in price according to worldwide supply and demand. During the year supplies of silver were reduced significantly for a short period of time and G Division paid high prices to ensure continued supply. Managers of G Division were unaware that P Division held large inventories of silver which they had purchased when the price was much lower.

Initially, G Division accurately forecasted demand for its components based on the previous years' sales volumes plus the historic annual growth rate of 5%. However, overall sales volumes were much lower than budgeted. This was due to a fire at the factory of their main customer, which was then closed for part of the year. Reacting to this news, managers at G Division took action to reduce costs, including closing one of the three R&D facilities in the division.

However, when the customer's factory reopened, G Division was unwilling to recruit extra staff to cope with increased demand; nor would P Division re-allocate shared manufacturing facilities to them, in case demand increased for its own products later in the year. As a result, Perkin lost the prestigious preferred supplier status from their main customer who was unhappy with G Division's failure to effectively respond to the additional demand. The customer had been forced to purchase a more expensive, though technically superior, component from an alternative manufacturer.

The institutional shareholders' representative, recently appointed to the board, has asked you as a performance management expert for your advice. 'We need to know whether Perkin's budgeting process is appropriate for the business, and how this contributed to last year's poor performance', she said, 'and more importantly, how do we need

to change the process to prevent this happening in the future, such as a move to beyond budgeting.'

**Required:**  
(a) Identify the weaknesses in Perkin's Current Budgeting System and whether it is suitable for the environment in which Perkin Operates. (13 marks)

(b) Evaluate the impact on Perkin of moving to beyond budgeting. (12 marks)

#### Cortinas Retail Clothing (CRC): Company information

CRC started as a clothing retailer 20 years ago with one store. The business expanded steadily and had 10 stores after 18 years of trading. Since then, the rate of expansion has increased rapidly with an average of four stores opening per year.

CRC is planning to open its first large out of town store soon and is also considering the acquisition of a food retailing business. Both of these will be supplied with items using CRC's existing central warehouse.

#### Introduction of RFID system

At the beginning of the 20X5 accounting year, to cope with this rapid growth, CRC acquired a RFID (radio frequency identification device) system at its single central warehouse. This was to help manage inventory more effectively and speed up the processes for receiving items from suppliers and despatching them to stores. Items are still moved manually by staff in the CRC warehouse where there is little automation compared to competitors. There has been some resistance from staff to the RFID system, which they find difficult to use. CRC is currently trying to reduce the number of suppliers it has to help increase efficiency in the warehouse.

#### Budgeting system

The budget setting process has remained unchanged since CRC was formed. All managers prepare draft budgets using spreadsheets and submit them to the CRC board for approval. Managers use the previous year results as a starting point when drafting the budgets and increase the variable costs in line with any anticipated growth in volumes. For example, when preparing the budget for the year ending 30 June 20X6, the manager of the central warehouse used the actual costs of running the warehouse from the previous year and increased them all by the same percentage. This was to reflect an anticipated increase in volumes in 20X6 over 20X5. Managers are appraised on their performance against the approved budgets.

CRC has needed all its financial resources to fund its expansion and so it has only old and basic IT systems which are not enterprise resource planning systems, unified databases or networked systems.

It has been suggested to the CRC board that the current system of budgeting is no longer suitable and that the business should move to activity-based budgeting (ABB). The CEO has asked you to evaluate the potential introduction of ABB at CRC.

#### Central warehouse activity in July 20X5

The board has never seen an activity-based budget before and is unsure how it could be used to explain variances between actual and budgeted performance in the central warehouse. As an example, they would like to see how an activity-based budget for the year ending 30 June 20X6 could be used to explain variances from the actual results for the month of July 20X5.

The two key activities which drive costs in the central warehouse are receipts of items into the goods inwards section and despatches of items from the goods outwards section. A receipt into good inwards involves accepting a delivery of items from a supplier, tagging those items and putting them away in the warehouse. Receipts from suppliers contain variable numbers of individual items. Despatches of items from goods outwards are to CRC's own retail stores. Cost driver rates for these two activities will be used to set monthly cost budgets for the warehouse.

The board asked an analyst to prepare an activity-based budget for the central warehouse for the year ending 30 June 20X6. The analyst has collected relevant information on the costs for the year needed to prepare the activity-based budget and has begun the work (Appendix 1).

The total annual cost relating to goods inwards needs to be determined. This should be used to calculate the budgeted cost of each receipt into goods inwards, in order to explain the variance between the budgeted cost and the actual cost of receipts of goods inwards for the month of July 20X5. The analyst has already correctly included the costs of the warehouse manager's salary and the lease of the RFID system into the incomplete activity-based budget in Appendix 1.

