11

Strategic Performance Measurement
11.1 Control theory

Feedback control ‘appraisal’

Feedback is any process where part of the output of a system is measured and returned as input to regulate the systems further output. Feedback normally involves gathering information on past performance from the output of a system, comparing it to a predetermined standard or plan and using any material deviations, as a basis of improving future performance.

- Feedback can be negative (adverse) or positive (favourable)
- Feedback is based on comparing actual to a standard of performance
- Control action would be ‘closing the stable door after the horse has bolted’

Feed-forward control ‘prevention rather than cure’

Feed-forward control would be a system that in a pre-emptive way, reacts to changes in its environment, normally to maintain some kind of desired state. Feed-forward control systems react to future performance expected e.g. make control adjustments, before adverse conditions expected do occur.

- Forecasting ahead and doing something now before the event occurs
- Examples include cash budgeting or strategic planning
- Control action would be ‘closing the stable door before the horse bolts’

Examples of staff control in the workplace

Employee behavioural controls

- Influencing the process of how staff work and behave
  - Reward e.g. based on attitude or behaviour
  - Dress code e.g. to ensure staff uniformed or presentable
  - Handbook e.g. hours of work, dress code, notice period etc
  - Induction e.g. to develop and modify the right behaviour
  - Training and development e.g. to improve behaviour
  - Recruitment and selection e.g. personalities that fit the corporate culture
  - Standardisation of work procedures e.g. to give routine behaviour

Employee output controls

- Control over results (or output) achieved rather than the way it is achieved
  - Contracts e.g. terms and conditions about hours of work, absenteeism, notice period and targets that must be achieved
  - Sales results e.g. quota or value of sales achieved from appointments
  - Time/efficiency e.g. hours of work and results achieved
  - Production e.g. minimum quota and piecework reward schemes
  - Appraisals e.g. efficiency and effectiveness of performance
  - Customer feedback e.g. satisfaction surveys to monitor staff
Hopwood’s three forms of control

1. Social controls
2. Administration control
3. Self control

Social controls

Group norms, staff culture and social interaction can control what is acceptable and unacceptable behaviour, it also can determine acceptable customs, jargon, dress code, work ethic, and toleration to absenteeism or poor performance from other staff. Quality circles, corporate or team events can all help create better conditions for social interaction. A strong or concentrated organisational culture can be far more effective when attempting to improve performance and direction, rather than perhaps a bureaucracy of rules and procedures. Strong beliefs and values can help build effective brand reputation and core competences for an organisation. The limitations of creating a strong corporate culture is that it could like bureaucracy, standardise values and beliefs too much e.g. through constant recruitment of alike minded individuals.

Culture is about the shared values of an organisation, the beliefs and norms that affect every aspect of the organisation, e.g. work rituals, leadership style and learned ways that govern and shape the organisation. Social control can help bind and unify members together, better solidarity can improve performance and motivation. Group members often discipline individuals who underachieve e.g. social discipline such as ostracising members who underperform or let the team down. Fear of letting your team members down can be a powerful motivating force for effective team performance.

Tools to influence social control

- Mission statements e.g. purpose and goals promoted.
- Reward e.g. linking remuneration with performance.
- Punishment e.g. discipline of non conformists
- Recruitment of conformists e.g. those sympathetic or similar to the organisation’s culture
- Inductions and staff handbooks e.g. to customise new employees to the values of the organisation
- Training and development e.g. influence values and beliefs through education
- Socialisation devices e.g. team building and events to reinforce a strong corporate culture
- Rituals, symbols or slogans e.g. to integrate and guide beliefs and values
Administration controls

These are performance measurement systems e.g. management accounting exception reporting systems which compare actual performance to a predetermined target, goal, standard etc. Examples include strategic control tools like gap analysis, budgetary control systems e.g. variance analysis, or staff appraisal systems to monitor the performance of staff. Every organisation needs a plan and with measurable objectives to achieve it. Control is needed to ensure what is intended actually comes to be. The aim of a good control system is to ensure that the right things get done, so there has to be some kind of plan, standard, budget, rule book or any other target to adhere to. Control is dependent on the receipt and processing of information in the first place to determine what measures are needed, then further information (or feedback) about actual performance to ensure targets or deliverables are met.

Self control

Self-regulation e.g. members of staff or managers exerting self-control by the modification of their own behavior. This is essence depends on the ability, knowledge and skills to of the individual to recognize and modify behavior. Such self control can be promoted often through cultural development tools e.g. mission statements, appraisal, reward, recruitment and self awareness training.

Reward

Monetary reward is an example of extrinsic reward and considered as the most important of all hygiene factors according to Frederick Hertzberg. Payments and benefits in kind (perks) provided can motivate staff, financial incentive schemes linked directly to performance can enforce greater goal congruence to achieve corporate aims and objectives e.g. better quality, lower cost, or higher productivity and efficiency.

Advantages of reward systems

✓ Motivation can be enhanced e.g. performance improved if paid by results.
✓ Can encourage creativity e.g. bonuses paid for staff suggestions schemes.
✓ Often a clear measurability for staff productivity, efficiency or targets.
✓ Can achieve greater financial flexibility for the organisation by changing the composite of staff fixed and variable cost e.g. if production staff are paid per unit of product, this will help achieve better cash-flow for the organisation during off peak periods. A higher composite of staff variable cost can be achieved by sales commission and production piecework schemes.
✓ Can help cut down on absenteeism e.g. minimum legal payment for sickness, absenteeism or punctuality linked bonuses.
✓ Can help cut down on labour turnover e.g. payment of accountancy fees reimbursed to employer if members of staff leave within a certain contractual period.

Types of financial incentive schemes

• **Performance related pay (PRP) systems** e.g. piecework or sales commission
• **Bonuses** e.g. supplementary payments for targets or aims achieved
• **Profit sharing schemes** e.g. company profit pools and employee share ownership plans (ESOPs).
Burns and Stalker

Burns and Stalker in their 1961 book, "The Management of Innovation" described two organisational types representing a spectrum that organisations could be placed.

According to Burns and Stalker, "organic forms are more suited for unstable, turbulent and changing conditions. Unlike the rigid "mechanistic form which is rigid and highly specialised e.g. like Harrison’s "role culture. An organic firm tries to re-shape itself to address new problems and tackle unforeseen environmental change.

Characteristics of ‘organic’ verses ‘mechanistic’ organisations

<table>
<thead>
<tr>
<th></th>
<th>Organic</th>
<th>Mechanistic</th>
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<tbody>
<tr>
<td>Management Style</td>
<td>Participative and democratic</td>
<td>Autocratic and lack of consultation</td>
</tr>
<tr>
<td>Control</td>
<td>Informal and decentralised</td>
<td>Formal and centralised</td>
</tr>
<tr>
<td>Communication</td>
<td>Lateral (all direction)</td>
<td>Vertical (up and down)</td>
</tr>
<tr>
<td>Change</td>
<td>Flexible and adaptive</td>
<td>Inflexible and slow to change</td>
</tr>
<tr>
<td>Structure</td>
<td>Flat chain of command e.g. Matrix/Team/entrepreneurial</td>
<td>Tall chain of command and clearly defined roles</td>
</tr>
<tr>
<td>Environment</td>
<td>Dynamic/Uncertain</td>
<td>Stable/Certain</td>
</tr>
<tr>
<td>Outcome</td>
<td>Creative</td>
<td>Efficient</td>
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</tbody>
</table>
The concept of clan/cultural control

Clan control requires a common understanding of norms and standards amongst an organisations diverse membership e.g. staff and team members, the limitation is achieving a uniform understanding of norms and rules can be very demanding. Cultural practices can vary enormously between different countries and this will impact on the organisation and how it operates. Geert Hofstede's research gave insight into other national cultures, so that we can be more effective when interacting with people in other countries. Cultural practices vary between countries and impact upon how organisations operate. Managers can therefore use such dimensions to improve performance of staff by customising their management practices to accommodate the expectations of that society e.g. cultural clan control.

Hofstede’s dimensions of common national cultures

- **Power distance.** Extent to which people accept inequality of power.
- **Uncertainty avoidance.** Tolerance towards uncertainty or ambiguity.
- **Individualism /collectivism.** Collectivism strong affiliation towards one another e.g. strong and cohesive groups. Individualism individuals are expected to take care of themselves e.g. a strong need for individual success.
- **Masculinity/femininity.** Men's masculine values e.g. very assertive and competitive, are relatively different from women's feminine values e.g. modest and caring. Masculinity is a culture with a strong need for achievement, assertiveness and materiality. Femininity is a culture where relationships, modesty and quality of life are considered more important.
- **Long-Term Orientation.** Long Term Orientation e.g. perseverance, verses Short Term Orientation e.g. protection of reputation and traditions.

The 5 dimensions of culture can help management determine

- Leadership style e.g. if high power distance then autocratic management expected.
- Motivation incentives e.g. if masculine then material reward expected.
- Organisational structure e.g. if individualism then specialisation, if collectivism then cohesive team working.
- The degree of rules and procedures e.g. if high uncertainty avoidance then preserve stability and the status quo using bureaucracy.
11.2 Divisional structures – product organisation

The functional structure is normally adopted by an entrepreneurial structure e.g. small business, because the organisation grows and requires more specialisation and control. Overtime as the organisation becomes more larger, more complex and more diversified in terms of its products and markets, the next step is often to adopt a divisional structure. When companies become really large and diverse, they are often composed of a number of independent subsidiaries or divisions, these often established as separate legal entities within a group.

A division is a distinct business set up within a larger company to ensure a certain product or market is handled and promoted as though it were a separate business. A divisional structure requires strategic business units (SBUs) or divisions to manage an organisation’s diverse products, brands or markets. This leads to the creation of separate business units to address each market in which the company is operating. The phrase "Strategic Business Unit" came into use in the 1960s.

Each division or SBU of a group will normally have their own autonomous and separate functions e.g. marketing, sales and production departments. A group holding company or head office may retain some functions (or departments) centrally often at e.g. IT, legal, finance and human resource (HR) functions, to assist centrally and support the different divisions. This enables a group to standardise processes and lower overhead within the group by avoiding the duplication of functions within divisions.

Shared service centres

Shared service centres ‘consolidate’ one or more back-office operations for multiple divisions of the same group to use e.g. head office maintains centrally the processes of finance, information technology, customer service and human resources.

Benefits of shared service centres

- Economies of scale e.g. sharing overhead of a centralised function or process across divisions in the same group, it avoids divisions duplicating functions.
- Divisional managers can retain entrepreneurial speed and agility, avoiding complex or non-core activities and concentrate on competing more effectively.
- Reduction in cost through shared operations.
- Financial savings from standardising technology and processes within a group.
- Centralised and consolidated processes make it easier to provide support to multiple business units. This gives flexibility to quickly add new business units e.g. rapid integration of new acquisitions.
- Could deliver higher quality service and improved customer satisfaction e.g. the concentration of expertise, knowledge and skills.
Illustration of a product or brand orientated divisional structure

The Whitbread Group Plc, have several independent divisions or SBUs managing its popular brands of hotels, restaurants and coffee houses e.g. Premier Inn, Table Table, Brewers Fayre, Beefeater and Costa Coffee.

Illustration of a market orientated divisional structure

e.g. Nike, Coca Cola, Mc Donald’s or Vodafone
Advantages of divisional structures

- Quicker decision making e.g. autonomous divisions do not have the long-winded process of a long chain of command when making competitive decisions. They can respond quicker and more flexibly to changes within the business environment without consulting a centralised Board.
- Greater focus and specialisation of activities and resources towards product and market performance. This enables better customer focus e.g. closer to the local culture of different countries or customer groups, or more effective core competences developed.
- Independent divisions enable more isolation of a company's revenues and costs, therefore better 'ring fencing' of financial results to evaluate performance by a holding company or group.
- More empowerment to tactical and operational level e.g. greater motivation to divisional managers.
- Good training ground for 'grooming' future strategic managers.
- Frees up senior management time (the 'strategic level'). Head office or the holding company has more time for strategic planning rather than day-to-day tactical and operational involvement in business matters.

Disadvantages of divisional structures

- As the complexity and diversity of products and markets within the group increase, central coordination by a head office or holding company becomes more difficult. This requires more resources and cost e.g. head office buildings, administration staff and information systems in order to control the increasing complexity of activities.
- Duplication of functions (or departments) within each division e.g. each division having an IT or finance department, could lose the benefits economies of scale, therefore increasing group overhead.
- Reluctance by senior management at head office to give more delegated or decentralised control therefore reducing effectiveness of the divisions management e.g. slowing down decision making and flexibility.
- Lack of goal congruence or possible 'sub-optimal' decisions made by divisional managers at tactical level e.g. following personal as opposed to the corporate aims and objectives.
- Other added complications to deal with such as transfer pricing issues or inter-divisional rivalry harming group performance.
11.3 The functions of a performance measurement system

- Publicise direction for everyone to follow e.g. partners, managers, directors, team members and other stakeholders.
- Control the organisation e.g. establishment of targets, reporting lines and accountability in order to measure performance over time. Assessing performance regularly by comparing actual results to targets set; will help achieve greater control over the organisation’s direction. An effective process can avoid short-term behaviour and improve long-term direction and corporate goal congruence.
- Helps organise the business processes, activities and resources to help achieve performance measures e.g. to help plan and allocate resources such as time, money and equipment. An effective process helps develop greater integration and better coordination over the organisation’s activities when formalised.
- It will help communicate performance within and outside the organisation e.g. communicate plans, goals and objectives down the formal chain of command with feedback communicated through the establishment of reporting lines and systems. It will also improve stakeholder perceptions of the business e.g. customers and investors.
- Evidence indicates performance of organisations can be improved when using an effective system of performance measurement.

Neely’s 4Cs in performance measurement (1998)

1. **Check position** e.g. where are we now?
2. **Communicate position** e.g. to internal and external stakeholders.
3. **Confirm priorities** e.g. focus on goals that are viewed as more important.
4. **Compel progress** e.g. enhance performance through motivation and reward.
Recommended process to develop a performance measurement system

1. Senior management need to determine a clear vision of the change that will be required and demonstrate commitment to such changes. Senior management can demonstrate support by setting objectives and timescale for the development of a new performance measurement system, they can also help educate and create dissatisfaction with the current situation.

2. Benchmark the existing performance measurement system with other organisations within the same or another industry. Consult with external stakeholders e.g. customers or investors, to understand any valuable critical success factors. Consult with staff for their ideas and opinions as to what would be effective appraisal criteria to meet any new proposed measures introduced.

3. Participation by staff throughout the process is required to aid change. It will help establish fair and objective criteria for the elements of competence (standards) in order for staff to be assessed e.g. new business, innovation, customer satisfaction.

4. Targets/criteria should be set after consultation and measurably linked to the corporate goals and objectives of the organisation.

5. Reward systems should be modified to correlate bonus or career advancement with targets achieved e.g. new performance related reward systems introduced. The new bonus system to meet targets should be viewed by staff as financially material enough to be viewed as worth pursuing by staff to achieve better goal congruence.

6. Introduction of new appraisal procedures e.g. prepare report formats, appraisal forms, communicate to all employees the process to be undertaken when measuring performance.

7. Training for managers and staff to ensure an effective appraisal process e.g. improve understanding of criteria, assessment and interviewing techniques that will be used.

8. Review and monitor the new system regularly to ensure a positive commitment from management and staff. It is important to ensure the new performance measurement system is not just seen as a cynical and bureaucratic form filling exercise, but something that is essential and worthwhile to improve performance and fairly reward individuals or teams for the effort they make to achieve new targets.

Goold and Campbell

Goold and Campbell identified three styles of strategic management looking at ways in which control can be divided between senior management and individual business units.

- **Strategic planning**  Senior management work closely with individual business unit managers to develop strategies for their business units. Guided by corporate strategy, individual business units then set objectives and plan implementation. The aim of this approach is to achieve maximum competitive advantage within each business unit. The danger of this approach is that if the holding company is the master planner it takes away much of the strategic decision making of divisional managers who may know the market and challenges better.

- **Strategic control**  Senior management decentralise the development of strategic plans to business unit managers. Senior management set group financial and strategic objectives but let the business units set plans and senior management review them for acceptability. The danger of bottom up approaches to strategic planning include the lengthy consultation and negotiation to implement plans. The bureaucracy of reviewing and controlling plans often slows down decision making.
Financial control  Control of strategy through a budget (financial) process e.g. financial controls and profit targets which business units are required to adhere to. Senior management provide little direction and rarely review strategic plans of business units. Senior management therefore a similar role to a bank or other lending institution.

Contrasting strategic planning to strategic control

Strategic planning is a more centralised planning approach, senior management tend to focus less on implementing specific control mechanisms and more on broader performance targets. These tend to be strategic more than financial e.g. increase market share. With strategic control senior management decentralise planning, but focus more on controlling and auditing the individual business units.

Controlling subsidiaries

- Mission statement, goals and objectives.
- Performance measurement systems e.g. multidimensional frameworks and financial ratios.
- Systems for strategic planning and control e.g. reporting lines, internal audit, exception reporting systems.
- Management appraisal process.
- Reward e.g. bonuses tied to achieving objectives.
- Culture e.g. recruitment, training and development of strong corporate culture.
11.4 Evaluating the performance of divisions

The controllability principle

The controllability principle is concerned with assessing performance based upon measures that can be controlled only by a manager and omitting any items which are uncontrollable. As an example the head office or holding company could ensure it does not include and therefore evaluate a manager on the head office overhead they apportion or interest charges they apply centrally.

Arguments for the controllability principle

✓ It would be considered fairer by a manager if they were not assessed on costs which are not within their own control. This is likely to improve motivation and morale.
✓ If a manager was assessed on costs which were not within their control, it could be argued there would be little they could do about these costs any way, even if exceptions were reported.

Arguments against the controllability principle

✗ Political arguments may occur over such costs which are more subjective than objective when determining controllability. It is not always black and white when determining controllability from uncontrollability.
✗ Just because a cost is uncontrollable does not mean a manager being assessed should ignore it altogether. As an example if managers recognise there is an interest charge by head office based upon the capital employed used within a division, then to hold them more accountable could help improve efficiency by the minimisation of capital employed. In the case of head office charges, lack of accountability could encourage over consumption of these resources provided centrally.

Profit based methods for evaluating the performance of divisions

Operating profit (net profit) margin

\[
\text{Operating profit margin} = \frac{\text{Profit before interest and tax (PBIT)}}{\text{Turnover}} \times 100\%
\]

Gross profit (sales) margin

\[
\text{Gross profit margin} = \frac{\text{Turnover less cost of sales (gross profit)}}{\text{Turnover}} \times 100\%
\]

Generally the gross profit or sales margin can also be referred to as the contribution to sales (C/S) ratio e.g. gross profit (sales less variable cost) ÷ sales.

Mark up

\[
\text{Mark up} = \frac{\text{Turnover less cost of sales (gross profit)}}{\text{Cost of sales}} \times 100\%
\]
Controllable profit

The controllability principle indicated that a manager should not be assessed on costs which are not within their own control.

Controllable costs

- Divisional variable (marginal) cost.
- Divisional ‘specific’ fixed cost e.g. specifically incurred by the division and avoidable if a shut down decision was made.