The board has asked you to complete the analyst's work.

To enable you to complete your calculations, you are told that in July 20X5 there were 650 receipts into goods inwards. These receipts contained 100,000 items, which is the same as the budgeted number of items for the month. The actual total cost of activities driven by receipts into goods inwards for the month was \$18,000.

It is now 1 September 20X5.

#### Appendix 1

Analyst's incomplete activity-based budget for the central warehouse for YE 30 June 20X6

	Total	Goods inwards	Goods outwards	Other
Warehouse manager's salary <sup>1</sup>	\$ 55,000	–	–	\$ 55,000
Lease of RFID system <sup>2</sup>	\$ 75,000	45,000	30,000	–

RFID tagging<sup>3</sup>  
Warehouse staff wages<sup>4</sup>  
Heating and lighting<sup>5</sup>

Sub-total cost of activities driven by the receipt of goods inwards

3. The cost of RFID tagging is the wages cost for specially trained staff, known as taggers. Their only job is to attach RFID tags to items when they are received, before the items are put away in the warehouse. All items received are RFID tagged and the costs of tagging are allocated entirely to the cost of goods inwards. Each tagger can attach 35,000 tags per month and is paid an annual salary of \$24,000. The cost of each individual RFID tag is negligible.

4. There were 12 full-time warehouse staff throughout the year to 30 June 20X5 who were each paid an annual salary of \$22,500. Two more staff will be recruited at the beginning of the new budget year. 50% of the warehouse staff work in goods inwards and 50% in goods outwards.

5. The cost of heating and lighting relates to all sections of the warehouse and cannot be apportioned directly to goods inwards or goods outwards. The actual heating and lighting cost for last year was \$10,000 and the warehouse manager has proposed a budget of \$10,500 for the coming year. The general cost of inflation though is expected to be zero.

6. The annual number of receipts into goods inwards expected is 9,000, containing a total of 1,200,000 items. These are expected to occur evenly over the year.

#### Required:

(a) Evaluate whether CRC should move from its current budgeting system to ABB. (13 marks)

(b) Complete the analyst's work in Appendix 1 as required by the board and explain the variance between the budgeted cost and the actual cost for each receipt into goods inwards for July 20X5. (12 marks)

## Planning and operational Variance

sw = revised

Important formula's

↳ F2 → update

qty = quantity  
std = standard

### Planning & operation Variance of Material

MA      FS

MPV = Actual Qty Consumed × (Actual price per kg - Std price per kg)

MVR = Std price per kg × (Actual qty Consumed - Std qty allowed)

∴ Std qty allowed = std qty per unit × Actual units produced

FS → PM

#### Planning variance

MPV = sw std qty allowed × (Rev std price/kg - std price/kg)

MVR = std price/kg × (sw std qty allowed - std qty allowed)

#### Operational Variance

MPV = Actual qty consumed × (Actual price/kg - sw std price/kg)

MVR = sw std price/kg × (Actual qty consumed - sw std qty allowed)

## Planning and operational Variance of labour

F2 → MA

LRV = Actual hours worked × (Actual lab rate/hrs - std lab rate/hrs)

LFR = std lab rate/hrs × (Actual hours worked - std hours allowed)

∴ std hours allowed = std hours per unit × Actual units produced

FS → PM

#### Planning variance

LRV = sw std hours allowed × (sw std lab rate/hrs - std lab rate/hrs)

LFR = std lab rate/hours × (sw std hours - std hours allowed)

#### Operational Variance

LRV = Actual hours worked × (Actual lab rate/hrs - sw std lab rate/hrs)

LFR = sw std lab rate/hrs × (Actual hours worked - sw std hours allowed)

## Planning & operational Variance of sales

SVCR = Sales Volume Cont variance

F2    MA

SPV = Actual units sold × (Std SP/unit - Actual SP/unit)

SVCR = Std cont unit × (Std Sales unit - Actual Sales unit)

FS → PM

#### Planning Variance

SPV = sw std Sales units × (Std SP/unit - Rev std SP/unit)

SVCR = std cont unit × (Std Sales unit - sw std Sales unit)

#### Operational Variance

SPV = Actual units sold × (Rev std SP/unit - Actual SP/unit)

SVCR = Rev std cont unit × (sw std Sales unit - Actual units sold)

→ 18 formula's → learn ✅

→ 6 formula's → learn ✓

F2

MPV	LRV	SPV
MVR	LFR	SVCR

#### Planning Variance

Actual → revised standard

#### Operational Variance

Std → revised standard

+ve = Adverse

-ve = favourable

Q43: A company estimated that each unit will take 4kg and will cost \$6/kg. Actual production was 2000 units which consume 10,000kgs at a material cost of \$5000. It was then realized that standard should have been 4.5kgs at \$5/kg.

**REQUIRED:**  
MPV, MUV, write planning and operational

Q44: A company estimated that each unit will take 4kg of material & material cost will be \$5/kg. Actual production was 1,000 units which consumed 6000kg & cost was \$18,000. It was then realized that standard should have been 5kg @ \$4.5/kg.

**REQUIRED:**  
Planning & operational variances.

Q45: A company estimated that standard for a product is 8hrs at \$2/hr. Actual production was 1000 units which used 12,000 hrs & labour cost was \$60,000. It was then realized that standard should have been 7 hrs at \$4/hr.

**REQUIRED:**  
Planning & operational variances.

Q46: A company budget to sell 5,000 units for \$10/unit and estimated its variable cost to be \$6/unit. Actually 8,000 units were sold which earned a revenue of \$56,000. It was then decided to change budgeted sales unit as 7,000 units at S.P. of \$6.5/unit & revise V.Cost to \$4.5/unit.

**REQUIRED:**  
Planning & operational variances.

Q47: A company estimates that each unit will take 5kg @ 4/kg. Actual production was 2000 units consuming 12000kgs at a total material cost of \$54000. Inflation pushed up material price by 10% and changed methods Required each unit 20% more material.

**REQUIRED:**  
Basic variance, Planning & operational variances..

Q48: A company estimated that standard as 8hrs @ 6/hr. Actual production was 5000 units consuming 48000hrs at a labour cost of 300,000. New construction from customer made our process 20% slow.

## planning & operational

Eg A Co <sup>estimated</sup> <sub>budget</sub> that each unit of prod x will take 5 hours and lab will be paid 8 hours. Actual production is 1000 units which consumed 6000 hours at a total cost of 60000. It was then realised that std should have been 6.5 hours to make each unit & lab rate should have been 9.75 /hr

- if
- ① LRV, LFV ✓
  - ② Planning & operational

std	Actual	swstd
time per unit = 5 hours	production = 1000 units	time per unit = 6.5 hours
lab rate = 8 /hour	total hours = 6000 hours	lab rate = 9.75
	totaL cost = \$60000	lab rate = 60000/6000

$$LRV = \text{Actual hours worked} \times (\text{Actual lab rate} / \text{hr} - \text{std lab rate} / \text{hr})$$

$$= 6000 \times (10 - 8)$$

$$= + 12000 \text{ Adverse}$$

$$LFV = \text{std lab rate} / \text{hr} \times (\text{Actual hours worked} - \text{std hours allowed})$$

$$\therefore \text{std hours allowed} = \text{std hours spent} \times \frac{\text{Actual unit prod}}{8}$$

$$= 8 \times (6000 - 5000)$$

$$\downarrow$$

$$\begin{array}{l} \text{std hours} \\ \text{allowed} \end{array}$$

$$5 \times 1000$$

$$= + 8000 \text{ Adverse}$$

Planning → Actual → swstd

$$LRV = (\text{swstd hours allowed}) \times (\text{swstd lab rate} / \text{hr} - \text{std lab rate} / \text{hr})$$

$$= 6500 \times (9.75 - 8)$$

$$= 11375 \text{ Adverse}$$

$$\text{swstd hours allowed} = \text{swstd hours spent} \times \frac{\text{Actual units}}{1000}$$

$$= 6.5 \times 1000$$

$$\text{swstd hours allowed} = 6500$$

$$LFV = \text{std lab rate} / \text{hr} \times (\text{swstd hours allowed} - \text{std hours allowed})$$

$$= 8 \times (6500 - 5000)$$

$$= 12000 \text{ Adverse}$$

Operational → std → swstd

$$LRV = \text{Actual hours worked} \times (\text{Actual lab rate} / \text{hr} - \text{swstd lab rate} / \text{hr})$$

$$= 6000 \times (10 - 9.75)$$

$$= 1500 \text{ Adverse}$$

$$LFV = (\text{swstd lab rate} / \text{hr} \times \text{Actual hours worked} - \text{swstd hours allowed})$$

$$= 9.75 \times (6000 - 5000)$$

$$= 4875 \text{ favourable}$$

Q43. A Company <sup>estimated</sup> <sub>but</sub> that each unit will take 4kg and will cost \$6/kg. Actual production was 2000 units which consume 10000kgs at a mat cost of 50000. It was then realized that std should have been 4.5 kg at \$5.5/kg.