Uncontrollable costs

- General apportioned fixed overhead e.g. group overhead allocated or apportioned to divisions, which would not be avoidable if the division was shut down.

Problems of profit based measures

- Absolute profit measures ignore the amount of investment in the division e.g. does not look at profit relative to capital employed.
- So many different measures of profitability and profit terminology.
- Practical and political problems when addressing ‘uncontrollable’ expenditure.

Return on capital employed (ROCE)

\[
\text{ROCE} = \frac{\text{Profit before interest and tax (PBIT)}}{\text{Capital employed}} \times 100\%
\]

ROCE is also referred to as return on investment (ROI) and return on net assets (RONA). ROCE measures profitability and shows how well the business is utilising its capital to generate profits. Capital employed is debt and equity. Equity means shareholders funds (shareholders' funds) and debt means non current liabilities. Capital employed can be found from the statement of financial position by taking the shareholders funds (share capital and reserves) and long term debt. A low ROCE is either caused by a low profit margin or high capital employed. A high ROCE is either caused by high profit margin or low capital employed. It is therefore important to look at the profitability, assets, liabilities and share capital when trying to give reasons for the change in ROCE.

Merits of using return on investment (ROI)

- Relative (percentage) measure so performance can be compared ‘relatively’ for divisions or business units which are different sizes.
- ROCE is a well understood measure for ‘users’ of financial accounting.
- Forces a manager to be efficient and effective with resources e.g. money or capital employed to buy assets, when attempting to improve profitability.
Despite these merits the following disadvantages maybe experienced when choosing to use ROI as a primary performance measure.

- An accounting not cash-based measure. A company with old non current assets that are almost completely depreciated will show a high ROI/ROCE, whereas a company with recently acquired non current assets will show a low ROI/ROCE. Different accounting policies will also give different ratios, for example using the historical cost model or re-valuation model to measure capital employed, also different stock valuation or depreciation policies can materially affect the size of capital employed.

- The age of (or investment cycle) of non current assets is important in understanding the ROCE/ROI ratio. Recently acquired non current assets will not be generating revenues to their full extent. ROCE/ROI can act as a disincentive to invest by a manager, because new investment often delivers low profitability and high accounting book value, in the early years of investment. This can discourage managers in the short-term from undertaking investment because a low ROCE/ROI will be harmful to their performance measurement. The long-term effect is goal incongruent decisions being made e.g. investment which is essential maybe delayed, the long-term consequences inefficiency and higher cost in future.

- Such methods can create short-term behaviour by divisional managers. Under investment in non-current assets causes the accounting net book value to decrease over time. If profits remain fairly static in the short-term, ROCE/ROI will improve, yet the manager has done very little in terms of improving performance. ROCE/ROI improves over the life of an asset where little or no reinvestment has taken place. Managers may also be over zealous when cutting back expenditure in order to improve profit e.g. cutting back on advertising, staff training etc, such rationalisation programmes can jeopardise the long-term profit of the business.

- ROI may create political arguments over such costs as head office apportioned overhead or interest charges by head office, which have negative impact on ROCE/ROI. The ‘controllability principle’ is concerned with assessing performance based upon measures that can be controlled only by a manager and omitting any items which are uncontrollable.

Example 11.1

Division X has a target return on investment (ROI) of 12%. It has fixed costs of £400,000 and a variable cost per unit of £5. The net assets of the division forecast for the next period will be £1.5m and the number of units forecast to be sold will be 30000 units.

What is the average contribution and selling price per unit to achieve the divisions ROI target?
Residual income (RI)

Residual income is the profit earned by a division less a ‘notional interest charge’ for the investment of finance within it.

Residual income uses the same profit before interest and tax and capital employed value as the ROCE measure. Residual income is an absolute measure that deducts from profit before interest and tax, an imputed ‘notional’ interest charge using a cost of capital or return required. The more capital employed the division consumes then the lower the residual income due to a higher absolute interest charge. In effect residual income forces managers to understand the cost of finance when undertaking investment decisions.

Merits of residual income (RI)

✓ Consistent or goal congruence with profit maximisation e.g. an enforced measure of profitability.
✓ Different interest charges (cost of capital) can be applied to divisions e.g. high inherent risk within different industries can have higher cost of Capitals applied.
✓ Forces managers to consider the cost of financing new investment and to be efficient when managing working capital e.g. minimisation of inventory and excessive cash balances.

Limitations of residual income (RI)

✗ Not well understood by users of accounts.
✗ Divisions of different sizes cannot be relatively compared.

Example 11.2

Division A makes and sells a single product and is assessed by the residual income it earns, the head office of the group uses a 10% cost of capital.

Forecast information:

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<table>
<thead>
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<tbody>
<tr>
<td>Sales</td>
<td>50000 units</td>
</tr>
<tr>
<td>Variable cost per unit</td>
<td>£5</td>
</tr>
<tr>
<td>Fixed cost</td>
<td>£45,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>£23,500</td>
</tr>
<tr>
<td>Net assets</td>
<td>£360,000</td>
</tr>
</tbody>
</table>

What price must division A charge to earn a residual income of £64,700?
Both ROCE and RI are good measures to use when assessing financial performance, since both consider the capital invested, as well as the profitability of each division. Some difficulties experienced if considering an approach of performance measurement based on either ROI or RI could be as follows.

- Divisions within a group may use different currencies and these can fluctuate from one day to another. The difficulty in these circumstances is that different accounting conventions cause differences in profit and capital employed when trying to compare different divisions. Both ROI and RI concentrate on the maximisation of profit not cash. Profit can be manipulated by a manager’s choice over accounting policies they use.

- The controllability principle is concerned with assessing performance based upon measures that can be controlled only by a manager and omitting any items which are uncontrollable. Political arguments may occur over such costs which are more subjective than objective when determining controllability.

- The period of investment cycle for each division can distort performance comparisons e.g. divisions almost near to replacing worn out plant and equipment, may have low capital employed and therefore a high ROI relative to other divisions, but earning only modest profit.

**Problems of pursuing only profit objectives**

- Conflict with other stakeholder goals for example customers will want a better service and not want to pay anymore, a better service may involve training costs for staff which would have to be paid for out of profits.

- Encourages short-term thinking by managers as they are only interested in increasing short term profits at the detriment of long term profitability and survival.

- Other non-financial measures are ignored which would give a better rounded assessment of an organisation. Examples would be customer feedback, customer complaints, employee turnover, market growth, reasons for faulty items.

- Not relevant to non-profit making organisations as their main aims are other things such as maximising profitability.

- There is a huge temptation to massage the figures if the only measurement used to reward managers is on the basis of profit generation.
11.5 Creating shareholder value

**Dividend yield**

\[
\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market share price}} \times 100\%
\]

The dividend yield is the cash return on the share (not the whole return which is cash dividend and capital or share price growth). The dividend yield can only be calculated for listed companies as the share price is required. The higher the share price, the lower the dividend yield.

**Total shareholder return (TSR)**

\[
\text{TSR} = \frac{\text{Dividend per share} + \text{Growth in share price}}{\text{Market share price at the start of the period}} \times 100\%
\]

The increase in the share price plus the value of any dividends paid or proposed during a period of time.

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**Example 11.3**

The following details are available for company Z

- Share price at the beginning of the year £3.87
- Share price at the end of the year £4.23
- Dividend proposed and paid during the year £0.90

Calculate the dividend yield and total shareholder return (TSR)?
Alfred Rappaport’s definition of shareholder wealth (value)

Shareholder value = corporate (business) value – Debt

The corporate value represents the perpetuity of cash flows forecast to be generated by the organisation from all of its projects, discounted to present value; this would include the residual value of any assets at the end of the forecast period, also the value of any marketable securities (investments) the company owns. In effect the value of a company and therefore shareholder wealth would be the net present value (NPV) of all of the companies projects considered over a period of time, less the payment of any obligations e.g. debt. NPV indicates that the present value of cash-flows from a project should exceed the opportunity cost of investment e.g. the cost of capital. The main problems of this approach is deciding what discount rate to use, over what period of time to discount and forecasting cash-flows can be very uncertain.

One way to ensure greater control over investment decisions is to use economic measures such as residual income (RI) and economic value added (EVA). Both of these measures include a finance charge deducted to represent the opportunity cost of tying money up within a division. When considering RI or EVA as a measure for investment appraisal, the operating cash-flow generated when considering new investment, must exceed the hurdle cost of capital applied to the investment outlay.

Free cash-flow valuations

Earnings create dividends for shareholders. In theory the value of a company is the value of the companies future earnings, discounted at a rate, which reflects the risk of these earnings. A cost of capital is a minimum rate of return that a company must earn in order to satisfy investors for their capital invested. The cost of equity and debt would be considered when working out a cost of capital. A discount rate using the companies cost of capital can be use to derive a value (the present value) of a companies future cash flows and therefore value the company.

Free cash flows

Free cash flows can be arrived at by using the following calculation

\[ \text{Operating profit before interest and tax (PBIT)} + \text{Depreciation (if included in operating costs)} - \text{Capital expenditure (investment) on non-current assets} - \text{Taxation} = \text{Operating free cash flow} \]

Free cash flow represents the cash flow which is available to be distributed to holders of both equity and debt. Dividends and interest payments would be ignored when calculating free cash-flow. To establish a value for a company, free cash flow must be discounted using a cost of capital.
The value of a company or its shares will increase if

- Free cash flows or dividends paid to shareholders increase
- The cost of capital or cost of equity falls

The value of a company or its shares will decrease if

- Free cash flows or dividends paid to shareholders decrease
- The cost of capital or cost of equity rises

Market value added (MVA)

MVA is an external measure of shareholder wealth, the market value added from one period to another. It is measured by the taking the rise in the market capitalisation during a period less the increase in capital invested during a period e.g. capital contributed by investors. If MVA is positive, then the firm has added shareholder value. The MVA would be the present value of a series of internal EVA values.

Economic value added (EVA)

Economic value added was developed by Stern Stewart & Co and is a registered trademark. EVA is an estimate of economic profit, measured as Net Operating Profit after Taxes (or NOPAT) less the money cost of capital. MVA and EVA are strongly correlated; EVA is an internal management measure of performance that ultimately leads to satisfying MVA, an external measure used by shareholders or other investors.

The economic value created by a division in a given period of time

\[
EVA = \left( \frac{\text{Net cash operating profit after tax}}{\text{adjusted for accounting distortions e.g. add back depreciation}} \right) \text{ less } \left( \frac{\text{Economic depreciation (based on market value or replacement cost of assets)}}{\text{Amortised R&D, advertising, marketing, goodwill, brand or new product development cost}} \right) \text{ less } \left( '\text{adjusted' capital employed x cost of capital} \right)
\]

EVA is a similar measure to residual income but uses cash based, economic or relevant costing methods, it is not based on accounting convention like residual income. EVA uses the economic replacement cost of non current assets and working capital when applying a cost of capital for the calculation of "financing" to be recognised, the net assets of the division adjusted from historical accounting terms to current or "replacement" cost when doing so. Depreciation in EVA terms would be calculated using the replacement cost of non-current assets, accounting depreciation being added back and economic depreciation being deducted instead.

EVA principles recognise also that long-term expenditure which adds and builds value for the future should be capitalised with the replacement cost of other non-current assets and the expenditure amortised over its useful economic life. For expenditure on R&D, marketing, new product development etc, accounting convention would normally write off such expenditure in the financial period when it is incurred, EVA would capitalise it and amortise it, the amortisation each year deducted as an expense when arriving at EVA.
Merits of economic value added (EVA)

✓ Cash not accounting based measure therefore less distorted for performance measurement.
✓ Consistent or goal congruence with profit maximisation e.g. an enforced measure of profitability.
✓ Different interest charges (cost of capital) can be applied to divisions e.g. high inherent risk within different industries can have higher cost of capitals applied.
✓ Forces managers to consider the cost of financing new investment and to be efficient when managing working capital e.g. minimisation of inventory and excessive cash balances.

Limitations of economic value added (EVA)

✖ Not well understood by users of accounts.
✖ Divisions of different sizes cannot be relatively compared.

Similarities of EVA and RI

- Both are absolute rather than relative measures.
- Both deduct a finance charge for the cost of capital used for a division.
- Both exclude interest payments in arriving at profit due to using a notional interest charge instead e.g. the cost of capital.

Differences of EVA and RI

- EVA uses the replacement not historical accounting cost of assets.
- Profit calculated under both methods are different e.g. with EVA the replacement cost of assets would used to calculate a depreciation charge.
- EVA capitalises and amortises long-term expenditure that adds value for the future.

Example 11.4

Division Y has annual operating profit of £40 million after charging £6 million for the development cost of a new product which has been launched and is expected to last this year and for another two further years. The balance sheet shows non-current assets of £140 million, management estimate that the replacement cost of these non current assets would be £170 million, the division also has working capital of £16 million. The divisions depreciation policy is that it applies 20% on a reducing balance basis. The group head office uses an 11% cost of capital.

What is the EVA for this division?
EVA may affect the behaviour of divisional senior executives in the following ways.

1. They would concentrate their investment decisions on maximising shareholder value or financial wealth of their shareholders.
2. They would concentrate on the maximisation of cash or contribution which is more likely to maximise shareholder value e.g. EVA can not be manipulated by a manager’s choice over the accounting policies they might use.
3. They would concentrate on long-term decisions as opposed to short-term decisions e.g. with relative measures like return on investment (ROI) often new investments deliver low profit and have high accounting book values in the early years. This often discourages managers in the short-term from undertaking investment due to a low ROI.
4. Because a finance charge is applied against the replacement cost of assets, it forces managers to use and invest in assets more efficiently.
5. EVA will not discourage expenditure on long-term assets building for the future such as marketing or research and development. This is because these items will not be deducted entirely when arriving at economic profit, instead amortised over the period of the expenditures useful economic life. This would lead to perhaps greater EVA when compared to the measure of accounting profit. With accounting profit it is more likely the entire cost would be deducted and therefore could deter a manager if assessed on accounting measures such as residual income or return on investment.

Value based management

Value based management (VBM) is an approach which focuses on strategies and actions to create more value for shareholders. Value being measured by share price (market capitalisation), dividends and other principles such as RI or EVA. Value based management may often be referred to as shareholder value analysis (SVA).

A value driver is any variable that significantly affects the value of an organisation. Alfred Rappaport developed seven ‘value drivers’ that can be used to improve shareholder value.

1. Sales growth e.g. growth in sales from one period to the next.
2. Operating profit margin e.g. PBIT ÷ Capital Employed.
3. Cash income tax rate e.g. minimising tax improves profitability.
4. Incremental fixed capital investment rate e.g. investment in non-current assets to finance projects will deplete cash-flows and therefore shareholder value.
5. Investment in working capital rate e.g. investment in current assets such as inventory and trade receivables, will deplete cash-flows and therefore shareholder value.
6. Planning period e.g. the further into the future the organisation can predict the cash-flow, then the greater the net present value and therefore shareholder value that would be created.
7. Cost of capital e.g. the lower the cost of capital the greater the net present value and therefore shareholder value that would be created.
Managing VBM

- Strategic selection of projects which create high shareholder wealth.
- Resource allocation and funding should have a recognised opportunity cost.
- Performance targets clearly communicated.
- Reward linked and correlated to performance targets.
- Change management to facilitate implementation.
- Review of VBM system for continuous improvement.

Activity based management (ABM)

Activity based management (ABM) is about satisfying customers whilst making fewer demands on internal resources. The aim is that once cost drivers are created, organisations can aim to reduce cost, by creating models for more effective planning and control. ABM can lead towards the elimination or reduction of non-value added activities e.g. customer returns, complaints and obsolesce of stock. By eliminating activities that do not add value to customers, an organisation can still satisfy customers and at the same time make fewer demands on the organisations resources.
11.6 Multidimensional performance measurement

Multidimensional performance indicators recognise that the constant drive to increase profitability can ultimately be self-defeating and that it is imperative that organisations do not put the needs of shareholders above all else. The primary goal of most profit seeking enterprises is to increase shareholder value through increasing profit; however multidimensional approaches recognise that equally important would be the level of customer satisfaction, innovation, quality and morale of the work force, all of these ultimately drive profitability and therefore shareholder value. The benefits in the long-term of using multidimensional frameworks will be improvements to profitability when other performance measures, financial or non-financial, are monitored and used for control purposes.

Example 11.5

Identify suitable performance measures for an insurance company to detect false claims and measure the speed of how they are processing claims?

Example 11.6

Identify suitable non-financial performance measures for a bus company?
Kaplan and Norton’s Balanced scorecard

A new approach to strategic management was developed in the early 1990's by Drs. Robert Kaplan (Harvard Business School) and David Norton. Kaplan and Norton describe the innovation of the balanced scorecard as follows:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

The balanced scorecard suggests that we view the organisation from four perspectives and develop key metrics, collect data and analyse it to measure, monitor and control performance.

The four perspectives of the balanced scorecard

- **Customer perspective** e.g. what must we do right for our customers and what do they value?
- **Internal perspective** e.g. what must we excel at or improve internally to satisfy shareholders and customers?
- **Innovation and learning perspective** e.g. how can we innovate and improve value?
- **Financial perspective** e.g. how do we satisfy shareholders and create value for them?

**Example 11.7**

Identify suitable performance measures for an insurance company using the balanced scorecard approach?
Benefits of using balanced scorecard (BSC)

- BSC encourages a long-term view of improving performance through time.
- BSC considers both non-financial as well as financial measures to give a better overall picture and holistic view of performance.
- BSC performance measures can be tailor made e.g. bespoke performance measurement that can be more specific to an industry.
- BSC can monitor and control operations e.g. spot problems like product returns, complaints, warranty claims, failure to innovate or satisfy customers.
- BSC can communicate and publicise goals and objectives to all stakeholders.
- BSC perspectives can be linked to the remuneration of management and staff to improve overall performance.

Limitations of using balanced scorecard (BSC)

- Historical performance analysis is no guide to the future.
- Manipulation or 'massaging' of performance measures by management, in particular when measures are tied to bonuses.
- BSC measures may need to evolve and change quickly to reflect changes in the environment, there could be a delay in implementing changes quickly enough and the trend analysis may become distorted when new measures are introduced.
- Costly 'bespoke' information systems to collect, gather, summarise and present multiple performance measures. The management time, expense and opportunity cost of developing and maintaining a BSC system.
- Conflict between BSC perspectives e.g. trade off between the cost of innovating and satisfying customers and the loss of shareholder wealth that this could create in the short-term under the financial perspective.
- Too many performance measures often distort the benefits e.g. information overload. Management may pursue BSC objectives to the detriment of everything else e.g. ignorance of other dimensions such as staff and the ecological environment.

A process to implement balanced scorecard (BSC)

1. A clear vision of the introduction of a BSC communicated and demonstration that senior management are committed to the idea.
2. Education given to all managers and staff of the concept of the BSC e.g. workshop seminar or letter to staff for better understanding.
3. According to Kurt Lewin’s three stage approach to change, unfreeze existing beliefs by creating dissatisfaction with the current situation, hold consultative meetings and presentations, educate and communicate the reasons why change needs to occur.
4. Participation encouraged by all staff and management to aid change e.g. consultation and evaluation of different solutions, keep an open mind and listen to those affected.
5. Plan and determine how change needs to occur, set objectives and timescale for the introduction of a BSC system.
6. Implement change e.g. systems introduced for gathering information and training given to managers and staff.
7. Reward and staff appraisal systems modified and linked to performance measures.
8. Review and feedback obtained periodically to ensure the change process has been successful, and frequent updating of certain measures if they are no longer appropriate.
Financial perspective for not-for-profit organisations (NPOs)

The primary objective is profit for most organisations, but for an NPO they are non-profit making. The value for money (VFM) framework is a good substitute to address the financial perspective of the balanced scorecard, rather than using traditional shareholder measures.

The value for money (VFM) framework (the 3Es)

- **Economy (Cheap)** e.g. is the organisation procuring resources at the lowest possible cost without sacrificing the standard expected for quality and service levels.
- **Efficiency (Quick)** e.g. is the organisation improving efficiency by minimising inputs required to produce outputs.
- **Effectiveness (Good)** e.g. is the organisation maximising effectiveness by achieving its goals and objectives.

Economy and efficiency should not be compromised to the extent where effectiveness can suffer e.g. to do it cheaper (economy) or quicker (efficiency) may often compromise effectiveness.

**Example 11.8**

Identify performance measures under the framework of economy, efficiency and effectiveness for the UK national health service (NHS)?

**Economy**

**Efficiency**

**Effectiveness**
Examples of internal failure cost

The internal perspective can control performance by the assessment of internal quality failure. Costs incurred before the customer has received the good or service.

- Re-inspection of materials, components and finished goods after a high level of substandard goods have been identified
- The scrap cost or waste of any materials or finished goods
- Retraining cost of staff due to ineffective problems identified
- Rework of work-in-progress and finished goods due to unsatisfactory work

Examples of external failure cost

The customer perspective can control performance by the assessment of external quality failure. Costs incurred after the customer has received the good or service.

- Administration of customer service and complaints
- Cost of faulty product returns
- Cost of product liability and warranty claims e.g. damages and repairs
- Cost of free repairs and replacements for returns under guarantee
- Loss of customer goodwill and brand reputation

The 6-dimensional performance matrix

Similar to the balanced scorecard, Fitzgerald (1991) created a 6 dimensional performance matrix, initially for service industries. Like the balanced scorecard both financial as well as non-financial measures can be applied. This model is also referred to as the results (financial and competitive dimensions) and determinants (quality of service, flexibility, resource utilisation and innovation dimensions) framework, where results are linked to internal business processes which are the determinants.

Results

- Competitiveness
- Financial performance

Determinants

- Quality of service
- Flexibility
- Resource utilisation
- Innovation
Example 11.9

Suggest suitable performance measures under each of the six dimensions for a supermarket?

Competitiveness

Financial performance

Quality of service

Flexibility

Resource utilisation

Innovation
The performance pyramid

Like the balanced scorecard or 6-dimensional performance matrix, the performance pyramid is a multidimensional model developed by McNair et al (1990). In comparison the performance pyramid does apply performance measurement better to the chain of command e.g. the lines of authority and responsibility, by which decisions are passed along. Levels of hierarchy or scalar chain exist in order to cascade decisions, instructions, plans and objectives, often top-down within the organisation.

- Corporate objectives e.g. improve shareholder value.
- Business unit objectives e.g. measures for the results framework of financial and competitive (market) for each division.
- Business operating systems (processes) and departments e.g. measures for the key business operational activities of the organisation, such as efficiency, productivity, resource utilisation, customer satisfaction, complaints, quality or flexibility. On a day to day operational level other measures include lead (cycle) times, delivery times, absenteeism, staff turnover, rejects and wastage levels.
11.7 Budgeting

A budget is a forecast and quantified plan of action. Budgetary planning creates a budget as part of the planning process for the organisation. Budgetary control compares the budgeted results as a yardstick or target to actual results, to obtain any variances or deviations from the plan, this process of comparison can be used to take control action and bring actual results in line with the plan.

---

**Budgets may help in authorising expenditure, communicating objectives and plans, controlling operations, coordinating activities, evaluating performance, planning and rewarding performance. Often reward systems involve comparison of actual with budgeted performance.**

*(CIMA)*

---

**Beyond budgeting**

A philosophy that believes traditional or conventional budgeting methods are of little use to management, however beyond budgeting does not believe that budgeting within organisations should be banned altogether. Hope and Fraser argued that the traditional approach to budgeting should be abandoned for the following reasons:

- The budget process is too rigid and requires conformance to it with not enough flexibility. With the constantly changing business environment, managers need to be having more up to date information to help them make decisions.
- The budget process is often too bureaucratic, internally focussed and time consuming.

Fixed budgets don’t work today. A budget is a too static an instrument and locks managers into the past, something they thought last year that it was right. Managers instead need to be able to adapt constantly their priorities and put their resources where they can create most value for customers and shareholders.

The beyond budgeting approach may include the following:

- Use of rolling budgets focussing on cash forecasts and not cost control.
- Budgets revised more frequently and a shorter time horizon when forecasting.
- Performance measures using frameworks like the balanced scorecard, developed to achieve improvement, with benchmarking for continuous improvement, rather than an internal focus on actual versus budget and cost control.
- Benchmarking for continuous improvement.

The beyond budgeting approach should lead to

- A more dynamic performance management process that will enable organisations to be more responsive and thus create more value.
- A management model that enables greater devolution of responsibility that leads to increased customerâs satisfaction through continuous improvement.
Modern methods of budgeting

A flexible budgeting system produces many budgets projecting costs and revenues over different ranges of production or sales volumes. Flexible budgets are also amended (flexed) if the actual level of activity turns out to be different from the budgeted level of activity. When a budget is flexed it would give an appropriate level of revenue and cost as a yardstick to compare on a like for like basis to actual results, meaningful variances or exceptions to the budget can then be highlighted for management attention.

Flexible budgeting recognises different cost behaviour patterns e.g. costs that rise or fall with the volume of sales or output produced, this is a better system for control purposes. Flexible budgeting is useful at the planning stage for 'what if?' analysis e.g. what if sales volume falls by 20%, what would be the effect on sales revenue, cost or contribution? What if analysis looks at varying or changing the key variables to see how the outcome would change. These changes would be due to the revision of expectations, based upon the value of variables such as material cost or sales demand.

Zero based budgeting (ZBB) is a method of budgeting, which requires each cost element within the budget to be specifically justified as though it was being undertaken for the very first time, without approval, the budget allowance would be zero. Therefore each cost, every period, must be justified before it can be included in the budget, employees are encouraged to find alternative ways of accomplishing the same thing but for less money.

Activity based budgeting (ABB) uses cost 'drivers' for different support resources consumed e.g. machining, quality control or administration support, in other words cost levels are forecast and determined by using activity based costing (ABC). ABB therefore should produce more accurate budgeted figures against which actual costs can be compared to report more meaningful variances.

Rolling or continuous budgeting is when the budget is updated and revised on a regular and frequent basis. The method is to add a further period immediately to the budget when an earlier period has expired, for example if Jan to Mar 2010 is the first three months of a yearly forecast, once this period has expired then Jan to Mar 2011 will be added. Regular assessment and amendment keeps the budget forecast accurate.

The following behavioural aspects could arise when implementing budgets

- Budgets seen as a 'penny pinching' exercise rather than for cost control.
- Employees become united, finding excuses for not meeting targets.
- Lack of support from management may cause low motivation or morale.
- Budgetary slack or 'budget padding' e.g. wasteful spending introduced within cost estimates submitted by management or staff.
11.8 Financial (ratio) analysis

The objective of financial statements is to provide information to all users of accounts to help them for decision-making. Note that most users will only have access to published financial statements.

The use of ratios

- To compare results over a period of time
- To measure performance against other organisations
- To compare results with a target
- To compare against industry averages

Ratios can be grouped into 3 main areas

- Performance - how well the business has done (profitability)
- Position - short term standing of the business (liquidity)
- Potential - what the future holds for the business

Limitations of ratio analysis

A ratio on its own is meaningless, accounting ratios must always be interpreted in relation to other information. Ratios based on historic cost accounts do not give a true picture of trends, because of the effects of inflation and different accounting policies. Investors' ratios particularly have a disadvantage, because investment means looking into the future and the past may not always be indicative of the future. Comparing the financial statements of similar businesses can also be misleading.
Ratios in detail

We shall now look at some of the ratios in detail and explain how they can be interpreted.

Performance ratios

1  ROCE

Return on capital employed (ROCE) = \( \frac{\text{Profit before interest and tax (PBIT)}}{\text{Capital employed}} \times 100\% \)

The ROCE measures profitability and shows how well the business is utilising its capital to generate profits. Capital employed is debt and equity. Equity is shareholders funds (shareholders' funds) and debt is non current liabilities. Capital employed can be found from the statement of financial position by taking the shareholders funds (share capital and reserves) and long term debt.

2  Operating profit margin

Operating profit margin = \( \frac{\text{PBIT}}{\text{Turnover}} \times 100\% \)

This is the ratio of operating profit to sales or turnover. A high operating profit margin is due higher sales prices or low costs. Other factors to consider include inventory valuation, overhead allocation, bulk discounts and sales mix.

Low profit margins are not normally good news as it suggests poor performance. But there may be other factors to consider relating to the business activities and industry. For example the company may be entering a new market which requires low selling prices.

3  Asset turnover

Asset turnover = \( \frac{\text{Turnover}}{\text{Total assets or Capital employed}} \)

This shows how much sales are generated for every £1 of capital employed. A low asset turnover indicates that the business is not using its assets affectively and should either try to increase its sales or dispose of some of the assets.

A company with old non current assets that are almost completely depreciated will show a high asset turnover, whereas a company with recently acquired non current assets will show a low asset turnover. Different accounting policies will also give different ratios, for example using the cost model to or re-valuation model. The age of the non current assets is important in understanding the ratio. Recently acquired non current assets will not be generating revenues to their full extent.
Position ratios

1 Current ratio (CA) or working capital ratio

\[
\text{CA} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad \text{(times)}
\]

The current ratio measures the short term solvency or liquidity; it shows the extent to which the claims of short-term creditors are covered by assets. The current ratio is essentially looking at the working capital of the company. Effective management of working capital ensures the organisation is running efficiently. This will eventually result in increased profitability and positive cash flows. Effective management of working capital involves low investment in non productive assets like trade receivables, inventory and current account bank balances. Also maximum use of free credit facilities like trade payables ensures efficient management of working capital.

The normal current ratio is around 2:1 but this varies within different industries. Low current ratio may indicate insolvency. High ratio may indicate not maximising return on working capital. Valuation of inventories will have an impact on the current ratio, as will year end balances and seasonal fluctuations.

2 Quick ratio or acid test

\[
\text{Quick ratio} = \frac{\text{Current assets less inventories}}{\text{Current liabilities}} \quad \text{(times)}
\]

This ratio measures the immediate solvency of a business as it removes the inventories out of the equation, which is the item least representing cash, as it needs to be sold. Normal is around 1:1 but this varies within different industries.

3 Trade payable days (turnover)

\[
\text{Year end trade payables} \times 365 \text{ days}
\]

This is the length of time taken to pay the suppliers. The ratio can also be calculated using cost of sales, as credit purchases are not usually stated in the financial statements. High trade payable days is good as credit from suppliers represents free credit. If it’s too high then there is a risk of the suppliers not extending credit in the future and may lose goodwill. High trade payable days may also indicate that the business has no cash to pay which indicates insolvency problems.
4  Trade receivable days (turnover)

\[
\text{Year end trade receivables} \times 365 \text{ days}
\]

\[
\text{Credit sales (or turnover)}
\]

This is the average length of time taken by customers to pay. A long average collection means poor credit control and hence cash flow problems may occur. The normal stated credit period is 30 days for most industries. Changes in the ratio may be due to improving or worsening credit control. Major new customer pays fast or slow. Change in credit terms or early settlement discounts are offered to customers for early payment of invoices.

5  Inventory days

\[
\text{Average inventory} \times 365 \text{ days}
\]

\[
\text{Cost of sales}
\]

Average inventory can be arrived by taking this year’s and last year’s inventory values and dividing by 2 - (Opening inventories + closing inventories) / 2. This ratio shows how long the inventory stays in the company before it is sold. The lower the ratio the more efficient the company is trading, but this may result in low levels of inventories to meet demand. A lengthening inventory period may indicate a slow down in trade and an excessive build up of inventories, resulting in additional costs.

6  Gearing

Gearing is the relationship between debt and equity. Debt is normally long term liabilities that the organisation has. Equity is all the share capital and reserves. There are two ways that the gearing ratio can be calculated they are:

- Equity gearing = debt capital vs equity capital
- Total gearing = debt capital vs total capital

\[
\text{Equity gearing ratio} = \frac{\text{Debt capital}}{\text{Equity (capital and reserves)}} \times 100\%
\]

\[
\text{Total gearing ratio} = \frac{\text{Debt capital}}{\text{Total capital (shareholder funds + debt capital)}} \times 100\%
\]

Gearing is one of the most widely used terms in accounting. Gearing is the relationship between equity and debt, i.e. how much of the total capital is in the form of equity and debt. Gearing is relevant to the long-term financial stability of a business.
7 Interest cover

Interest cover = \[ \frac{\text{Profit before interest and tax (PBIT)}}{\text{Interest payable}} \] (no. of times)

Interest cover shows the safety of earnings, that shareholders look at. Interest cover looks at the proportion of profits that must be allocated to meeting interest charges. Interest payable is on long term finance.

Potential

1 Earnings per share (EPS)

\[ \text{EPS} = \frac{\text{Profit available to ordinary shareholders (PAT)}}{\text{Weighted average number of shares in issue}} \] (pence per share)

This ratio shows the profitability of each share, i.e. the amount of potential dividend available per share. The EPS is a very important ratio and is published in the annual accounts of companies (IAS 33).

2 Price earnings (PE) ratio

\[ \text{PE} = \frac{\text{Market share price}}{\text{EPS}} \] (no. of times)

The PE ratio is the most widely quoted investors’ ratio. It shows the market confidence in a company by taking the current market share price in relation to the most recent EPS. A high PE ratio indicates good growth prospects. PE ratios of different industries are available as published information. If the PE and EPS are known, the share price of a company can be established as follows:

Share Price = EPS x PE ratio

This is useful when valuing shares for unlisted companies, by taking an industry similar PE ratio.

3 Dividend yield

\[ \text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market share price}} \times 100\% \]

The dividend yield is the cash return on the share (not the whole return which is cash dividend and capital growth). The dividend yield can only be calculated for listed companies as the share price is required. The higher the share price, the lower the dividends yield.
4 Dividend cover

Dividend cover = \( \frac{\text{Profit available to ordinary shareholders (PAT)}}{\text{Annual dividend}} \) (no. of times)

Or \( = \frac{\text{EPS}}{\text{Dividend per share}} \)

Dividend cover shows the safety of the dividend payments. How many times can the company pay the current level of dividends out of the profits currently being earned?
### Lecture Example 11.10
The following are the accounts for Umar plc.

<table>
<thead>
<tr>
<th>Summarised statement of financial position at 30 June</th>
<th>20X2</th>
<th>20X1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant, property &amp; machinery</td>
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<td>278</td>
</tr>
<tr>
<td><strong>Current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
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<td>74</td>
</tr>
<tr>
<td>Trade receivables</td>
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<td>46</td>
</tr>
<tr>
<td>Bank</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>148</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td><strong>408</strong></td>
<td><strong>448</strong></td>
</tr>
<tr>
<td><strong>Capital and reserves</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinary share capital (50p shares)</td>
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<td>70</td>
</tr>
<tr>
<td>8% preference shares (£1 shares)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Share premium account</td>
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<td>34</td>
</tr>
<tr>
<td>Revaluation reserve</td>
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<td>-</td>
</tr>
<tr>
<td>Profit and loss account</td>
<td>62</td>
<td>84</td>
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<tr>
<td></td>
<td><strong>236</strong></td>
<td><strong>238</strong></td>
</tr>
<tr>
<td><strong>Non current liabilities</strong></td>
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<tr>
<td>5% secured loan stock</td>
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<td><strong>Current liabilities</strong></td>
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<td>Trade payables</td>
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</tr>
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</tr>
<tr>
<td></td>
<td><strong>92</strong></td>
<td><strong>130</strong></td>
</tr>
<tr>
<td></td>
<td><strong>408</strong></td>
<td><strong>448</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summarised income statement for the year ended 30 June</th>
<th>20X2</th>
<th>20X1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>418</td>
<td>392</td>
</tr>
<tr>
<td>Opening inventory</td>
<td>74</td>
<td>58</td>
</tr>
<tr>
<td>Purchases</td>
<td>324</td>
<td>318</td>
</tr>
<tr>
<td>Closing inventory</td>
<td>398</td>
<td>376</td>
</tr>
<tr>
<td></td>
<td>(84)</td>
<td>(74)</td>
</tr>
<tr>
<td></td>
<td>(314)</td>
<td>(302)</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Depreciation</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Sundry expenses</td>
<td>28</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>(50)</td>
<td>(44)</td>
</tr>
<tr>
<td><strong>Profit before tax</strong></td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td>Taxation</td>
<td>(20)</td>
<td>(20)</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Dividends Â· ordinary</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Dividends Â· preference</td>
<td>4</td>
<td>(16)</td>
</tr>
<tr>
<td>Retained profit</td>
<td><strong>18</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
Calculate and comment on the following ratios for Umar plc

1. ROCE
2. Gross profit margin
3. Asset turnover
4. Current ratio
5. Quick ratio
6. Inventory turnover ratio
7. Inventory days
8. Trade receivable days
9. Trade payable days
10. Equity gearing
11. Total gearing
12. Interest cover
13. Dividend cover
14. EPS
15. PE if market value of ordinary shares is 240p in 20X2
11.9 Transfer Pricing

A transfer price is a price charged for goods or services provided internally between divisions or departments in the same group or company. Transfer pricing is applied internally, normally because divisions or departments are operated as profit centres e.g. their costs, revenues, and profits separately accounted for.

The common aims of transfer pricing systems

- **Motivate managers** A transfer price ensures an internal cost is recognised by an internal buyer and an internal price recognised by an internal seller. Often when profit centres exist, divisional or department managers are held accountable for earning profit, a seller would simply not be motivated to supply to an internal customer at zero price (or zero cost to the buyer).

- **Fair performance evaluation** Transfer pricing allows a better understanding of the financial performance of each profit centre because a price and cost is recognised within management accounts.

- **Promote autonomy.** Allows divisions or departments to work independently as profit centres, commercially each internal buyer or seller can negotiate on commercial grounds.

- **Goal congruence.** Transfer pricing can ensure all departments or divisions in the same group, act in the best interests of the group as a whole, not just for their own self interest. If it is cheaper for a group to make a product or service internally, rather than buy outside the group, then to ensure goal congruence the transfer price must ensure both seller and buyer will trade. If it is cheaper to buy outside the group then a transfer price should discourage internal trade from taking place.

- **To ensure optimal allocation of resources** A transfer price can ensure a certain volume is sold internally to ensure the minimisation of cost or maximisation of contribution or profit. Often spare capacity is another factor to consider e.g. lower pricing to sell more internally and ensure that the seller is utilising efficiency to its greatest extent.