- MVR may  
→ Planning & operational

std	Actual	swstd
req mat = 4kgs	Production = 2000	req mat = 4.5 kgs
rate = 6/kg	mat consumed = 10000	rate = 5.5/kg
	mat cost = 50000	
	rate/kg = 10000	50000
		= 5.5/kg

$$MVR = \text{Actual q/t consumed} \times (\text{Actual price/kg} - \text{std price/kg})$$

$$= 10000 \times (5.5 - 6)$$

$$= 10000 \text{ Adverse}$$

$$MVR = \text{std price/kg} + (\text{Actual q/t consumed} - \text{std q/t allowed})$$

$$= 6 \times (10000 - 8000) = 12000 \text{ Adr}$$

$$\text{MPV} = \text{std quantity allowed} \times \text{Actual units}$$

$$= 4 \times 2000 = 8000$$

Planning → Actual → varstal

$$\text{MPV} = \text{varstal quantity allowed} \times (\text{cost std price/kg} - \text{std price/kg})$$

$$= 9000 \times (5.5 - 6) = 4500 \text{ Favr}$$

$$\therefore \text{varstal quantity allowed} = \text{varstal quantity} \times \text{Actual units}$$

$$= 4.5 \times 2000$$

$$= 9000$$

$$\text{MPV} = \text{std price/kg} \times (\text{varstal quantity allowed} - \text{std quantity allowed})$$

$$= 6 \times (9000 - 8000) = 6000 \text{ Advise}$$

Operational → std → varstal

$$\text{MPV} = \text{Actual quantity consumed} \times (\text{Actual price/kg} - \text{varstal price/kg})$$

$$= 10000 \times (5 - 5.5)$$

$$= 5000 \text{ Favarble}$$

$$\text{MPV} = \text{varstal price/kg} \times (\text{Actual quantity allowed} - \text{varstal quantity allowed})$$

$$= 5.5 \times (10000 - 9000)$$

$$= 5500 \text{ Advise}$$

Q44: A company estimated that each unit will take 4kg of material & material cost will be \$5/kg. Actual production was 1,000 units which consumed 6000kg & cost was \$18,000. It was then realized that standard should have been 5kg @ \$4.5/kg.

REQUIRED:  
Planning & operational variances.

→ MPV MVR

→ Confirmed

$$\text{MPV} = 12000 \text{ Favr}$$

$$\text{MVR} = 10000 \text{ Advr}$$

Planning

$$\text{MPV} = 2500 \text{ Favr}$$

$$\text{MVR} = 5000 \text{ Advr}$$

Operational

$$\text{MPV} = 9000 \text{ Favr}$$

$$\text{MVR} = 4500 \text{ Advr}$$

Q45: A company estimated that standard for a product is 8hrs at \$2/hr. Actual production was 1000 units which used 12,000 hrs & labour cost was \$60,000. It was then realized that standard should have been 7 hrs at \$4/hr.

REQUIRED:

Planning & operational variances.

$$\text{LRV} = 36000 \text{ Advr}$$

$$\text{LFV} = 3000 \text{ Advr}$$

Planning

$$\text{LRV} = 14000 \text{ Advr}$$

$$\text{LFV} = 2000 \text{ Favr}$$

Operational

$$\text{LRV} = 12000 \text{ Advr}$$

$$\text{LFV} = 20000 \text{ Advr}$$

Operational

$\text{SPV} = \text{Actual unit sold} \times (\text{std SP/unit} - \text{Actual SP/unit})$

$$= 8000 \times (6.5 - 7)$$

$$= 4000 \text{ Favr}$$

$$\text{P&L-VC} = 6.5 - 4.5 = 2$$

$\text{SRCV} = \text{varstal cont/unit} \times (\text{varstal unit sold} - \text{Actual unit sold})$

$$= 2 \times (7000 - 8000)$$

$$= 2000 \text{ Favr}$$

Q46: A company budget to sell 6000 units for \$10/unit and estimated its variable cost to be \$6/unit. Actually 8,000 units were sold which earned a revenue of \$64,000. It was then decided to change budgeted sales unit as 7,000 units at S.P. of \$6.5/unit & revise V.Cost to \$4.5/unit.

REQUIRED:

Planning & operational variances.