Another aim of a transfer pricing system could be tax avoidance Different countries have varying tax rates. A multi-national company can set up subsidiaries in different countries to take advantage of these tax rates through transfer pricing to reduce their overall tax charge. Lower taxation can be achieved by charging a high transfer price when the seller pays less tax than the buyer, (the sellers profit would be higher) or a low transfer price if the buyer pays less tax than the seller (the buyers profit would be higher).

Some multi-national companies use transfer pricing to reduce their overall tax charge but national tax authorities have taken steps to discourage the manipulation of transfer prices. National tax authorities have the powers to thoroughly investigate accounts to ensure that a fair or ‘arms length’ market price has been used internally and that profits have not been manipulated by transfer pricing to reduce subsidiary tax payments. Fines and penalties can be imposed on organisations who deliberately try to manipulate profits by the improper use of transfer pricing.
**Internal buying decisions**

Transfer pricing is applied internally within a group for management accounting purposes e.g. to measure the performance of divisions. Increasing or decreasing an internal transfer price will have no effect on group profit, but it will affect the profitability of both the internal seller and buyer. Most profit centres e.g. divisions, are normally autonomous and have their own financial results ņring fencedģ e.g. a separate accounting system maintained for each profit centre.

Accounting convention for financial reporting (IAS 27 consolidated and separate financial statements) dictates that if there has been trading between group companies, then sales and purchases have to be removed 100% from the turnover and cost of sales, when reporting group consolidated financial results. For this reason, whatever transfer price is set, the price an internal seller receives, is equal to the cost the internal buyer pays, therefore the affect on group financial results when changing or varying transfer prices would always be nil.

<table>
<thead>
<tr>
<th>Change transfer price</th>
<th>Selling Division</th>
<th>Buying Division</th>
<th>The Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase transfer price</td>
<td>Profit increases</td>
<td>Profit Decreases</td>
<td>No change</td>
</tr>
<tr>
<td>Decrease transfer price</td>
<td>Profit decreases</td>
<td>Profit Increases</td>
<td>No change</td>
</tr>
</tbody>
</table>

**External buying decisions**

The group consolidated financial results would normally be effected, if an internal buyer uses their autonomy and makes a decision to buy outside the group, rather than buy internally from another division. To calculate how worse off the group will be, you would need to compare the relevant cost of the internal seller making the product, to the external market price the external supplier will charge the buyer. For example if an internal seller currently supplies a product to an internal buyer, the cost is normally the variable (marginal) cost of each unit produced along with any other avoidable ņspecificģ fixed overhead incurred when making the product e.g. avoidable fixed overhead incurred because the product is made and avoidable if the seller discontinues production. The internal relevant cost would be compared with the external market price the alternative supplier would charge. The difference between this internal and external relevant cost will measure how worse off or better of group financial results would be.

As far as the internal buyer is concerned the decision about using an external supplier is often one of financial reason, therefore external buying decisions will normally improve a buyer's internal financial results. From the internal sellers perspective their financial results would normally deteriorate due to the loss of internal business.
Methods of transfer pricing

Cost based approaches

The pricing of products or services are based on their full or variable (marginal) production cost per unit. Full cost pricing would calculate a full cost per unit (variable and fixed cost per unit) and then add a mark-up to earn a profit. Marginal (variable) costing would add a mark-up to the variable production cost only to arrive at a transfer price, therefore does away with the need to consider cost apportioning methods like absorption or activity based costing (ABC). It could be fairer to the buyer if they were charged a transfer price based on standard (budgeted) cost not actual cost by an internal seller, this would ensure any inefficiencies by the seller are not passed on to the buyer in the form of higher prices. The main problem of cost based approaches is that they ignore what external competition are charging, for this reason goal incongruent decisions can often arise e.g. a decision by a buyer to buy elsewhere from an external supplier, which harms group financial results.

Example 11.11

Division A within a group makes Dougals which it sells internally within the group to division Z and also to external customers. It currently uses full cost pricing charging division Z and external customers a selling price £50 a unit, the details of Dougals are shown below.

<table>
<thead>
<tr>
<th>Per unit</th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost</td>
<td>30.00</td>
</tr>
<tr>
<td>Fixed cost</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td>40.00</td>
</tr>
<tr>
<td>Mark up 25% on full cost</td>
<td>10.00</td>
</tr>
<tr>
<td>Full price</td>
<td>50.00</td>
</tr>
</tbody>
</table>

Division Z has recently found that they can buy from another supplier for £35. Will either full or variable cost pricing (both using 25% mark up on cost) lead to goal congruence within this group? How worse off will the group be if division Z uses their autonomy to buy from the external supplier?
Two-part tariff (two part charging) system

With a two-part tariff system the buyer is charged:

- A transfer price equal to the seller’s variable (marginal) cost for each unit sold and transferred by the seller.
- A fixed charge per period by the seller irrespective of the amount of units sold and transferred. The fixed charge should cover the seller’s fixed overhead, give an element of profit and the necessary motivation for the seller to supply.

This method is similar in nature to how you are charged for most of your domestic bills.

Market based approaches

Cost based approaches to transfer pricing can ignore what external competition would charge, therefore an open (external) market price could be used internally as a transfer price to encourage greater market efficiency and goal congruence. When the external market price is used as a transfer price, a seller will always be encouraged to sell because they would be indifferent between their charging policy for internal or external customers. An internal buyer generally would not want to pay any higher than what the external market price is, it should therefore not discourage them from buying internally if a fair market price is charged.

The main problem with market based approaches is that establishing a market price can be difficult, different suppliers will quote different prices, the price may be affected by such factors as quality, quantity, discounts and credit terms available. In some cases no intermediate market exists, therefore a comparable market product and price may not be available.

Dual pricing (or two prices)

Dual transfer pricing means setting one transfer price for the internal seller and another transfer price for the internal buyer. The basic idea is to encourage trade by creating the most beneficial price for both parties.

- **Internal seller** The transfer price received would be set at the external market price e.g. the price that would normally be charged to external customers.
- **Internal buyer** The transfer price paid would be set at the sellers variable (marginal) cost of production.

The difference between the two transfer prices would need reconciling by head office when preparing the group consolidated financial results. Dual pricing is a similar approach to the opportunity cost approach which is discussed later.
Opportunity cost pricing

Opportunity cost pricing is considered the most mathematically correct way of viewing transfer pricing. The reason is that it looks at transfer pricing issues from a group not divisional perspective and therefore promotes goal congruence.

Minimum pricing e.g. the minimum price a seller would accept.

The minimum transfer price an internal seller would accept will depend on whether it has spare capacity to utilise or not.

If spare capacity exists the relevant cost and therefore minimum price to a seller would be the variable (marginal) cost of production e.g. the extra cost of making and selling one more unit. Variable (marginal) cost would be the only cost considered by a seller because fixed overhead is normally unavoidable and would not change if supply did or did not take place. The variable (marginal) cost represents the absolute bare minimum transfer price to a seller, in circumstances of spare capacity, at this price, the seller would be indifferent but not out of pocket. Marginal costing may also be appropriate when no intermediate market exists for the seller e.g. seller can only sell to an internal customer and no external customers are available.

If full capacity exists, the seller would have to turn away external customers and business will be lost if further internal supply were to take place. Because of this dilemma the seller would normally want a minimum price at least equal to the external market price it would normally charge when selling to external customers, this is assuming there is no difference in the cost of supplying internal or external customers e.g. differences in packaging, delivery or marketing costs, in which case the price would normally be adjusted.

The minimum transfer price for a seller at full capacity is generally the external market price, if for some reason the seller maybe discontinuing other products to supply internally, then the minimum price would be the variable (marginal) cost of production and the lost contribution from discontinuing other products for internal supply to take place e.g. the variable cost and contribution lost being the opportunity cost.

Minimum transfer price for a seller

<table>
<thead>
<tr>
<th>Full capacity</th>
<th>Spare capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Price</td>
<td>Marginal Cost</td>
</tr>
</tbody>
</table>

45
**Maximum pricing e.g. the maximum price a buyer would pay.**

Normally the maximum transfer price a buyer would pay would be the market price it could obtain the raw material, component, service, product etc from elsewhere. Rational economics would indicate there is no point paying any more than you have to, especially if you are running a profit centre. The external market price is therefore generally the opportunity cost and therefore maximum transfer price a buyer is normally prepared to pay.

In certain extreme and rare cases the actual net revenue (selling price the buyer ultimate sells the product for less their own variable (marginal) cost), could be less than the external market price for the buyer, in which case the buyer would be willing to pay less than the external market price, or face making a loss when ultimately selling the product.

For example a buyer could buy a component from an alternative external supplier for £65; it sells this after its own further processing cost of £20, for only £75. In this case the maximum transfer price a buyer could pay would be just £55, £10 less than the actual external market price. This is because the buyer can just about break-even at a £55 maximum transfer price (selling price ultimately £75, less buyers further cost £20, less maximum transfer price £55 = nil profit), the buyer in this case would be indifferent at a maximum transfer price of £55. The £55 in this case similar to the principle of net realisable value for the buyers product. It is worth noting that at £65 external market price the buyers product would be uneconomical to sell.

Mathematically the opportunity cost approach will set a maximum and minimum pricing range for a buyer and seller respectively. So long as a range exists e.g. the buyers maximum price is greater than the sellers minimum price, then supply will take place and it would be in the group’s best interest for supply to take place. The actual transfer price should be set within the range calculated, to ensure both seller and buyer are motivated to trade, the price eventually found by politics and compromise between the two internal managers, so long as the transfer price is negotiated in between the pricing range then both seller and buyer will be motivated to trade.
If the opportunity cost approach does not produce a pricing range e.g. the maximum price is less than the minimum price, no range exists, therefore no transfer price can be agreed so whatever transfer price is set either the seller or the buyer (or both) will not be motivated to trade. Mathematically the opportunity cost approach will ensure goal congruence, in relevant costing terms, if an internal seller cannot produce a product any cheaper than what an external group supplier would charge, then internal supply should not take place therefore the buyer will operate in the best interests of the group as a whole.

Example 11.12

The following information exists for a division in the XYZ group.

**Division A**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum production capacity</td>
<td>50000 units</td>
</tr>
<tr>
<td>External sales</td>
<td>40000 units</td>
</tr>
<tr>
<td>Market price for external customers</td>
<td>£40</td>
</tr>
<tr>
<td>Variable cost for each unit produced</td>
<td>£13</td>
</tr>
</tbody>
</table>

Using the opportunity cost approach, what would be the price Division A should quote to an internal buyer requesting 15000 units?

Example 11.13

Within the XYZ group, division X transfers to division Z, a component, the unit production cost of each component is as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost</td>
<td>£20.00</td>
</tr>
<tr>
<td>Fixed cost absorbed</td>
<td>£10.00</td>
</tr>
<tr>
<td></td>
<td>£30.00</td>
</tr>
</tbody>
</table>

Division X currently has spare capacity and sells each component to division Z for a transfer price of £70 a unit. Division X also produces other products. Division Z has recently found an alternative supplier for this component that can be purchased for £65 a unit. If division Z chooses to use the external supplier, what would be the effect on profit for division X, division Y and group profit?
Factors other than transfer pricing

- Does the supplier have a solid track record for delivery e.g. references from other satisfied customers in terms of the quality of service they provide should be sought.
- The financially stability of supplier should be investigated e.g. obtain previous sets of accounts and credit ratings.
- Does the supplier have the resources required to cope with peak periods when demand for their product or service may be high.
- Will the supplier be increasing prices above their quoted price in the long-term.
- Good service level agreement (SLA) for a minimum standard of service expected and penalties for non-performance.
- Can the internal seller find external work to fill spare capacity caused by a reduction of internal demand, if the buyer goes elsewhere.

International aspects to transfer pricing

The following issues can influence international transfer pricing decisions.

- Exchange rates e.g. fluctuations in global currency and therefore selling prices.
- Import tariffs or quotas e.g. import taxes will affect the selling price, also restrictions on the volume of goods imported or exported could be imposed by government or trade bodies.
- Taxation e.g. variations in international direct and indirect taxation rates.
- Worldwide prices and quality available from external suppliers.
- Other international legislation e.g. repatriation of profits or funds, consideration of minority shareholders etc.
11.10 Further question practice


Y and Z are two divisions of a large company that operate in similar markets. The divisions are treated as investment centres and every month they each prepare an operating statement to be submitted to the parent company. Operating statements for these two divisions for October are shown below:

<table>
<thead>
<tr>
<th>Operating Statements for October</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>£000</td>
<td>£000</td>
</tr>
<tr>
<td>Less variable costs</td>
<td>900</td>
<td>555</td>
</tr>
<tr>
<td>Contribution</td>
<td>345</td>
<td>312</td>
</tr>
<tr>
<td>Less controllable fixed costs</td>
<td>555</td>
<td>243</td>
</tr>
<tr>
<td>(includes depreciation on divisional assets)</td>
<td>95</td>
<td>42</td>
</tr>
<tr>
<td>Controllable income</td>
<td>460</td>
<td>201</td>
</tr>
<tr>
<td>Less apportioned central costs</td>
<td>338</td>
<td>180</td>
</tr>
<tr>
<td>Net income before tax</td>
<td>122</td>
<td>21</td>
</tr>
<tr>
<td>Total divisional net assets</td>
<td>£9.76m</td>
<td>£1.26m</td>
</tr>
</tbody>
</table>

The company currently has a target return on capital of 12% per annum. However, the company believes its cost of capital is likely to rise and is considering increasing the target return on capital. At present the performance of each division and the divisional management are assessed primarily on the basis of Return on Investment (ROI).

Required:

a) Calculate the annualised Return on Investment (ROI) for divisions Y and Z, and discuss the relative performance of the two divisions using the ROI data and other information given above. (9 marks)

b) Calculate the annualised Residual Income (RI) for divisions Y and Z, and explain the implications of this information for the evaluation of the divisions’ performance. (6 marks)

c) Briefly discuss the strengths and weaknesses of ROI and RI as methods of assessing the performance of divisions. Explain two further methods of assessment of divisional performance that could be used in addition to ROI or RI. (5 marks)

(Total = 20 marks)
Example 11.15 – (CIMA P1 Nov 2006)

The ZZ Group has two divisions, X and Y. Each division produces only one type of product: X produces a component (C) and Y produces a finished product (FP). Each FP needs one C. It is the current policy of the group for C to be transferred to Division Y at the marginal cost of £10 per component and that Y must buy all the components it needs from X. The markets for the component and the finished product are competitive and price sensitive. Component C is produced by many other companies but it is thought that the external demand for the next year could increase to 1,000 units more than the sales volume shown in the current budget for Division X. Budgeted data, taken from the ZZ Group Internal Information System, for the divisions for the next year is as follows:

**Division X**

**Income statement**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>£70,000</td>
</tr>
<tr>
<td>Cost of sales</td>
<td></td>
</tr>
<tr>
<td>Variable costs</td>
<td>£50,000</td>
</tr>
<tr>
<td>Contribution</td>
<td>£20,000</td>
</tr>
<tr>
<td>Fixed costs (controllable)</td>
<td>£15,000</td>
</tr>
<tr>
<td>Profit</td>
<td>£5,000</td>
</tr>
</tbody>
</table>

Production/Sales (units) 5,000 (3,000 of which are transferred to Division Y)

External demand (units) 3,000 (Only 2,000 of which can be currently satisfied)

Capacity (units) 5,000

External market price per unit £20

**Balance sheet extract**

Capital employed £60,000

**Other information**

Cost of capital charge 10%

**Division Y**

**Income statement**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>£270,000</td>
</tr>
<tr>
<td>Cost of sales</td>
<td></td>
</tr>
<tr>
<td>Variable costs</td>
<td>£114,000</td>
</tr>
<tr>
<td>Contribution</td>
<td>£156,000</td>
</tr>
<tr>
<td>Fixed costs (controllable)</td>
<td>£100,000</td>
</tr>
<tr>
<td>Profit</td>
<td>£56,000</td>
</tr>
</tbody>
</table>

Production/Sales (units) 3,000

Capacity (units) 7,000

Market price per unit £90
Division Y  
Balance sheet extract  
Capital employed  £110,000

Other information  
Cost of capital charge  10%

Four measures are used to evaluate the performance of the Divisional Managers. Based on the data above, the budgeted performance measures for the two divisions are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Division X</th>
<th>Division Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual income</td>
<td>(£1,000)</td>
<td>£45,000</td>
</tr>
<tr>
<td>Return on capital employed</td>
<td>8.33%</td>
<td>50.91%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>7.14%</td>
<td>20.74%</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>1.17</td>
<td>2.46</td>
</tr>
</tbody>
</table>

Current policy

It is the current policy of the group for C to be transferred to Division Y at the marginal cost of £10 per component and that Y must buy all the components that it needs from X.

Proposed policy

ZZ Group is thinking of giving the Divisional Managers the freedom to set their own transfer price and to buy the components from external suppliers but there are concerns about problems that could arise by granting such autonomy.

Required:

a) If the transfer price of the component is set by the Manager of Division X at the current market price (£20 per component), recalculate the budgeted performance measures for each division. (8 marks)

b) Discuss the changes to the performance measures of the divisions that would arise as a result of altering the transfer price to £20 per component. (6 marks)

c) (i) Explain the problems that could arise for each of the Divisional Managers and for ZZ Group as a whole as a result of giving full autonomy to the Divisional Managers.
   (ii) Discuss how the problems you have explained could be resolved without resorting to a policy of imposed transfer prices. (6 marks)

(Total = 20 marks)
Example 11.16 – (CIMA P6 Pilot paper 2005)

The Royal Botanical Gardens has been established for more than 120 years and has the following mission statement:

"The Royal Botanical Gardens belongs to the Nation. Our mission is to increase knowledge and appreciation of plants, their importance and their conservation, by managing and displaying living and preserved collections and through botanical and horticultural research."

Located toward the edge of the city, the Gardens are regularly visited throughout the year by many local families and are an internationally well-known tourist attraction. Despite charging admission it is one the top five visitor attractions in the country. Every year it answers many thousands of enquiries from Universities and research establishments, including pharmaceutical companies from all over the world and charges for advice and access to its collection. Enquiries can range from access to the plant collection for horticultural work, seeds for propagation or samples for chemical analysis to seek novel pharmaceutical compounds for commercial exploitation. It receives an annual grant in aid from Central Government, which is fixed once every five years. The grant in aid is due for review in three years' time.

The Finance Director has decided that, to strengthen its case when meeting the Government representatives to negotiate the grant, the Management Board should be able to present a balanced scorecard demonstrating the performance of the Gardens. He has asked you, the Senior Management Accountant, to assist him in taking this idea forward.

Many members of the board, which consists of eminent scientists, are unfamiliar with the concept of a balanced scorecard.

**Required:**

(a) For the benefit of the Management Board, prepare a briefing on the concept of a balanced scorecard, which also analyses its usefulness for The Royal Botanical Gardens. **(10 marks)**

(b) Discuss the process you would employ to develop a suitable balanced scorecard for The Royal Botanical Gardens and give examples of measures that would be incorporated within it. **(15 marks)**

**(Total = 25 marks)**
Example 11.17 – (CIMA P6 November 2006)

Introduction

AAA is a large manufacturing company that specialises in the design and manufacture of televisions. It was formed in 1985, following the merger of two rival companies, and is now one of the three largest TV manufacturers in Asia. AAA employs over 2000 staff at its head office and four manufacturing plants, which are all in the same Asian country, Jurania. AAA is listed on the Juranian stock exchange.

The production system

TV manufacturing is a mass production industry, with high volumes of identical or similar products being made on a production line basis. The products are generally made to order for customers, who are either other electrical manufacturers (who put their name on the product and re-sell it) or large electrical retailers. The manufacture of televisions is still a relatively labour-intensive process, as many of the components need to be assembled in a precise way. Most of the electrical components used in AAA’s process are bought in from suppliers, as is the TV screen and cabinet (the plastic case in which the screen and components are contained). The staff who assemble the components are mainly semi-skilled, and have been trained by AAA to perform fairly simple, repetitive operations. When completed, quality assurance staff test the TV sets, and any that are found faulty are returned to the production line to be re-worked.

Components received from suppliers are also tested by the quality assurance staff of AAA. As they do not have the time to test every component, they test a sample of components from each batch delivered. If they find more than one faulty component in every twenty tested, the whole batch is rejected and returned to the supplier.

Business Performance

The following is a summary of the performance of AAA last year. AAA reports its performance in the currency of its home country, the Juranian dollar (J$):

<table>
<thead>
<tr>
<th>Financial Performance</th>
<th>Last Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual J$ millions</td>
<td></td>
<td>Budget J$ millions</td>
</tr>
<tr>
<td>Sales revenue</td>
<td>1,793</td>
<td></td>
<td>1,941</td>
</tr>
<tr>
<td>Gross (Factory) profit</td>
<td>1,177</td>
<td></td>
<td>1,320</td>
</tr>
<tr>
<td>Pre-tax profit</td>
<td>652</td>
<td></td>
<td>790</td>
</tr>
<tr>
<td>Capital employed (average)</td>
<td>2,835</td>
<td></td>
<td>2,550</td>
</tr>
<tr>
<td>Cash (closing)</td>
<td>179</td>
<td></td>
<td>485</td>
</tr>
<tr>
<td>Finished goods inventory (average)</td>
<td>38.2</td>
<td></td>
<td>20.0</td>
</tr>
<tr>
<td>Raw material inventory (average)</td>
<td>11.4</td>
<td></td>
<td>9.5</td>
</tr>
<tr>
<td>Work in process (average)</td>
<td>0.8</td>
<td></td>
<td>0.3</td>
</tr>
</tbody>
</table>
Example 11.17 – (CIMA P6 November 2006) - continued

<table>
<thead>
<tr>
<th>Other performance indicators</th>
<th>Actual</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share price (closing) (J$)</td>
<td>334.50</td>
<td>400.00</td>
</tr>
<tr>
<td>Earnings per share (J$)</td>
<td>46.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Number of employees (average)</td>
<td>2,259</td>
<td>2,128</td>
</tr>
<tr>
<td>Sales (million units)</td>
<td>2.35</td>
<td>2.40</td>
</tr>
<tr>
<td>Number of finished units re-worked</td>
<td>54,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Percentage of purchases from suppliers rejected (by value)</td>
<td>4.25</td>
<td>3.00</td>
</tr>
<tr>
<td>Average production cost of sales per unit (J$)</td>
<td>262</td>
<td>259</td>
</tr>
<tr>
<td>Average sales price per unit (J$)</td>
<td>763</td>
<td>809</td>
</tr>
<tr>
<td>New product lines developed</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>New product lines successfully launched</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Products returned from customers as faulty (per 1,000 units sold)</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td>Warranty claims (per 1,000 units sold)</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>Number of working employee-days lost to industrial disputes</td>
<td>2,500</td>
<td>3,200</td>
</tr>
</tbody>
</table>

The board meeting

At the most recent board meeting of AAA, the Chief Executive Officer asked for suggestions as to how the management of AAA might be improved. One of the non-executive directors suggested that the use of the balanced scorecard might assist in controlling the business, as it had in another company of which she is also a non-executive director. The marketing director mentioned that he had compiled some information about another organisation in the television manufacturing industry, BBB, and asked if that might be of use. The purchasing director mentioned that he had recently been at a conference where a speaker had suggested that the introduction of ‘knowledge management’ was improving the performance of many organisations. As far as the other directors present at the board meeting were aware, this was not an approach used commonly in their industry.

BBB

BBB is a major rival of AAA, and is based in a neighbouring Asian country, Mesnar. BBB is a private company, owned by a wealthy industrialist. BBB compiles its accounts in the local currency of Mesnar, the Mesnari Riyal (RM). Both the Mesnari Riyal and the Juranian Dollar are freely traded currencies, and the current spot exchange rate between the two is J$1:RM2.50. There is free and unrestricted trade between Jurania and Mesnar.
Example 11.17 – (CIMA P6 November 2006) - continued

The following information has been obtained from BBB’s filed accounts from last year, and from the trade association of which both AAA and BBB are members.

<table>
<thead>
<tr>
<th>Last year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue (RM million)</td>
<td>1,400</td>
</tr>
<tr>
<td>Total production cost of sales (RM million)</td>
<td>435</td>
</tr>
<tr>
<td>Profit before tax (RM million)</td>
<td>557</td>
</tr>
<tr>
<td>Capital employed (RM million)</td>
<td>1,589</td>
</tr>
<tr>
<td>Closing inventories (RM million)</td>
<td>17</td>
</tr>
<tr>
<td>Number of employees (closing)</td>
<td>740</td>
</tr>
<tr>
<td>Number of units sold</td>
<td>780,000</td>
</tr>
<tr>
<td>Number of warranty claims in the year</td>
<td>19,800</td>
</tr>
</tbody>
</table>

Required

(a) Prepare a balanced scorecard appraisal of the performance of AAA last year.

Note: There are up to 10 marks available for calculations in this section. You are not required to compare the performance of AAA with that of BBB in this section.

(25 marks)

(b) As the management accountant of AAA, prepare a benchmarking report for the directors that compares the performance of AAA last year with that of BBB for the same period. You should refer to your answer to part (a) in making your comparison.

Note: There are up to 8 marks available for calculations in this section, and up to 2 marks for the use of an appropriate report format. You are not required to reproduce the calculations from your answer to part (a) in this section, but may do so if you wish.

(15 marks)

(c) Advise the directors of AAA how the introduction of knowledge management might lead to AAA developing a sustainable competitive advantage over BBB.

(10 marks)

(Total = 50 marks)
Feedback control ‘appraisal’
- Feedback is any process where part of the output of a system is measured and returned as input to regulate the systems further output.

Feed-forward control ‘prevention rather than cure’
- Feed-forward control would be a system that in a pre-emptive way, reacts to changes in its environment, normally to maintain some kind of desired state.

Hopwood’s three forms of control
1. Social controls e.g. group norms, staff culture and social interaction.
2. Administration control e.g. management exception reporting systems.
3. Self control e.g. staff exerting self-control by modifying their own behavior.

Bureaucracy
An organisation bound by an elaborate set of rules and procedures to tightly control it.

Reward
Monetary reward is an example of extrinsic reward and considered as the most important of all hygiene factors according to Frederick Hertzberg.

Types of financial incentive schemes
- Performance related pay (PRP) systems
- Bonuses
- Profit sharing schemes

Staff appraisal
The review and assessment of an employee’s performance with the potential for improving effectiveness of performance through training and development.

The aims of an appraisal system
- Reward
- Performance
- Potential for development
Examples of control in the workplace

- Job descriptions, grades and authority levels
- Span of control and scalar chain
- Organisational structure
- Standardisation of work procedures
- Rules and procedures
- Disciplinary procedures
- Reward
- Dress code
- Handbook
- Induction
- Training and development
- Recruitment and selection
- Contracts
- Staff appraisal

Classical school of management contrasted to human relations approach

<table>
<thead>
<tr>
<th></th>
<th>‘Classical School’ approach</th>
<th>‘Human Relations’ approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theorists</strong></td>
<td>Henry Fayol</td>
<td>Elton Mayo</td>
</tr>
<tr>
<td></td>
<td>Frederick Taylor</td>
<td>Abraham Maslow</td>
</tr>
<tr>
<td></td>
<td>Max Weber</td>
<td>Frederick Herzberg</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>Late 19(^{th}) century</td>
<td>Early 20(^{th}) century.</td>
</tr>
<tr>
<td><strong>Management Style</strong></td>
<td>Autocratic, lack of consultation.</td>
<td>Participative, democratic.</td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>Extrinsic Reward e.g. money.</td>
<td>Intrinsic Reward e.g. job enrichment.</td>
</tr>
<tr>
<td><strong>Management Control</strong></td>
<td>Carrot and stick approach.</td>
<td>Contented cows produce more milk.</td>
</tr>
<tr>
<td><strong>Management Focus</strong></td>
<td>Task planning and design</td>
<td>Human welfare and psychology.</td>
</tr>
</tbody>
</table>
Burns and Stalker

Characteristics of ‘organic’ verses ‘mechanistic’ organisations

<table>
<thead>
<tr>
<th></th>
<th>Organic</th>
<th>Mechanistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Style</td>
<td>Participative</td>
<td>Autocratic and</td>
</tr>
<tr>
<td></td>
<td>democratic</td>
<td>lack of consultation</td>
</tr>
<tr>
<td>Control</td>
<td>Informal and decentralised</td>
<td>Formal and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>centralised</td>
</tr>
<tr>
<td>Communication</td>
<td>Lateral (all direction)</td>
<td>Vertical (up and down)</td>
</tr>
<tr>
<td>Change</td>
<td>Flexible and adaptive</td>
<td>Inflexible and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>slow to change</td>
</tr>
<tr>
<td>Structure</td>
<td>Flat chain of command e.g.</td>
<td>Tall chain of command and clearly</td>
</tr>
<tr>
<td></td>
<td>Matrix/Team/</td>
<td>defined roles</td>
</tr>
<tr>
<td></td>
<td>entrepreneurial</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Dynamic/Uncertain</td>
<td>Stable/Certain</td>
</tr>
<tr>
<td>Outcome</td>
<td>Creative</td>
<td>Efficient</td>
</tr>
</tbody>
</table>

The concept of clan/cultural control

Hofstede’s dimensions of national culture

- **Power distance.** Extent to which people accept inequality of power.
- **Uncertainty avoidance.** Tolerance towards uncertainty or ambiguity.
- **Individualism /collectivism.** Collectivism: strong affiliation towards one another e.g. strong and cohesive groups. Individualism: individuals are expected to take care of themselves e.g. a strong need for individual success.
- **Masculinity/femininity.** Men’s masculine values e.g. very assertive and competitive, are relatively different from women’s feminine values e.g. modest and caring. Masculinity is a culture with a strong need for achievement, assertiveness and materiality. Femininity is a culture where relationships, modesty and quality of life are considered more important.
- **Long-Term Orientation.** Long Term Orientation e.g. perseverance, verses Short Term Orientation e.g. protection of reputation and traditions.

The 5 dimensions of culture can help management determine

- Leadership style
- Motivation incentives
- Organisational structure
- The degree of rules and procedures
Controlling subsidiaries

- Mission statement, goals and objectives.
- Performance measurement systems
- Systems for strategic planning and control
- Management appraisal process.
- Reward
- Culture

Goold and Campbell

Goold and Campbell identified three ‘styles of strategic management’

- **Strategic planning**  Senior management work closely with individual business unit managers to develop strategies for their business units.
- **Strategic control**  Senior management decentralise the development of strategic plans to business unit managers.
- **Financial control**  Control of strategy through a budget (financial) process e.g. financial controls and profit targets which business units are required to adhere to.

The divisional structure

A division is a distinct business set up within a larger company to ensure a certain product or market is handled and promoted as though it were a separate business.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Quicker decision making</td>
<td>☠ High cost of head office</td>
</tr>
<tr>
<td>✓ Focus on product and market performance</td>
<td>☠ Duplication of functions (or</td>
</tr>
<tr>
<td></td>
<td>departments)</td>
</tr>
<tr>
<td>✓ Ring fencing of financial results</td>
<td>☠ Reluctance to delegate by senior</td>
</tr>
<tr>
<td>✓ More empowerment</td>
<td>management</td>
</tr>
<tr>
<td>✓ Good training ground for managers.</td>
<td>☠ Lack of goal congruence</td>
</tr>
<tr>
<td>✓ Frees up senior management time</td>
<td></td>
</tr>
</tbody>
</table>
The functions of a performance measurement system

- Publicise and communicate direction
- Control the organisation.
- Plan and allocate resources

Neely’s 4Cs in performance measurement (1998)

1. Check position
2. Communicate position
3. Confirm priorities
4. Compel progress

Recommended process to develop a performance measurement system

1. Senior management ‘a clear vision of change’
2. Benchmark with other organisations
3. Participation by staff throughout the process
4. Targets/criteria should be set after consultation
5. Reward systems should be modified
7. Training for managers and staff
8. Review and monitor the new system
Evaluating the performance of divisions

The controllability principle
The controllability principle is concerned with assessing performance based upon measures that can be controlled only by a manager and omitting any items which are uncontrollable.

Profit based methods for evaluating the performance of divisions

Operating profit (net profit) margin

\[
= \frac{\text{Profit before interest and tax (PBIT)}}{\text{Turnover}} \times 100\%
\]

Gross profit (sales) margin

\[
= \frac{\text{Turnover less cost of sales (gross profit)}}{\text{Turnover}} \times 100\%
\]

Generally the gross profit or sales margin can also be referred to as the contribution to sales (C/S) ratio e.g. gross profit (sales less variable cost) ÷ sales.

Mark up

\[
= \frac{\text{Turnover less cost of sales (gross profit)}}{\text{Cost of sales}} \times 100\%
\]

Return on capital employed (ROCE)

\[
= \frac{\text{Profit before interest and tax (PBIT)}}{\text{Capital employed}} \times 100\%
\]

ROCE is also referred to as return on investment (ROI) and return on net assets (RONA). ROCE measures profitability and shows how well the business is utilising its capital to generate profits.
Residual income (RI)

Residual income is the profit earned by a division less a ‘notional interest charge’ for the investment of finance within it.

| Profit before interest and tax (PBIT) | £ |
| Capital employed x head office % interest charge | X |
| Residual income | X |

Residual income uses the same profit before interest and tax and capital employed value as the ROCE measure. Residual income is an absolute measure that deducts from profit before interest and tax, an imputed ‘notional’ interest charge using a cost of capital or return required.

Economic value added (EVA)

Economic value added was developed by Stern Stewart & Co and is a registered trademark. EVA is an estimate of economic profit, measured as Net Operating Profit after Taxes (or NOPAT) less the money cost of capital. MVA and EVA are strongly correlated.

\[
EVA = \text{Net cash operating profit after tax (}\text{adjusted}\text{for accounting distortions e.g. add back depreciation)} - \text{Economic depreciation (based on market value or replacement cost of assets)} - \text{Amortised R&D, advertising, marketing, goodwill, brand or new product development cost (}\text{adjusted} \text{capital employed x cost of capital)}
\]

Contrasting ROI, RI and EVA

<table>
<thead>
<tr>
<th>ROI</th>
<th>RI</th>
<th>EVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>All measures support goal congruence for profit maximisation</td>
<td>Accounting based measures</td>
<td>Cash based measure</td>
</tr>
<tr>
<td>Historical accounting for non-current assets</td>
<td>Use of replacement cost</td>
<td></td>
</tr>
<tr>
<td>Long-term expenditure written off in the same financial period</td>
<td>Capitalises long-term expenditure and amortises</td>
<td></td>
</tr>
<tr>
<td>Relative measure</td>
<td>Absolute measures</td>
<td></td>
</tr>
<tr>
<td>No finance charge</td>
<td>Finance charge recognised</td>
<td></td>
</tr>
</tbody>
</table>
Alfred Rappaport’s definition of shareholder wealth (value)
Shareholder value = corporate (business) value – Debt

Total shareholder return (TSR)

\[ \text{TSR} = \frac{\text{Dividend per share} + \text{Growth in share price}}{\text{Market share price at the start of the period}} \times 100\% \]

The increase in the share price plus the value of any dividends paid or proposed.

Market value added (MVA)
MVA is an external measure of shareholder wealth, measured by taking the rise in the market capitalisation during a period less the increase in capital invested during a period by investors. If MVA is positive, then the firm has added shareholder value. MVA and EVA are strongly correlated.

Value based management
Value based management may often be referred to as shareholder value analysis (SVA). Value based management (VBM) is an approach which focuses on strategies and actions to create more value for shareholders. Value being measured by share price (market capitalisation), dividends and other principles such as RI or EVA.

Alfred Rappaport developed seven ‘value drivers’

1. Sales growth
2. Operating profit margin
3. Cash income tax rate
4. Incremental fixed capital investment rate
5. Investment in working capital rate
6. Planning period
7. Cost of capital

Managing VBM

- Strategic selection of projects which create high shareholder wealth.
- Resource allocation and funding should have a recognised opportunity cost.
- Performance targets clearly communicated.
- Reward linked and correlated to performance targets.
- Change management to facilitate implementation.
- Review of VBM system for continuous improvement.
Multidimensional performance measurement

The balanced scorecard developed by Kaplan and Norton

The four perspectives of the balanced scorecard

- **Customer perspective** e.g. what must we do right for our customers?
- **Internal perspective** e.g. what must we excel at internally?
- **Innovation and learning perspective** e.g. how can we innovate?
- **Financial perspective** e.g. how do we satisfy shareholders?

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Long-term view of performance</td>
<td>✗ Historical performance no guide to the future</td>
</tr>
<tr>
<td>✓ Non-financial as well as financial measures considered</td>
<td>✗ Manipulation performance measures</td>
</tr>
<tr>
<td>✓ Performance measures can be ‘tailor made’</td>
<td>✗ Costly ‘bespoke’ information systems support BSC</td>
</tr>
<tr>
<td>✓ Monitor and control operations</td>
<td>✗ Conflict or ‘trade off’ between BSC perspectives</td>
</tr>
<tr>
<td>✓ Communicate and publicise goals to all stakeholders</td>
<td>✗ Too many performance measures can distort the benefits</td>
</tr>
<tr>
<td>✓ Link to remuneration of management and staff</td>
<td></td>
</tr>
</tbody>
</table>

A process to implement balanced scorecard (BSC)

1. A clear vision BSC communicated
2. Demonstration that senior management are committed to the idea
3. Education given to all managers and staff
4. Consultative meetings and presentations
5. Participation encouraged by all staff and management
6. Plan and determine how change needs to occur
7. Implement change
8. Reward and staff appraisal systems modified
9. Review and feedback obtained
The value for money (VFM) framework (the 3Es)

- Economy (Cheap)
- Efficiency (Quick)
- Effectiveness (Good)

The 6-dimensional performance matrix

Developed by Fitzgerald (1991)

Results

- Competitiveness
- Financial performance

Determinants

- Quality of service
- Flexibility
- Resource utilisation
- Innovation

The performance pyramid

Financial (ratio) analysis
The objective of financial statements is to provide information to all users of accounts to help them for decision-making. Note that most users will only have access to published financial statements.