SPV SRCV

std	Actual	varstal
budgeted sell = 6000	sell = 8000	Sales = 7000
rate = 10/unit	Rev = \$64000	S.P. = 6.5
VC = 6/unit	Rate = \$64000 / 7000 = 7.14	VC = 4.5
	8000	

$\text{SPV} = \text{Actual units sold} \times (\text{std SP/unit} - \text{Actual SP/unit})$

$$= 8000 \times (10 - 7) = 24000 \text{ Advr}$$

$$\Rightarrow \text{P&L-VC} = 10 - 6.5 = 4$$

$\text{SRCV} = \text{std cont/unit} \times (\text{std unit sold} - \text{Actual unit sold})$

$$= 4 \times (5000 - 8000)$$

$$= 12000 \text{ Favr}$$

Planning

$\text{SPV} = \text{varstal unit sold} \times (\text{std SP/unit} - \text{varstal SP/unit})$

$$= 7000 \times (10 - 6.5)$$

$$= 24500 \text{ Advise}$$

$\text{SRCV} = \text{std cont/unit} \times (\text{std unit sold} - \text{varstal unit sold})$

$$= 4 \times (5000 - 7000)$$

$$= 8000 \text{ Favr}$$

Q47: A company estimates that each unit will take 5kg @ 4/kg. Actual production was 2000 units consuming 12000kgs at total material cost of \$54000. Inflation pushed up material price by 10% and changed methods Required each unit 20% more material.

REQUIRED:

Basic variance, Planning & operational variances..

$$\text{MPV} = 6000 \text{ Favr}$$

$$\text{MVR} = 8000 \text{ Advr}$$

Operational

$$\text{MPV} = 4800 \text{ Advr}$$

$$\text{MVR} = 8000 \text{ Advr}$$

$$\text{MPV} = 12000 \text{ A}$$

Q48: A company estimated that standard as 8hrs @ 6/hr. Actual production was 5000 units consuming 48000hrs at a labour cost of 300,000. New construction from customer made our process 20% slow.

real planning & operational

$$\text{LRV} = 12000 \text{ Advr}$$

$$\text{LFV} = 48000 \text{ Advr}$$

Planning

$$\text{LRV} = 0$$

$$\text{LFV} = 48000 \text{ Advr}$$

Operational

$$\text{LRV} = 12000 \text{ Advr}$$

$$\text{LFV} = 0$$

- Last papers to be done in Classes → Pls search the form  
 ① Block Co      ⑤ Bookco Co      ⑥ Cappo Co  
 ② Secure net Co      ⑦ Spike LTD  
 ③ Truffle Co      ⑧ School Co

Fundamentals Level – Skills Module, Paper F5  
 Performance Management

March/June 2017 Sample Answers

tion C

SU Co

(a) SP (standard price per metre: \$2.85/0.95)	\$3.00
SQ (standard quantity per dress: 2.2 metres/1.1)	2 metres

From scenario the revised price per metre (RP) is \$2.85, the actual price per metre (AP) is \$2.85 and the revised quantity per dress (RQ) is 2.2 metres.

SQAP (standard quantity for actual production: 2 metres × 24,000) = 48,000 metres

ROAP (revised quantity for actual production: 2.2 metres × 24,000) = 52,800 metres

From the scenario the actual production level (AP) is 24,000 dresses and actual quantity of material bought and used (AQ) is 54,560 metres.

#### Material price variances

Planning variance  
 $(SP - RP) \times AQ: (\$3.00 - \$2.85) \times 54,560$  8,184 F

Operational variance  
 $(RP - AP) \times AQ: (\$2.85 - \$2.85) \times 54,560$  0

Total price variance 8,184 F

#### Material usage variances

Planning variance  
 $(SQAP - ROAP) \times SP: (48,000 - 52,800) \times \$3.00$  14,400 A

Operational variance  
 $(RQAP - AQ) \times SP: (52,800 - 54,560) \times \$3.00$  5,280 A

Total usage variance 19,680 A

Total material variance 11,496 A

Tutorial note: These variances could have been calculated using the alternative approach as below.

#### Material price variances

Planning variance  
 $(AP \times RQ) \times (SP - RP): 24,000 \times 2.2 \text{ metres} \times (\$3.00 - \$2.85)$  7,920 F

Operational variance  
 $(RP - AP) \times AQ: 54,560 \text{ metres} \times (\$2.85 - \$2.85)$  0

#### Material usage variances

Planning variance  
 $(SQ - RQ) \times AP \times SP: 24,000 \times (2 \text{ metres} - 2.2 \text{ metres}) \times \$3.00$  14,400 A

Operational variance  
 $((AP \times RQ) - AQ) \times RP: 24,000 \times 2.2 \text{ metres} - 54,560 \times \$2.85$  5,016 A  
 $12,496 A$

Total material variance 11,496 A

(b) AH (actual hours worked and paid): 24 × 160 hours 3,840 hours

SHAP (standard hours for actual production):  $(24,000 \times 8)/60$  3,200 hours

RHAP (revised hours for actual production):  $(24,000 \times 10)/60$  4,000 hours

From the scenario the standard rate per hour (SR) is \$12, the standard time per dress is eight minutes and the revised time per dress is 10 minutes.