The use of ratios
- To compare results over a period of time
- To measure performance against other organisations
- To compare results with a target
- To compare against industry averages

Limitations of ratio analysis
A ratio on its own is meaningless, accounting ratios must always be interpreted in relation to other information. Ratios based on historic cost accounts do not give a true picture of trends, because of the effects of inflation and different accounting policies. Investors’ ratios particularly have a disadvantage, because investment means looking into the future and the past may not always be indicative of the future. Comparing the financial statements of similar businesses can also be misleading.

Ratios can be grouped into 3 main areas

<table>
<thead>
<tr>
<th>1</th>
<th>Performance (profitability) – how well has the business done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Return on capital employed (ROCE)</strong></td>
<td>( \frac{\text{Profit before interest &amp; tax (PBIT)}}{\text{Capital employed (CE)}} \times 100% )</td>
</tr>
<tr>
<td><strong>Operating profit margin</strong></td>
<td>( \frac{\text{PBIT}}{\text{Turnover}} \times 100% )</td>
</tr>
<tr>
<td><strong>Asset turnover</strong></td>
<td>( \frac{\text{Turnover}}{\text{Total assets}} ) (number of times)</td>
</tr>
<tr>
<td><strong>Return on equity (ROE)</strong></td>
<td>( \frac{\text{Profit after tax, interest &amp; pref share divs}}{\text{Shareholder funds (equity)}} \times 100% )</td>
</tr>
</tbody>
</table>
## 2 Position (liquidity)– short term standing of the business

<table>
<thead>
<tr>
<th>Metric</th>
<th>Formula/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current ratio</strong></td>
<td>( \frac{\text{Current assets}}{\text{Current liabilities}} ) (number of times)</td>
</tr>
<tr>
<td><strong>Quick ratio</strong></td>
<td>( \frac{\text{Current assets - inventory}}{\text{Current liabilities}} ) (number of times)</td>
</tr>
<tr>
<td><strong>Gearing - equity</strong></td>
<td>( \frac{\text{Debt capital}}{\text{Equity (shareholders funds)}} ) x 100%</td>
</tr>
<tr>
<td><strong>Gearing – total</strong></td>
<td>( \frac{\text{Debt capital}}{\text{Debt + equity (total capital)}} ) x 100%</td>
</tr>
<tr>
<td><strong>Interest cover</strong></td>
<td>( \frac{\text{Profit before interest &amp; tax (PBIT)}}{\text{Interest paid}} ) (no of times)</td>
</tr>
<tr>
<td><strong>Trade payable days</strong></td>
<td>( \frac{\text{Trade payables}}{\text{Cost of sales (or purchases)}} ) x 365 days</td>
</tr>
<tr>
<td><strong>Inventory days</strong></td>
<td>( \frac{\text{Inventory}}{\text{Cost of sales}} ) x 365 days</td>
</tr>
<tr>
<td><strong>Trade receivable days</strong></td>
<td>( \frac{\text{Trade receivable}}{\text{Sales}} ) x 365 days</td>
</tr>
<tr>
<td><strong>Working capital cycle</strong></td>
<td>( \text{Trade receivable days} + \text{inventory days} ) - ( \text{trade payable days} = \text{working capital cycle (days)} )</td>
</tr>
<tr>
<td></td>
<td>Formula</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Earnings per share (EPS)</strong></td>
<td>Profit after tax / Number of shares</td>
</tr>
<tr>
<td><strong>P/E ratio</strong></td>
<td>Share price / Earnings per share</td>
</tr>
<tr>
<td><strong>Dividend yield</strong></td>
<td>Dividend per share / Share price x 100%</td>
</tr>
<tr>
<td><strong>Dividend cover</strong></td>
<td>Earnings per share / Dividend per share</td>
</tr>
</tbody>
</table>
**Transfer Pricing**

A transfer price is a price charged for goods or services provided internally between divisions or departments in the same group or company.

**The common aims of transfer pricing systems**

- Motivate managers
- Fair performance evaluation
- Promote autonomy
- Goal congruence
- To ensure optimal allocation of resources

<table>
<thead>
<tr>
<th>Change transfer price</th>
<th>Selling Division</th>
<th>Buying Division</th>
<th>The Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase transfer price</td>
<td>Profit increases</td>
<td>Profit Decreases</td>
<td>No change</td>
</tr>
<tr>
<td>Decrease transfer price</td>
<td>Profit decreases</td>
<td>Profit Increases</td>
<td>No change</td>
</tr>
</tbody>
</table>

**International aspects to transfer pricing**

- Exchange rates
- Import tariffs or quotas
- Taxation
- Worldwide prices and quality
- Other international legislation
Methods of transfer pricing

**Cost based approaches**
The pricing of products or services are based on their full or variable (marginal) production cost per unit.

**Two-part tariff (two part charging) system**
With a two-part tariff system the buyer is charged:
- A transfer price equal to the seller’s variable (marginal) cost
- A fixed charge per period by the seller irrespective of the amount of units sold

**Market based approaches**
When the external market price is used as a transfer price, a seller will always be encouraged to sell because they would be indifferent between their charging policy for internal or external customers.

**Dual pricing (or two prices)**
Dual transfer pricing means setting one transfer price for the internal seller and another transfer price for the internal buyer.
- **Internal seller** The transfer price received set at the external market price.
- **Internal buyer** The transfer price paid set at the sellers variable (marginal) cost.
**Opportunity cost pricing**

Opportunity cost pricing is considered the most mathematically correct way of viewing transfer pricing. The reason is that it looks at transfer pricing issues from a group not divisional perspective and therefore promotes goal congruence.

### Minimum price for a seller

<table>
<thead>
<tr>
<th>Full capacity</th>
<th>Spare capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Price</td>
<td>Marginal Cost</td>
</tr>
</tbody>
</table>

### Maximum price for a buyer

- **Maximum Price**
- The lower of?
- The external market price for the internal product or service.
- The net realisable value of the buyers final product.

So long as a maximum and minimum price range can be established it indicates that internal trade should take place, any transfer price set between the range will motivate both the internal seller and buyer to do so.
Solutions to lecture examples
Example 11.1

Division X has a target return on investment (ROI) of 12%. It has fixed costs of £400,000 and a variable cost per unit of £5. The net assets of the division forecast for the next period will be £1.5m and the number of units forecast to be sold will be 30,000 units.

What is the average contribution and selling price per unit to achieve the division's ROI target?

ROI = \[
\frac{\text{PBIT}}{\text{Capital employed}}
\]

12% (0.12) = \[
\frac{\text{PBIT}}{\text{£1,500,000}}
\]

Profit forecast therefore 12% £1,500,000 = £180,000.

Add back the fixed overhead of £400,000 to the £180,000 profit to get contribution of £580,000.

£580,000/30,000 units = £19.33 contribution per unit.

£19.33 cont per unit + £5 variable cost per unit = £24.33 selling price per unit.

Example 11.2

Division A makes and sells a single product and is assessed by the residual income it earns, the head office of the group uses a 10% cost of capital.

Forecast information:

Sales 50,000 units
Variable cost per unit £5
Fixed cost £45,000
Depreciation £23,500
Net assets £360,000

What price must division A charge to earn a residual income of £64,700?

£ HO charge £360,000 x 10% (c.o.c) = 36,000
Residual income 64,700
Profit before interest and tax (PBIT) 100,700
Depreciation and fixed cost (23.5k + 45k) 68,500
Contribution 169,200

£169,200/50,000 units = £3.38 contribution per unit. + variable cost per unit £5 = £8.38 selling price per unit.
Example 11.3

The following details are available for company Z

- Share price at the beginning of the year £3.87
- Share price at the end of the year £4.23
- Dividend proposed and paid during the year £0.90

Calculate the dividend yield and total shareholder return (TSR)?

**Dividend Yield** = \( \frac{\text{£0.90}}{\text{£3.87}} \) = 23.3%

**TSR** = \( \frac{\text{£0.90} + (\text{£4.23} - \text{£3.87})}{\text{£3.87}} \) = 32.6%
Example 11.4

Division Y has annual operating profit of £40 million after charging £6 million for the development cost of a new product which has been launched and is expected to last this year and for another two further years. The balance sheet shows non-current assets of £140 million, management estimate that the replacement cost of these non-current assets would be £170 million, the division also has working capital of £16 million. The division's depreciation policy is that it applies 20% on a reducing balance basis. The group head office uses an 11% cost of capital.

What is the EVA for this division?

Net cash operating profit after tax
 Adjusted for accounting distortions e.g. add back depreciation.
 £40 million + ‘accounting’ depreciation (£140 million x 20%)

   = £68 million

less
Economic depreciation (based on market value or replacement cost of assets)
(£170 million replacement cost x 20%)

   = £34 million

less
Amortised R&D, advertising, marketing, goodwill, brand or new product development cost.
(Add back £6 million for the development cost and then amortise and therefore deduct one third of this cost)

   = £38 million

less
Adjusted capital employed x cost of capital

Capital employed will be the (£170 million replacement cost x 80%) + working capital
£16 million + unamortised development cost of £4 million = £156 million capital employed based on economic replacement cost.

£156 million capital employed x 11% = £17.16 finance charge.

EVA = £20.84 million.
Example 11.5
Identify suitable performance measures for an insurance company to detect false claims and measure the speed of how they are processing claims?

The detection of false claims
- Training expenditure (or training days) per employee to aid detection of false claims.
- Percentage false claims detected each year.
- Percentage of staff suggestions for improving the method of detecting false claims actually implemented.
- Percentage of claims verified by on site inspection, police or fire reports.

Each of the above measures would indicate whether more or less false claims are being detected each period and whether the organisation is doing enough to detect false claims.

The speed of processing claims
- Percentage number of claims by customers processed within 14 days.
- Average of satisfaction ratings from customers from 1-5 (5 being the highest) e.g. speed of service to finalise claims.
- Number of complaints from customers regarding inaccurate information, late or lost paperwork when handling claims.
- Average time to settle insurance claims.
- Number of claims handled per member of staff.
- Number of claims handled per week.
- Staff turnover, percentage staff retention or staff absenteeism.

The reason for all of the above measures is that they would indicate the insurance company's efficiency in processing claims. High staff turnover indicates the replacement frequently of staff which can impact upon the efficiency of internal activities.

All performance measures and related information about detecting fraud, should be gathered, summarised and analysed. This information then compared with relevant industry information available, or other insurance companies which may participate as partners in a benchmarking exercise. Such information as the rate of detection, staff training and internal procedures should be compared externally. Internal benchmarking could also be used to compare information between other claims departments, as well as trend analysis of these performance measures compared over time.

For the efficiency of processing claims, once a claim is received it should be dated and date stamped when finalised. All information should be recorded in a computerised environment to allow automated and real time information to monitor performance measures and analyse trends over time. Similar information for comparison should be obtained from other insurance companies, trade journals, media an customers complaining to ensure the organisation is doing enough in terms of the norm or industry standard for settling claims. For both methods standards should be implemented to be used as a yardstick to view improvement over time. Internal groups should also be established in order to implement improvements recommended each time benchmarking is undertaken.
Example 11.6

Identify suitable non-financial performance measures for a bus company?

1. % Number of buses cancelled each month when scheduled and timetabled to run.
2. % Buses running late within 5 minutes/15 minutes/and over 15 minutes of published arrival time.
3. Staff retention and labour turnover rates for bus drivers.
4. Number driver accidents or incidents reported with reasons.
5. Health and safety training days and training expenditure per employee.
6. % and number of customer complaints analysed by reason e.g. bus late, bus never arrived, bus driver unpleasant or bus dirty/untidy.
7. % and number of breakdowns for buses on route.
Example 11.7

Identify suitable performance measures for an insurance company using the balanced scorecard approach?

Customer perspective

- Percentage of sales which is repeat business.
- The number of complaints (analysed by reason).
- The percentage number of customers complaining.
- Average time to settle insurance claims.
- Average of satisfaction ratings from customers e.g. quality of service from 1-5 (5 being the highest).
- Percentage market share.

The reason for all the above measures is that they would indicate customer satisfaction for the quality of service customers are receiving.

Internal perspective

- Percentage number of quotations and renewals delivered to customers within three days of processing their details.
- Number of complaints from customers regarding inaccurate information, late or lost paperwork.
- Average time to settle insurance claims.
- Staff turnover, percentage staff retention or staff absenteeism.

The reason for all of the above measures is that they would indicate failures in the insurance company’s internal processes which may impact on customer satisfaction. High staff turnover indicates the replacement frequently of staff which can impact upon the efficiency and effectiveness of internal activities.

Innovation and learning perspective

- Training expenditure or training days per employee.
- New insurance products launched in the past 6 months compared to the competition.
- Percentage of staff suggestions for improvement used by management.
- Percentage of sales revenue each year from new products launched.

Training expenditure or training days indicates the ‘learning’ or staff development perspective within the insurance company and the remaining three are good measures for innovation.

Continued….
Example 11.7 – continued…

Financial perspective

- Share price growth.
- Percentage of market share.
- Dividend per share.
- Earnings per share.
- Sales or profit growth.
- Return on investment (ROI).
- Economic value added.

All the above measures concentrate on maximising financial value for a shareholder.
Example 11.8

Identify performance measures under the framework of economy, efficiency and effectiveness for the UK national health service (NHS)?

**Economy**

- Cost per patient per day for different classification of treatments
- Cost per bed for each overnight stay for different classification of treatments
- Cost for different classification of treatments e.g. pharmaceuticals, medical equipment, staff time etc
- Average salary cost per year for doctors, nurses and other staff

**Efficiency**

- Average waiting time for different treatments
- Number of patients seen per day per consultant
- Number of patients treated each year (or day) for different classification of treatments
- Average staff time for different classification of treatments
- Percentage occupancy of different hospital wards e.g. utilisation

**Effectiveness**

- Patient satisfaction e.g. measured by complaints
- Number of readmissions or return of patients due to faulty treatment
- Number of criminal prosecutions and percentage of legal cases found in favour of plaintiffs due to hospital negligence
- Average life expectancy of patients for different classification of treatments e.g. after a major surgical operation

Such a system is not without its critics, surely it is the qualitative factors in patient treatment (effectiveness) more than the quantitative measures (economy and efficiency) that are more important when it comes to patient care? Also given that performance measures require standards, not every operation or treatment can be cured in a single best way. If government funding is allocated to hospitals based on standard prices for different treatments, this could mean overzealous treatment of patients to prevent overspending and long-term this could diminish the level of patient care.
Example 11.9

Suggest suitable performance measures under each of the six dimensions for a supermarket?

**Competitiveness**
- Market share/Relative market share (RMS)
- Sales growth
- Price comparisons to cheapest rivals for product categories
- Number of customers
- % Repeat sales from existing customers
- Level of churn e.g. percentage customers lost to other rivals

**Financial performance**
- Profitably
- Liquidity
- Gearing
- Investor returns

**Quality of service**
- Number of returns e.g. by volume, value and as a percentage total sales
- Appearance of staff and in store design e.g. using customer surveys
- Number of complaints analysed by reason
- Customer service training cost or days per employee
- Courteousness and friendliness e.g. using customer surveys

**Flexibility (speed and responsiveness of organisation)**
- Average lead-times for deliveries
- Number of out-of-stock items occurring and length of time out of stock
- Stock turnover analysis e.g. for different product categories
- Average number of skills members of staff have obtained

**Resource utilisation (capacity utilisation, efficiency and productivity)**
- Sales per metre cubed for different product categories
- Contribution per metre cubed for different product categories
- ABC analysis for product or customer support activities
- Average time to queue per customer e.g. measure of efficiency

**Innovation**
- Number of new store enhancements made per year
- Average cost per store for enhancements made
- Number of new products developed or introduced each year
- Percentage of new products introduced that are commercially successful
- Percentage and value of sales from new products or services introduced
Example 11.10

1 ROCE

\[
\frac{\text{PBIT}}{\text{CE}} = \frac{54 + 4}{236 + 80} \times 100\% = 18.4\% \quad \text{20X2} \\
\frac{(46 + 4)}{(238 + 80)} \times 100\% = 15.7\% \quad \text{20X1}
\]

The return on capital employed has increased over the year from 15.7% to 18.4%. The profit has increased which may have resulted in the increase.

2 Gross profit margin

\[
\frac{\text{GP}}{\text{Sales}} = \frac{104}{418} \times 100\% = 24.9\% \quad \text{20X2} \\
\frac{90}{392} \times 100\% = 23.0\% \quad \text{20X1}
\]

The gross profit margin has increased from 23.0% to 24.9%, which could mean higher selling prices or lower costs. This also explains the rise in ROCE.

3 Asset turnover

\[
\frac{\text{T/o}}{\text{CE}} = \frac{418}{316} = 1.32 \text{ times} \quad \text{20X2} \\
\frac{392}{318} = 1.23 \text{ times} \quad \text{20X1}
\]

The asset turnover has increased indicating that the company is using its assets more effectively.

4 Current ratio

\[
= \frac{148}{92} = 1.61 \quad \text{for 20X2} \\
= \frac{170}{130} = 1.31 \quad \text{for 20X1}
\]

The current ratio has increased, meaning that the organisation is more liquid. This is due to the fact that inventory and trade receivables have increased (which are non productive assets), and trade payables have been reduced. Although this may be better for the current ratio, it may not necessarily mean that the company is operating more efficiently. Has it increased its inventory piles because it anticipates higher sales and doesn’t want to run out? Is it offering its credit customers longer time to pay to increase sales? Why are they paying their suppliers quicker? Surely it would be better to take as long as possible?

5 Quick ratio

\[
= \frac{(148 - 84)}{92} = 0.70 \quad \text{for 20X2} \\
= \frac{(170 - 74)}{130} = 0.74 \quad \text{for 20X1}
\]

The quick ratio is slightly better in 20X1, which proves that higher inventory levels are being maintained for 20X2.

6 Inventory turnover ratio

\[
= \frac{314}{(74 + 84)} \times 0.5 = 4.0 \text{ times} \quad \text{for 20X2} \\
= \frac{302}{(58 + 74)} \times 0.5 = 4.6 \text{ times} \quad \text{for 20X1}
\]

Continued ....
Example 11.10 - continued

This ratio shows how quickly the inventory is being sold. In 20X1 it was being sold at a much higher rate than in 20X2. Have the products changed? Has the customer base changed?

The nature of the business needs to be known to see whether these turnover times are line with the normal industry.

7  Inventory days  
   20X2  =  (74 + 84) x 0.5 / 314 x 365 days =  92 days for 20X2
   =  (58 + 74) x 0.5 / 302 x 365 days =  80 days for 20X1

Alternatively this can be arrived at: 20X2 ÷ 1/4 x 365 = 92 days. 20X1 ÷ 1/4.6 x 365 = 80 days

This again highlights the fact that the stock is taking longer to shift into sales. It is spending more time within the warehouse.

8  Trade receivable days
   =  58 / 418 x 365 days =  50.6 days for 20X2
   =  46 / 392 x 365 days =  42.8 days for 20X1

There is a worsening debt collection period. Is there a delay in issuing invoices, lack of screening new customers? Are the year end figures representatives of the year? Perhaps there are seasonal fluctuations that need to be considered.

9  Trade payable days
   =  72 / 324 x 365 =  81.1 days for 20X2
   =  110 / 318 x 365 =  126.3 days for 20X1

The suppliers are being paid quicker, which is good for relationship with the suppliers, but bad for cash flow purposes. Trade credit is a free source of finance, and the company must try to maximise this.

10  Gearing equity ratio = Preference share capital + loans / OSC + reserves
    =  50 + 80 / 236 ÷ 50 = 69.9% 20X2
    =  50 + 80 / 238 ÷ 50 = 69.1% 20X1

Low geared = less than 100%, highly geared = more than 100% and neutrally geared if ratio is 100%. The gearing remains at similar levels. The company is not highly geared.

11  Total gearing = Preference share capital + loan / total long term capital
    =  130 / (236 + 80) = 41.1% 20X2
    =  130 / (238 +80) = 40.9% 20X1

With total gearing, higher than 50% is high gearing, lower than 50% is lower gearing and 50% is neutral.

Continued …
Example 11.10 - continued

12 Interest cover  =  Profit before interest and tax / interest payable
                 =  54 + 4 / 4 = 14.5 times 20X2
                 =  46 + 4 / 4 = 12.5 times 20X1

As the company is low geared, the interest cover is high. This means there is less financial risk in investing this company. Company is in a strong position to pay interest.

13 Dividend cover  =  Profit after tax and after preference divs / dividend paid
                 =  (34 − 4) / 12 = 2.5 times 20X2
                 =  (26 − 4) / 10 = 2.2 times 20X1

The dividend cover is after allowing for preference dividends. There is a reasonably comfortable cover.

Solution to Lecture Example 18.1 cont….

14 EPS  =  Profit after tax and after preference divs / no of ordinary shares
         =  (34 − 4) / 140 = 21.4 pence per share 20X2
         =  (26 − 4) / 140 = 15.7 pence per share 20X1

15 PE ratio  =  Market price / EPS
              =  240 / 21.4 = 11.21 times 20X2

The PE ratio is quite high, indicating that the market has confidence in the company’s future growth. However this needs to be compared with industry or similar companies.

With all the ratios it would be useful to compare against the industry averages.
Example 11.11

Division A within a group makes Dougals which it sells internally within the group to division Z and also to external customers. It currently uses full cost pricing charging division Z and external customers a selling price £50 a unit, the details of Dougals are shown below.

**Per unit:**

<table>
<thead>
<tr>
<th></th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost</td>
<td>30.00</td>
</tr>
<tr>
<td>Fixed cost</td>
<td>10.00</td>
</tr>
<tr>
<td>Mark up 25% on full cost</td>
<td>10.00</td>
</tr>
<tr>
<td>Full price</td>
<td>50.00</td>
</tr>
</tbody>
</table>

Division Z has recently found that they can buy from another supplier for £35. Will either full or variable cost pricing (both using 25% mark up on cost) lead to goal congruence within this group? How worse off will the group be if division Z uses their autonomy to buy from the external supplier?

- With full cost plus pricing the price of £50.00 will be more than what division Z would be willing to pay assuming the goods are the same quality if they buy elsewhere externally.
- Even with variable cost pricing £30.00 (variable cost) + 25% mark up would be £37.50, again, perhaps more than what division Z is willing to pay, given the external market price is £35.
- It is likely division Z will buy externally as opposed to internally from division A.
- The marginal cost to the group of supplying each unit internally would be £30.00 assuming fixed cost would be unavoidable and not specific to manufacturing the product. Given that division A sells to other external customers, it is likely production will continue and therefore only the marginal or variable cost is avoided. To buy outside (externally) from the group, the marginal cost would be £35.00.
- It would be cheaper for the group to manufacture internally however in this situation it would not happen if each division is given full autonomy. Therefore goal incongruence would arise. For each unit purchased externally by division Z this would cost the group (£35 external marginal cost - £30 internal marginal cost) £5 per unit more. However division Z would not see it this way.

**Other non-pricing issues**

- Quality of external supplier.
- Any differences in marketing, packaging or other costs.
- Flow of inventory, lead times and reliability.
Example 11.12

The following information exists for a division in the XYZ group.

Division A
Maximum production capacity 50000 units
External sales 40000 units
Market price for external customers £40
Variable cost for each unit produced £13

Using the opportunity cost approach, what would be the price Division A should quote to an internal buyer requesting 15000 units?

The first 10000 units would utilise spare capacity for the seller therefore the minimum price to the seller for the first 10000 units supplied would be the variable (marginal) cost of £13. For the last 5000 units supplied the seller would have to turn away existing customers due to being at full capacity. The opportunity cost to the seller for the last 5000 units would be £40 a unit, the market price it would charge to external customers. The external market price in this case represents the opportunity cost to the seller because £13 variable cost + lost contribution for each unit not sold to external customers (£40-£13) equals £40, the external market price.
Example 11.13

Within the XYZ group, division X transfers to division Z, a component, the unit production cost of each component is as follows:

<table>
<thead>
<tr>
<th>Cost Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable cost</td>
<td>£20.00</td>
</tr>
<tr>
<td>Fixed cost absorbed</td>
<td>£10.00</td>
</tr>
<tr>
<td></td>
<td>£30.00</td>
</tr>
</tbody>
</table>

Division X currently has spare capacity and sells each component to division Z for a transfer price of £70 a unit. Division X also produces other products. Division Z has recently found an alternative supplier for this component that can be purchased for £65 a unit. If division Z chooses to use the external supplier, what would be the effect on profit for division X, division Y and group profit?

**Division X (seller)**

Profits decline by £50 a unit e.g. lost contribution equals selling price £70 less £20 variable production cost). This assumes there would be no incremental change in fixed overhead as a result of discontinuing supply.

**Division Z (buyer)**

Profits increase by saving money buying each component. The saving would be £5 per unit for the buyer. £70 less £65 equals £5 better off for each unit when purchased from the external supplier.

**Group (consolidated position)**

It would cost the group an extra £45 a unit if the buyer chooses to buy externally. £65 (external price) less £20 (internal variable or marginal cost) = £45. The group profit will decline by £45 for each unit supplied externally rather than internally.

**Opportunity cost approach**

Division X currently has spare capacity therefore £20 variable (marginal) cost is the minimum price.

Division Y the external market price for the internal product would be the maximum price and this would be £65 when purchasing from an external supplier.

**RANGE: Minimum TP (£20) Maximum TP (£65)**

So long as a transfer price is set within the above range both seller and buyer will be motivated to trade internally. This would be in the best interest of the group.
**Example 11.14 – (CIMA P1 Nov 2005)**

**Part (a)**

**Tip:** Total assets less current liabilities (TALCL) or 'net assets' is also equal to shareholders equity + long-term liabilities. It is imperative to read the question; the operating statements are for a single month (October) therefore profits before tax must be annualised in order for return on investment to be calculated.

**Return on investment (ROI) or Return on capital employed (ROCE)**

\[
\text{ROI} = \frac{\text{Operating profit before interest and tax}}{\text{Capital employed (TALCL)}}
\]

**Division Y**

\[
15.0\% = \frac{\text{ (£0.122 million x 12 months)}}{\text{ (£9.76 million net assets)}}
\]

**Division Z**

\[
20.0\% = \frac{\text{ (£0.021 million x 12 months)}}{\text{ (£1.26 million net assets)}}
\]

**Discussion of relative performance**

- Division Z has the highest return on investment (20%) in comparison to division Y (15%).
- Both divisions exceed the target of 12% per annum set by the parent company. However division Y will be at greater risk if the target return on investment is increased.
- Both are profitable and generate a positive contribution for the group.
- In absolute terms division Y is the largest division in terms of net assets and generates a greater absolute profit than division Z (£122,000 compared to £21,000 per month). This is almost six times the level of absolute profit in comparison to division Z.
- Both divisions operate in similar markets however division Z has almost the same absolute level of variable cost as division Y, even though its sales revenue is almost half the amount. Division Y has variable cost to sales of 38.3% (£0.345m ÷ £0.9m) and division Z 56.2% (£0.312m ÷ £0.555m). This indicates that division Y looks more operationally efficient. Division Z has a much lower net assets value than division Y which could indicate that its assets are older and therefore more inefficient.
- Division Y has a greater level of apportioned central cost (£338,000 per month), which is almost twice the amount that division Z is charged. This arbitrary amount charged will effect the profitability of the two divisions by a great extent e.g. for division Z an 11.7% increase in apportioned central cost would reduce profit per month to zero (£21,000 ÷ £180,000).
If the uncontrollability principle is applied and central apportioned cost were to be removed then the ROI of the two divisions would be as follows:

- Division Y (£0.46m x 12) ÷ 9.76m = 56.6%
- Division Z (£0.201m x 12) ÷ 1.26m = 191.1%

More information will be needed for how central apportioned costs are allocated to each division, as well as information on the age of the net assets used within each division, to make a more effective comparison of financial performance between the two.


Part (b)

**Tip:** Residual income (RI) is calculated by taking the profit a manager earns for a division less a ‘notional interest charge’ for the investment within the division e.g. the profit generated from the division less a finance charge from the holding company or head office using a cost of capital. Accounting profit is calculated the same way as for return on investment (ROI).

<table>
<thead>
<tr>
<th>Division</th>
<th>Profit before interest and tax (£m)</th>
<th>Capital employed x cost of capital (£m)</th>
<th>Residual income (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division Y</td>
<td>£0.122 million x 12 months</td>
<td>£9.76 million x 12%</td>
<td>£0.293</td>
</tr>
<tr>
<td>Division Z</td>
<td>£0.021 million x 12 months</td>
<td>£1.26 million x 12%</td>
<td>£0.101</td>
</tr>
</tbody>
</table>

Residual income in comparison to return on investment

- Absolute rather than a relative measure
- Deducts a finance charge for the cost of capital used for a division

Even though division Y has a lower return on investment (15%) compared to division Z (20%), it does create greater wealth for the group in terms of the absolute size of residual income it earns.

This is something that return on investment considered in isolation will not demonstrate because it is a relative not absolute measure of return.

The implications of this information are that it demonstrates that division Y contributes greater wealth to the profits of the group and therefore its shareholders. It is a superior measure when contrasted to return on investment. However one single measure by itself will never allow a complete understanding of financial performance.

Part (c)

**Tip:** The biggest drawback of ROI and RI are that they are accounting not cash-based measures. Such financial measures can create short-term behaviour by divisional managers. If divisions under invest in non current assets, this causes the net book value of net assets or capital employed to fall in value over time. If profits remain static both ROI and RI will improve, yet the manager would have done little in terms of improving financial results.

The choice of accounting policies used e.g. stock valuation, depreciation methods or the way central costs are apportioned, will also distort and create different profit and net asset levels within divisions. Managers may also be over zealous to cut back expenditure in order to improve the profit of the division e.g. advertising, training, research and development, and this can jeopardise the long-term profit of the division.

These methods also can frustrate managers and can cause political argument occur over the allocation of cost centrally such as central apportioned overhead or interest charges.

The below gives a comprehensive listing of the advantages and disadvantages of using the two methods, however one mark, up to a maximum of 3 would have been awarded for each brief comment you make. The level of comprehension within the solution below would therefore not be needed.

**Advantages of ROI**

- ✓ A relative measure so different sized divisions can be compared better than RI when assessing financial performance.
- ✓ Well understood by users of accounts.
- ✓ Forces the manager to be efficient with resources (assets) used.

**Disadvantages of ROI**

- ✗ Disincentive to invest in net assets to improve ROI. ROI improves over the life of an asset where little or no reinvestment takes place.
- ✗ Goal incongruent decisions where a new investment generates a positive net present value, but would fail on the criteria of ROI used by the manager. This is because new projects often will have low profit and high net book values in the early years of investment.
- ✗ An accounting not cash based measure therefore ROI can be distorted.
Advantages of RI

- Consistent with profit maximisation and an absolute rather than relative measure.
- Brings home the idea about cost of finance for a manager.
- Unlikely when contrasted with ROI to act as a disincentive to invest e.g. as long as profit is earned it should improve RI.

Disadvantages of RI

- An accounting not cash based measure therefore RI can be distorted.
- Cannot compare divisions of different sizes very well.
- May discourage investment in net assets in order to lower the interest or finance charge applied to a division.
- RI improves the older net assets become e.g. a lower finance charge when applied to the historical cost of assets within the division.

Tip: Only a few sentences about two further methods of assessment would be required for one mark each. Possibilities could include the following.

- Controllability principle applied when calculating ROI or RI e.g. ignoring central costs apportioned.
- Cash-based methods such as throughput accounting, net present value or economic value added.
- Variance analysis and budgetary control through exception reporting.
- Ratio analysis e.g. profitability, liquidity and investor ratios.
- Other non-financial ratios e.g. sales per square metre, number of complaints, staff turnover, market share, sales growth, new customers or repeat business.
- Using performance frameworks like the balanced scorecard.

Other methods of appraising divisions

Economic value added is an absolute cash based measure of the economic financial wealth generated by a division over time. It deducts a finance charge using a cost of capital, applied to the replacement cost of assets used by a division. They method concentrates on the maximisation of cash or contribution which is more likely to maximise shareholder value. EVA can not be manipulated by a manager's choice over the accounting policies they might use. A new approach to strategic management was developed in the early 1990's by Drs. Robert Kaplan (Harvard Business School) and David Norton. The balanced scorecard suggests that we view an organisation from four perspectives.

- Customer perspective
- Internal perspective
- Innovation and learning perspective
- Financial perspective
Example 11.15 – (CIMA P1 Nov 2006)

(a)

<table>
<thead>
<tr>
<th>Income statements</th>
<th>Division X</th>
<th>Division Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (W1)</td>
<td>£100,000</td>
<td>£270,000</td>
</tr>
<tr>
<td>Cost of sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable costs (W2)</td>
<td>(£50,000)</td>
<td>(£144,000)</td>
</tr>
<tr>
<td>Contribution</td>
<td>£50,000</td>
<td>£126,000</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>(£15,000)</td>
<td>(£100,000)</td>
</tr>
<tr>
<td>Profit</td>
<td>£35,000</td>
<td>£26,000</td>
</tr>
<tr>
<td>Less finance cost (W3)</td>
<td>£6,000</td>
<td></td>
</tr>
<tr>
<td>Residual income</td>
<td>£29,000</td>
<td>£15,000</td>
</tr>
<tr>
<td>ROCE (W4)</td>
<td>58.33%</td>
<td>23.64%</td>
</tr>
<tr>
<td>Operating profit margin (W5)</td>
<td>35.00%</td>
<td>9.63%</td>
</tr>
<tr>
<td>Asset turnover (W6)</td>
<td>1.67</td>
<td>2.46</td>
</tr>
</tbody>
</table>

Working 1  Sales

Division X would sell at the external market price of £20 per unit.

Currently 3,000 units transferred to division Y and 2,000 units sold externally. This gives the current sales of \((3,000 \times £10) + (2,000 \times £20)\) £70,000

Revised sales would be the entire 5,000 units are sold at £20 = £100,000

Division Y sales would remain unchanged as they don’t transfer internally.

Working 2  Variable costs

Division X  remain the same at £50,000 (£10 per unit marginal cost)

Division Y  3,000 units transferred from Division X would now cost £20 per unit.

Current variable costs £114,000

Less 3,000 x £10 (£30,000)

Add 3,000 x £20 (£60,000)

Revised variable costs £**144,000**
Working 3  Finance charge

Capital employed x cost of capital

Division X - £60,000 x 10% = £ 6,000
Division Y - £110,000 x 10% = £11,000

Working 4  Return on capital employed (ROCE)

ROCE = Profit / capital employed  x 100%

Division X - £35,000 / £60,000 x 100% = 58.33%
Division Y - £26,000 / £110,000 x 100% = 23.64%

Working 5  Operating profit margin

Profit / turnover x 100%

Division X - £35,000 / £100,000 x 100% = 35.00%
Division Y - £26,000 / £270,000 x 100% = 9.63%

Working 6  Asset turnover

Sales / capital employed

Division X - £100,000 / £60,000 = 1.67
Division Y - £270,000 / £110,000 = 2.46
Example 11.15 – (CIMA P1 Nov 2006)

(b)

<table>
<thead>
<tr>
<th>Performance measures</th>
<th>Division X before</th>
<th>Division X after</th>
<th>Division Y before</th>
<th>Division Y after</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual income</td>
<td>(£1,000)</td>
<td>£29,000</td>
<td>£45,000</td>
<td>£15,000</td>
</tr>
<tr>
<td>ROCE</td>
<td>8.33%</td>
<td>58.33%</td>
<td>50.91%</td>
<td>23.64%</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>7.14%</td>
<td>35.00%</td>
<td>20.74%</td>
<td>9.63%</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>1.17</td>
<td>1.67</td>
<td>2.46</td>
<td>2.46</td>
</tr>
</tbody>
</table>

The proposed change in policy will benefit Division X greatly and but at the expense of Division Y.

Division X’s revenue and therefore profit increases by £30,000. This is because they are now selling 3,000 units at £10 extra (£30,000). This therefore increases their residual income to a positive £29,000. Their return on capital has increased hugely from 8.33% to 58.33%. The operating profit margin has also increased to 35% from 7.14% and their asset turnover is much improved.

However Division Y’s performance is not so good. With the increased cost of component C, their variable costs have increased to £144,000 from £114,000. This is the £30,000 increase which has been passed on from Division X. The result of these increased costs has resulted in lower residual income (only £15,000), the ROCE is more than half its original value at 23.64%. The profit margin has reduced from a healthy 20.74% to a depressing 9.63%. Their asset turnover remains the same.

The result of altering the transfer price to £20 per component will be great for Division X as their performance measures will be greatly improved. Therefore the managers of Division X will really want to push for this new proposal.

However for Division Y, their performance measures will be vastly reduced, resulting in lower moral. Therefore Division Y may choose to source their component C from elsewhere at cheaper rates. This will lead to goal incongruence which is not in the best interest of the group.
Example 11.15 – (CIMA P1 Nov 2006)

(c)(i)

With the new proposal, the managers of Division X will want to set the transfer price at the same rate as the external market price of £20 per unit. This will improve their financial performance immensely.

Division Y will lose out if the transfer price is set at £20 as their performance measures deteriorate drastically. So therefore division Y managers will want to negotiate a lower transfer price. If Division X does not agree to a lower price, Division Y may purchase component C externally.

The marginal cost to the group of producing component C is £10 and if Division Y purchases externally at a price higher than £10, the group as a whole is losing out.

If Division Y does source component C externally, Division X will have spare capacity. Currently there are only 3,000 units of external demand, which means that there will be 2,000 units of spare capacity. If the fixed costs cannot be avoided, this again means that ZZ group as a whole is losing out and it will impact the bottom line profit.

A good transfer price is one where both divisions are happy with and it doesn’t impact the group as a whole in a negative way. This usually means that divisions buy and sell internally and do not source goods from outside the group if they can buy them internally.

With the current situation it is unlikely that both divisions can agree on a suitable transfer price. This may cause hostility between both divisions leading to goal incongruence and low morale. The group may have to intervene to ensure that profitability of the group as a whole is not negatively impacted.
A good way of pleasing both divisions where there is a problem of a suitable transfer price could be methods such as a dual pricing or two-part tariff system. These methods of transfer pricing ensures both divisions are happy and that they buy and sell to each other.

A dual transfer price is achieved by setting one transfer price for Division X and another transfer price for Division Y. The transfer price for Division X to sell will be set at the external market rate and the transfer price for Division Y will be set at the marginal cost of producing component C. The difference between the two transfer prices would need to be reconciled by head office, which is one of the major drawbacks of this method as it is very time consuming.