#### Labour efficiency variances

Planning variance  
 $(SHAP - RHAP) \times SR: (3,200 - 4,000) \times \$12$  9,600 A

Operational variance  
 $(RHAP - AH) \times SR: (4,000 - 3,840) \times \$12$  1,920 F  
 $7,680 A$

Total labour efficiency variance

→ variances  
 ↓  
 Planning  
 operational  
 ↓  
 multiple  
 hostile  
 hair

## Planning and operational Variance

Q Block Co  $\rightarrow$  165

data

$\rightarrow$  Economic recession  $\rightarrow$  last 2 years

$\rightarrow$  market Specialist  $\rightarrow$  price for quantities

$\hookrightarrow$  Std S.P

(a)  $\rightarrow$  SP  $\rightarrow$  OP/PI  $\rightarrow$  C-3

SPV = Actual unit Sold  $\times$  (Std S.P/unit - actual S.P)

~~Std  $\rightarrow$  actual~~  $\rightarrow$  ~~new std unit~~ Planning  $\rightarrow$  ~~avg market~~

SPV = new std unit Sold  $\times$  (Std S.P/unit - new std S.P/unit)

$$= 26000 \times (41.60 - 39.1)$$

= 65000 adverse

### Operational

SPV = Actual unit Sold  $\times$  (new std S.P/unit - actual S.P/unit)

$$= 28600 \times (39.1 - 40.40)$$

= 33280 Fav ✓

### Sales mix & qty

#### Sales mix

mat	Actual unit Sold in std mix	Actual unit Sold in <u>actual</u>	Mix Var	Profit	Mix \$
C-1	✓ 30642 (2)	29800	842 A	11.2 (w3)	9130 A
C-2	✓ 28600 (w2)	30400	1800 F	4.2 (w4)	7560 F
C-3	✓ 26558 (w3)	25600	958 A	12 (w6)	11496 A

$\hookrightarrow$  indication

total actual unit Sold  $\times$  Budgeted unit  
of that product  
total budgeted unit Sold

$$\text{C-1: } 85800 \times 30000 = 30642 \text{ units (w1)} \\ 84000$$

$$\text{C-2: } 85800 \times 28000 = 28600 \text{ units (w2)} \\ 84000$$

$$\text{C-3: } 85800 \times 26000 = 26558 \text{ units (w3)} \\ 84000$$

$$\text{Budgeted Cost} = 174400 \div 43600 \text{ hours} \\ \{ (0.2 \times 30000) + (0.6 \times 28000) + (0.8 \times 26000) \}$$

$$\text{OAR} = \frac{174400}{43600} = 4 \text{ / much hours}$$

### Profitability

Profit = SP - V.C - F.C  $\rightarrow$  OAR  $\rightarrow$  charge

$$\text{C-1: } 30 - 18 - 0.8 = \frac{11.2 \text{ / unit}}{\text{SP}} \quad \text{Profit} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ \text{C-2: } 35 - 28.40 - 2.4 = \frac{4.2 \text{ / unit}}{\text{SP}} \quad \text{(w5)} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ \text{C-3: } 41.6 - 28.4 - 3.2 = \frac{12 \text{ / unit}}{\text{SP}} \quad \text{(w6)}$$

$$\text{C-2: } 35 - 28.40 - 2.4 = \frac{4.2 \text{ / unit}}{\text{SP}} \quad \text{(w5)}$$

$$\text{C-3: } 41.6 - 28.4 - 3.2 = \frac{12 \text{ / unit}}{\text{SP}} \quad \text{(w6)}$$

	Budgeted Sales	Actual units Sold in std mix	Q.V. units	Profit/Hd	Q.V. \$
1	30000	30642	642 F	11.2	7190 F
2	28000	28600	600 F	4.2	2520 F
3	26000	26558	558 F	12	6696 F

### Performance $\rightarrow$ Sales manager

$\rightarrow$  Block Co  $\rightarrow$  struggling profitability  $\rightarrow$  maintain scenario  $\rightarrow$  maintain

$\rightarrow$  Economic recession  $\rightarrow$  struggling

$\rightarrow$  looking at variance  $\rightarrow$  net variance favorable  
 $\hookrightarrow$  Performance  $\rightarrow$  better/good

### Operational and planning

$\rightarrow$  as far as  $\rightarrow$  manage performance  $\rightarrow$  highlight manager  $\rightarrow$  planning variance  
 $\hookrightarrow$  strategic plan  $\rightarrow$  fault planning

### Manager $\rightarrow$ operational Variances

$\hookrightarrow$  favorable  $\rightarrow$  good ✓

Q Truffle Co  $\rightarrow$  H.W  $\rightarrow$  Q.SU Co  $\rightarrow$  M.I.J 17

Q BolleCo  $\checkmark \rightarrow$  204  $\rightarrow$  Q.Kappa  $\rightarrow$  S.I.D 18

Q Gore  $\checkmark \rightarrow$  218  $\rightarrow$  Q.Marsus  $\rightarrow$  M.I.J-19

Q Spice  $\checkmark \rightarrow$  302  $\rightarrow$  M.T.Q

Q SafeSoap  $\checkmark \rightarrow$  Dec 12

Q Organic bread  $\checkmark \rightarrow$  Dec 15

### Scarcie Net $\rightarrow$ Pg 300

$$q.b = \frac{0.035 \times 100000}{35000} = \frac{20.7}{}$$

Standard	Actual	Revised
Cost of plastic = 41kg	Cost = 5.25 / kg	Cost = 4 $\times$ 1.02 = 4.81/kg
each unit = 40g $\div$ 1000	wage = 85g $\div$ 1000 = 0.085kg	wage = 0.04 kg $\times$ 1.05 = 0.042 kg
Budgeted = 60000	Actual = 100,000	

$$\text{MPV} = \text{Actual mat Consumed} \times (\text{Actual price/unit} - \text{Std price/unit}) \\ = 3500 \times (5.25 - 4) = 4375 \text{ CAD}$$

$$\text{MOV} = \text{Std price/unit} \times (\text{Actual qty consumed} - \text{Std qty allowed}) \\ = 4 \times (28600 - 4000) = 2000 \text{ F}$$

$$\text{Planning Variance} \\ 0.04 \text{ kg} \times 100,000 \\ = 4000$$

$$\text{MPV} = \text{Rev std qty allowed} \times (\text{Rev std price/unit} - \text{std price/unit})$$

$$= 4200 \times (4.8 - 4) = 3360 \text{ A} \checkmark$$

$\hookrightarrow$  ~~Std qty per unit  $\times$  Actual units produced~~  
 $0.042 \times 100,000$   
 $= 4200 \text{ kg}$

$$\text{MOV} = \text{Std price/unit} \times (\text{Rev std qty allowed} - \text{std qty allowed}) \\ = 4 \times (4200 - 4000) = 800 \text{ A} \checkmark$$

### Operational

$$\text{MOV} = \text{Actual qty Consumed} \times (\text{Actual price/unit} - \text{Std price/unit}) \\ = 3500 \times (5.25 - 4) = 1575 \text{ A} \checkmark$$

$$\checkmark \text{MOV} = \text{Rev std price/unit} \times (\text{Actual Qty consumed} - \text{Rev std qty allowed}) \\ = 4.8 \times (3500 - 4200) = \underline{\underline{3360 \text{ F}}} \checkmark$$

### Production manager

$\rightarrow$  looking at basic variances  $\rightarrow$  adverse net  $\rightarrow$  performance  $\rightarrow$  not be suitable but when situation is analyzed  $\rightarrow$  situation

$\rightarrow$  planning Variance  $\rightarrow$  faulty planning  
 $\hookrightarrow$  planner  $\rightarrow$  manager x

$\rightarrow$  production manager  $\rightarrow$  operational Variance  
 $\hookrightarrow$  MOV  $\rightarrow$  production task  
 $\checkmark$  since MOV  $\rightarrow$  favorable  $\rightarrow$  production manager  $\downarrow$  good

## (Q) Clove Co

Std	Actual	Rev std
SP = 180		
lab cost = 42/unit	total lab Cost = 531980	lab time = $3 + 0.25$ $= 3.25/\text{unit}$
lab time = 3 hours	Actual hours = 37000	lab cost = $14 \times 1.02$ $= 14.28/\text{hr}$
budgeted prod = 12000	Actual prod = 12600	
lab cost = unit cost lab hours	Lab Cost - Cost hours	
$\frac{42}{3} = 14/\text{hr}$	$= \frac{531980}{37000}$	
	Lab Cost = 14.4 / hr	

LEV = 14800 F  $\rightarrow$  net variance  $\rightarrow$  adverse

Planning  $\leftarrow$  Operational

LEV = 11466 A

LEV = 44100 A

LEV = 44400 A  $\leftarrow$  FAV

LEV = 56406 FAV

(C)  $\rightarrow$  looking  $\rightarrow$  basic variances  $\rightarrow$  net adverse

$\hookrightarrow$  suitable x

$\rightarrow$  variances  $\rightarrow$  broken down  $\rightarrow$  operational  $\rightarrow$  planning analysis  $\rightarrow$  situation looks different

$\rightarrow$  planning  $\rightarrow$  arises due to faulty planning

$\hookrightarrow$  prime task of planning

$\rightarrow$  operational  $\rightarrow$  performance judge  $\rightarrow$  LEV

$\rightarrow$  pay  $\rightarrow$  good quality material  $\rightarrow$  bad service

$\checkmark$   $\rightarrow$  Employee motivation  $\rightarrow$  no idle time  $\rightarrow$  pay

LEV  $\rightarrow$  favorable -

$\rightarrow$  Since  $\rightarrow$  Net operational variance FAV  
 $\hookrightarrow$  good -

(Q) Backer  $\rightarrow$  Variance + learning?