A two-part tariff system is where a fixed charge per period is given to the seller — Division X — irrespective of the amount of units transferred by the seller plus a fixed rate (at marginal or variable cost) charged for each unit transferred. Such a system would include an element of profit to give Division X the necessary motivation. Such a system aims to ensure the seller covers the fixed cost of production, and receives a selling price for each unit supplied to cover the variable or marginal cost of production.

Both of these transfer pricing policies would give autonomy to Division X and Y. However agreeing a transfer price can be very time consuming especially if the divisional managers are not experienced in this area. Some involvement by the group may be necessary to ensure that negotiations go ahead and that both divisions do agree.
Example 11.16

(CIMA P6 Pilot paper 2005) - Part (a)

BREIFING TO THE BOARD

A new approach to strategic management was developed in the early 1990's by Drs. Robert Kaplan (Harvard Business School) and David Norton.

The balanced scorecard suggests that we view the organisation from four perspectives, and to develop metrics, collect data and analyse the organisation relative to each of these perspectives:

- Customer e.g. what must we do right for our customers and what do they value?
- Internal e.g. what must we excel at or improve internally to satisfy shareholders and customers?
- Innovation and learning e.g. how can we innovate and improve value?
- Financial e.g. how do we satisfy shareholders and create value for them?

Traditionally most profit making organisations view the satisfaction of shareholder wealth as the primary objective, above all else. The balance scorecard is the creation for an organisation of a range of performance indicators (both financial and non-financial), concentrating on the above four different perspectives.

Non-financial indicators recognise that a constant drive to increase profits can ultimately be self-defeating, should it lead to less morale of the workforce or reduced levels of customer service sending the organisation heading for trouble. The primary goal of most profit seeking enterprises is to increase shareholder value through increasing profit; however the BSC approach recognises that equally important would be the level of customer service or quality you offer to the customer or the morale of the work force or how well your staff are trained and kept up-to-date with working practices. Overtime as organisations address these issues the benefits in the longer term would mean increased long-term profitability if monitored and controlled.

It is therefore imperative that organisations do not put the needs of shareholders above all else, the BSC as a template can allow more diverse performance indicators (both financial and non-financial), to be developed across the board, along with the information systems to monitor and control them. Often a manager’s remuneration can also be tied to the performance of all four perspectives, forcing greater goal congruence of the manager. The only difficult part is the actual creation of the performance indicators, interpretation of them and the conflicts that may arise between them.
The benefits to the Royal Botanical Gardens of its introduction would be

- It encourages a long-term view of improving performance of the organisation through time and could help negotiate with central government when its grant is up for review in three years time
- Performance measures can be tailor made to the industry e.g. bespoke and therefore more relevant as an information system for the Royal Botanical Gardens
- Remuneration of staff or management can be tied to all four perspectives to improve their performance and ensure congruence to the goals of the organisation
- The performance measures created can be used to monitor and control its operations e.g. enquiries from universities and pharmaceutical companies in terms of success of enquiries, or satisfaction of visitors by measurement of complaints
- Communicates goals and objectives of the organisation to all stakeholders e.g. management, employees, customers and central government
- Non-financial as well as financial measures would be considered which give a better overall picture for monitoring and controlling

Example 11.16

(CIMA P6 Pilot paper 2005) - Part (b)

There is no one recipe of success for managing change within organisations. For it to be successfully implemented there needs to be a shared vision which has been effectively communicated as well as a committed senior management team that have built trust and high levels of participation from those involved and effected by it.

Managers need to anticipate change and create an atmosphere or culture of staff to accept it, as well as manage the resistance or conflict it may cause. Some people generally do not like change as their comfortable routines will be altered or their status or responsibilities could change, other people may positively encourage, embrace and accept it.

A process to implement BSC

1. A clear vision of the introduction of a BSC communicated and demonstration that senior management are committed to the idea
2. Education given to all managers and staff of the concept of the BSC e.g. workshop seminar or letter to staff for better understanding
3. According to Kurt Lewin’s three stage approach to change, unfreeze existing beliefs by creating dissatisfaction with the current situation e.g. hold consultative meetings/presentations or educate/communicate the reasons why change needs to occur (or there will be no motivation to change)
4. Participation encouraged by all staff and management to aid change e.g. consultation and evaluation of different solutions, keep an open mind and listen to those effected
5. Plan and determine how change needs to occur, set objectives and timescale for the introduction of the BSC
6. Implement change e.g. systems for gathering information and training to managers given
7. Reward systems modified and linked to performance of key measures
8. Review and feedback obtained periodically to ensure the change process has been successful, and frequent updating of certain measures if they are no longer appropriate for the Royal Botanical Gardens

**Examples of measures for the BSC**

**Customer perspective**

- Number of visitors periodically as well as sales revenue or tickets sold
- Percentage of repeat visitors
- Number of complaints, analysed into categories of reasons why visitors have complained
- Satisfaction surveys by customers regarding pricing, attractions, helpfulness and courtesy of staff and other facilities provided

**Internal perspective**

- Number of enquiries handled from universities, pharmaceutical and other organisations
- % of successful enquiries handled e.g. advice or access to collections actually used
- Average response time for enquires
- Number of staff employed (perhaps also visitor/staff or enquiries/staff)
- % of new floral exhibitions created on time

**Innovation and learning perspective**

- Number of new species added to collections or propagated periodically
- New chemicals or pharmaceuticals created from advice of assistance given by the Royal Botanical Gardens
- Number of successfully bred ‘new species’

**Financial perspective**

The primary objective of most businesses is profit, but for the Royal Botanical Gardens they are non-profit making. I would therefore recommend rather than performance measures for shareholder value, the use of the value for money framework instead. These categories are interdependent e.g. to do it cheaper or quicker may often compromise quality or effectiveness.

- **Economy** e.g. is the organisation procuring resources at the lowest possible cost without sacrificing the standard expected for quality and service levels e.g. average cost per member of staff, average cost per enquiry or cost per m² for each floral exhibition
- **Efficiency** e.g. is the organisation improving efficiency by minimising inputs required to produce outputs and/or maximising outputs e.g. average response time for enquires or average duration of creating a floral exhibition
- **Effectiveness** e.g. is the organisation maximising effectiveness by achieving its goals and objectives such as quality or visitor satisfaction
Example 11.17

(CIMA P6 November 2006) - Part (a)

A new approach to strategic management was developed in the early 1990's by Drs. Robert Kaplan (Harvard Business School) and David Norton. The balanced scorecard suggests that we view an organisation from four perspectives.

- Customer e.g. what must we do right for our customers and what do they value?
- Internal e.g. what must we excel at or improve internally to satisfy shareholders and customers?
- Innovation and learning e.g. how can we innovate and improve value?
- Financial e.g. how do we satisfy shareholders and create value for them?

**Appraisal of AAA**

**Customer perspective**

- Warranty claims (per 1000 units sold) were 56 per 1000. This in absolute terms 2.35 million units x 0.056 = 131600 warranty claims for last year. 56 per 1000 is also 86.7% worse than the budget of 30 per 1000.
- Product returns due to faults (per 1000 units sold) were 28 per 1000. This in absolute terms 2.35 million units x 0.028 = 65800 returns for last year. 28 per 1000 is also 40% worse than the budget of 20 per 1000.

In total the percentage of customers dissatisfied would have been (131600 + 65800) ÷ 2.35 million units sold = 8.4% or in absolute terms 197400 customers, way over the budget or target set for last year. This suggests serious quality problems within the AAA manufacturing process. It seems the current process of allowing faulty components to go into the manufacturing process is causing huge warranty claims and product returns. AAA is not meeting very well the customer perspective of the BSC because warranty claims and product returns are both good indicators of customer satisfaction.

- The average sales price per unit was J$763 compared to the budgeted price of J$809 (actual price per unit 5.7% lower than budgeted). This could be declining prices overall within the industry due to greater competition or perhaps lower quality TV sets being manufactured by AAA.

**Internal perspective**

- The number of working employee days lost due to industrial disputes was 2500 days, this 700 days favorable compared to the budget. This could be an indication that the workforce are more satisfied and if morale higher then internal manufacture more productive and efficient.
- The average production cost per unit is J$262 which is J$3 higher than budget. This indicates ether lower efficiency or productivity e.g. a lower number of units indicates a higher fixed cost per unit. The fall in sales for last year would indicate lower productivity.
- Sales per employee in units (alternatively you could use sales revenue per employee) were 2.35 million units ÷ 2259 employees = 1040 units. The budget 2.40 million units ÷ 2128 employees = 1128 units. This indicates lower manufacturing productivity and also efficiency given the number of employees were more than budget. Due to 54000 finished units being reworked being (54000
ī 30000) 24000 more than budget, it could indicate that productivity and efficiency are lower due to the quality problems being suffered by AAA e.g. more labour hours spent on reworks rather than productivity.

- Quality related problems exist for AAA the number of reworks represents (54000 ÷ sales 2.35 million) 2.3% reworks (compared to budget 30000 ÷ sales 2.4 million) 1.25%. Also a higher percentage of purchases from suppliers are being rejected. It all indicates problems in the quality control and assurance systems within AAA.

Other internal efficiency ratios that could be used would be as follows

<table>
<thead>
<tr>
<th></th>
<th>Actual (J$M)</th>
<th>Budget (J$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>1793</td>
<td>1941</td>
</tr>
<tr>
<td>Less cost of sales (balance)</td>
<td>616</td>
<td>621</td>
</tr>
<tr>
<td>Gross factory profit</td>
<td>1177</td>
<td>1320</td>
</tr>
</tbody>
</table>

The above indicates that finished goods inventory days are much higher than budget. This could be due to overproduction with possible consequences of obsolesce e.g. completed TV sets are not being sold. Raw material inventory as well is slightly higher indicating perhaps inefficiencies in stock control. If just in time or total quality management practices are in place, the higher work-in-progress could indicate inefficiencies or bottlenecks in production, there should be minimal work-in-progress, so this could indicate further internal failures. The higher number of percentage purchases rejected from suppliers could also be a contributory factor in the causes of production hold up or stoppages.

Internal productivity, efficiency and quality are suffering within the AAA manufacturing company. Given days of industrial action this could be caused by low motivation and morale of staff. It is also likely poor quality control or assurance procedures are to blame for the productivity and efficiency problems e.g. reworks and build up of work-in-progress. This is all having a harmful effect on cash-flow and profitability.

**Innovation and learning perspective**

- AAA is failing to meet its innovation target. The new product lines successfully launched were 1 in 12 developed (8.3%) compared to a budget of 4 in 10 developed (40%), this could indicate poor research and development is being undertaken when trying to launch a successful product. More research is required
into customer needs and a competitor analysis undertaken when trying to develop and launch more creative products and features for televisions.

Financial perspective

<table>
<thead>
<tr>
<th></th>
<th>Actual (J$M)</th>
<th>Budget (J$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>1793</td>
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</tr>
<tr>
<td>Gross factory profit</td>
<td>1177</td>
<td>1320</td>
</tr>
<tr>
<td>Less non-production cost (balance)</td>
<td>525</td>
<td>530</td>
</tr>
<tr>
<td>Pre tax profit</td>
<td>652</td>
<td>790</td>
</tr>
</tbody>
</table>

- Sales revenue is J$1,793 million (J$1,941 million less J$1,793 million) J$148 million below budget. This was due to a decline in sales price and volume.
- A fall in sales price, fall in sales volume and a rise in the average cost of production has led to pre tax operating profit is J$652 million (J$790 million less J$652 million) J$138 million below budget. Gross profit margin (J$1,177 million ÷ J$1,793 million) 66%, below a budget (J$1,320 million ÷ J$1,941 million) of 68%.

Both adverse sales and profit indicators are caused by the current productivity, efficiency and quality problems that AAA is experiencing e.g. reworks and returns, also a lack of innovation from new product development.

- Return on capital employed was (J$652 million pre tax profit ÷ J$2,835 million) 23% below a budget (J$790 million pre tax profit ÷ J$2,550 million) of 31%. ROCE measures how well the business is utilising its capital to generate profit, the fall indicates a lower return to shareholders for the debt and equity employed by AAA.
- The share price is J$334.50 below the budget of J$400 this affected by the fall in pre tax profit and hence a lower EPS for AAA shareholders. EPS represents how well each share has performed in terms of profit generated.

In conclusion given the current internal difficulties within AAA e.g. quality problems, more needs to be done if returns to AAA shareholders are to improve.

Recommended strategies

- Improve the current system of quality assurance and control to reduce sales returns, warranty claims and reworks
- More successful methods for research and development undertaken
- TQM methods to involve production staff and JIT systems maintained to reduce stock holding and improve efficiency.
Example 11.17

(CIMA P6 November 2006) - Part (b)

REPORT

To: Directors of AAA
From: Management Accountant
Date: DD/MM/YY

The purpose of this report is to compare the performance of AAA last year with that of BBB for the same period. I have prepared calculations for comparison within appendix 1 to which my report will refer to.

1.0 Customer

- AAA charges J$763 per unit and BBB J$718 per unit. This could be due to AAA selling at a higher price due to its production cost being higher. I could also be due to the two organisations pursuing very different generic strategies e.g. AAA differentiation and BBB cost leadership. No information exists on the features offered on televisions by these organisations. If they both pursue the same strategy then in comparison AAA is much less competitive.

- Warranty claims are a good indicator of quality and customer satisfaction. AAA 5.6% of unit sales compared with BBB 2.5% of unit sales. BBB performs relatively better, especially given the lower price it charges compared to AAA.

2.0 Internal

- By comparing sales and employee levels AAA is more than three times the size of BBB. Given a larger organisation you would expect greater economies of scale and efficiency. However the average cost per TV produced by AAA is J$262 compared to BBB of J$223. This however could be due to the different strategies of the two organisations but no further information is given about this. BBB also achieves a similar value of sales per employee, for a smaller company you would expect this value to be lower in comparison to AAA.

- Inventory days are 30 days for AAA in comparison to 14 days for BBB. This indicates AAA is more inefficient in managing raw material, production flow (work-in-progress) and/or finished goods. For AAA in part (a) it was finished goods days that was of greatest concern in comparison to their budget. Perhaps due to falling quality and a higher price than BBB it is finding it difficult to shift final inventory once manufactured.

3.0 Financial

- BBB outperforms AAA in terms of gross profit margin and return on capital employed as a percentage. BBB has a lower price and lower production cost and higher margins are achieved. ROCE of BBB is much larger than AAA, BBB is therefore utilising its capital much more effectively and efficiently to generate profit for its debt and equity holders.
Conclusion

BBB performs considerably better than AAA under all three perspectives considered above. If the two companies are pursuing the same strategy this will not be good news for AAA. If the current exchange rate remains unchanged with no restriction on free trade, performance of AAA is likely to suffer. AAA for unbranded TVs sold to other electrical retailers could find market share eroded and falling sales as these customers may switch to cheaper and higher quality products from companies like BBB. The lower production cost for BBB could be caused by a lower labour or capital cost than AAA in which case for long-term cost efficiency AAA may need to relocate manufacturing to lower cost of production countries other than Jurania.

Management Accountant
## Appendix 1

### Actual performance

<table>
<thead>
<tr>
<th></th>
<th>AAA (J$M)</th>
<th>BBB (RM)</th>
<th>2.5 RM = J$1</th>
<th>BBB (J$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>1793</td>
<td>1400</td>
<td>560</td>
<td></td>
</tr>
<tr>
<td>Less factory cost of sales</td>
<td>616</td>
<td>435</td>
<td>174</td>
<td></td>
</tr>
<tr>
<td>Gross factory profit</td>
<td>1177</td>
<td>965</td>
<td>386</td>
<td></td>
</tr>
<tr>
<td>Less non-production cost</td>
<td>525</td>
<td>408</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>Pre tax profit</td>
<td>652</td>
<td>557</td>
<td>223</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>AAA (J$M)</th>
<th>BBB (RM)</th>
<th>2.5 RM = J$1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing inventory</td>
<td>50.5</td>
<td>17</td>
<td>6.8</td>
</tr>
<tr>
<td>Capital employed</td>
<td>2835</td>
<td>1589</td>
<td>636</td>
</tr>
<tr>
<td>Inventory days</td>
<td>50.5 ÷ 616</td>
<td>6.8 ÷ 174</td>
<td>30 days x 365 days</td>
</tr>
<tr>
<td>Average sales price</td>
<td>1793 ÷ 2.35m units</td>
<td>J$763</td>
<td>0.78m units</td>
</tr>
<tr>
<td>Average cost</td>
<td>616 ÷ 2.35m units</td>
<td>J$262</td>
<td>0.78m units</td>
</tr>
<tr>
<td>Gross profit margin (% sales)</td>
<td>66%</td>
<td>69%</td>
<td></td>
</tr>
<tr>
<td>Sales per employee (J$M)</td>
<td>1793m ÷ 2259</td>
<td>J$0.79m</td>
<td>560m ÷ 740</td>
</tr>
<tr>
<td>ROCE (pre tax profit ÷ capital employed)</td>
<td>23%</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Warranty claims</td>
<td>( % unit sales )</td>
<td>5.6%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
Example 11.17

(CIMA P6 November 2006) - Part (c)

KM is a method for gathering information to make it available to others. This can be facilitated through formal or informal systems to store, organise or access information. Knowledge can be communicated, shared and leveraged more effectively in combination with other knowledge for the benefit of AAA as an organisation. This can be done by creating the right environment and culture to discover and release tacit knowledge as well as designing new processes to create, store and use knowledge to become explicit knowledge within AAA.

How KM could develop sustainable competitive advantage for AAA over BBB

- By comparing information in relation to other firms within the industry it will help AAA monitor and control its performance more effectively, by comparison of its own performance indicators to other firms like BBB. By timely management reaction to adverse indicators it will help achieve competitive advantage over BBB by AAA focusing effort on and improving its quality, cost, efficiency or product features that it offers.
- By using knowledge more effectively AAA will be able to improve quality by sharing more effective knowledge for better quality assurance or control procedures over its manufacturing process. Knowledge of more effective manufacturing methods by factory staff could also help reduce reworks and improve product quality. Improving quality will help AAA compete more effectively over BBB due to improved customer satisfaction and a lower cost per unit if there exists less sales returns and reworks. This will help achieve differentiation within the industry due to a more robust product, helping to improve brand loyalty.
- Better knowledge to improve manufacturing throughput will also help reduce build up of inventory and work-in-progress, helping AAA to achieve a lower cost base compared to BBB. Factory staff could be encouraged to share more efficient methods of production perhaps through a quality circles approach introduced. If AAA can become leaner it may also be able to reduce its sales price helping it to compete on price more effectively.
- If more knowledge about customer needs, wants and values could be collated and shared within the AAA organisation, more effective features for television sets can be developed and offered e.g. plasma, high definition, built in digital boxes, different colours, stand or case designs. With more effective knowledge the marketing and research and development departments could improve the current product range and develop more effective awareness of these features to potential customers. Differentiation by greater innovation will help achieve greater competitive advantage.

In conclusion there are many ways that KM can help when it comes to achieving greater competitive advantage over BBB. In summary for AAA this would be to use KM in order to improve its quality, cost, efficiency and product features.