Sol

$\rightarrow$  Small Co, workforce  $\rightarrow$  permanent

$\rightarrow$  Contractors

$\rightarrow$  low level inventory  $\rightarrow$  inventory holding

$\rightarrow$  price quarter review

$\rightarrow$  monthly bonus  $\rightarrow$  managers

84

12/hour

## (Q) LFV $\rightarrow$ operational & Planning

Standard	actual	Rev std
rate = 12/hrs	units = 460	lab hours = 2755
each = 7 hours	total hrs = 1860	lab cost = 12 hrs
	total cost = 26040	
	lab rate = 26040	
	1860	
	units = 14 hrs	

learning effect

$$\rightarrow y = ax^b$$

$y = \text{avg time per unit}$

$a = \text{time of first unit}$

$x = \text{no of units}$

$$b = \frac{\log L.R}{\log x} = -0.01520$$

$$y = ax^b$$

$$y = 7(460)^{-0.01520}$$

$$y = 2.7565/\text{unit} \rightarrow \text{avg time per unit}$$

$$\begin{aligned} &\hookrightarrow \text{std hour/unit} \times \text{actual units} \\ &= 2.7565 \times 460 \\ &= 1268 \text{ hours} \end{aligned}$$

LEV  $\rightarrow$  planning

$$\text{LEV} = \text{Std lab cost/hr} \times (\text{Rev std hours allowed} -$$

Std hours allowed)

$$= 12 \times (1268 - 3220)$$

$$= 2342 \text{ fav}$$

$$\begin{aligned} &\hookrightarrow \text{std hour/unit} \\ &+ \text{actual units} \\ &7 \times 460 \\ &= 3220 \end{aligned}$$

LEV  $\rightarrow$  operational

$$\text{LEV} = \text{Std lab cost} \times (\text{Actual hours worked} -$$

Std hours allowed)

$$= 12 \times (1860 - 1268)$$

$$= 7104 \text{ adv}$$

additional requirement

$\rightarrow$  actual units are 1860 units  $\rightarrow$  18600

given  $\rightarrow$  learning stop  $\rightarrow 1000^{\text{th}}$  unit

$$y = ax^b$$

$$y = 7 \times (1000)^{-0.01520}$$

$$y = 2.4496$$

$$\times 1000$$

$$\text{2449.6} \checkmark$$

$$y = 2449.6$$

$$y = \frac{2447.45}{2.1}$$

$$\begin{aligned} &\rightarrow 1800 \\ &1000 \rightarrow \frac{1800}{2.4496} \\ &\downarrow \\ &800 \rightarrow \frac{1800}{2.1} \rightarrow \text{learning stop} \end{aligned}$$

LEV  $\rightarrow$  planning

$$\text{LEV} = \text{Std lab cost/hr} \times (\text{Actual hours worked} - \text{Std hours allowed})$$

$$= 12 \times (1860 - 1260)$$

$$= 101680 \text{ fav}$$

$$\downarrow$$

$$(7 \times 1800) \\ 12600$$

LEV = operational

$$\text{LEV} = \text{Std lab cost/hr} \times (\text{Actual hours worked} - \text{Std hours allowed})$$

$$= 12 \times (1860 - 1130)$$

$$= 27240 \text{ fav}$$

(Q) Spike  $\rightarrow$  302

Std

Sales Volume = 160000

SP = 17/unit

Std cont = 7 per unit

Actual

Volume = 176000

Price = 16.40/unit

Std cont = 7 per unit

Rev std

Volume = 160000

Price = 17/unit

$$\text{SPV} = \text{Actual units sold} \times (\text{Std SP/unit} - \text{Actual SP/unit})$$

$$= 176000 \times (17 - 16.40) = 105600 \text{ FAV} \checkmark$$

$$\text{SPV} = \text{Std cont/unit} \times (\text{Std Sales units} - \text{actual Sales units})$$

$$= 7 \times (180000 - 176000) = 28000 \text{ A} \checkmark$$

market size = sales volume contribution planning variance

market share = sales volume contribution optional variance

Planning Variance

$$\text{SPV} = \text{Std cont/unit} \times (\text{Std SP/unit} - \text{Actual SP/unit})$$

