



Information, technologies and systems for organisation performance

Identify & discuss the information, systems & developments in technology required for organisations to manage & measure performance.

1. Information systems

Levels of management and information requirements

- Strategic planning:
 - These are long term decisions – typically five to ten years – regarding the long term direction of the company.
 - For example: a decision as to whether or not to enter into a new market.
- Management control:
 - These are shorter term decisions – typically for the coming year – planning to achieve the strategic objectives.
 - For example: setting selling prices for the coming year.
- Operational control:
 - These are day-to-day decisions implementing the short-term plans.
 - For example: which customers need chasing for payment.

Information systems used by management

- Transaction processing systems
 - This is software that processes the day-to-day transactions of the business.
 - For example, the software that produces and records sales invoices.
- Management information systems
 - This is software that converts data (from the transaction processing systems) into information for the benefit of managers.
 - This may include, for example, monthly summaries of the sales by product.
- Executive information systems
 - This is software that enables the user to obtain information on an ad hoc basis (as opposed to the standard reports that will be produced by the MIS).

Enterprise resource planning systems (ERP)

- ERP is software that integrates all the applications within the business and uses a common database. The same system is used for processing transactions and providing management information.

Open and closed systems

2. Sources of information

External sources of information:

- government statistics
- industry publications
- competitors financial statements
- the internet

Internal sources of information:

- receivables ledger
- payables ledger
- payroll system

3. Management reports

Controls must exist in managing information, input, processing and storage, and output.

Input: 1) Passwords; 2) Range tests; 3) Format check.

Processing and storage: 1) Passwords; 2) Audit trails; 3) Data protection officer.

Output: 1) Passwords

4. Big data

What is big data?

Big data is about much larger, more complex data sets in all forms being available to businesses, from structured and semi structured to completely unstructured data.

It comes from a variety of new and existing sources and these are increasing as more and more people carry out most of their activities on electronic devices where the data is recorded. Data therefore has a great deal of potential value.

Big data characteristics:

1. Volume (for reliability) – the more data you have, the more reliable your analysis becomes and the more confident you can be about using the results you obtain to inform decision-making.
2. Velocity (for timeliness) – Velocity is the rate at which data is received and used. In the modern world, transactions are conducted and recorded in real time.
3. Variety (for relevance) – Variety refers to the many types and sources of data which are available.

The three Vs discussed above are all clear benefits of big data.



Specialist cost and management accounting techniques

There are **5 types** of costing techniques which are assumed knowledge from Management Accounting (MA), primarily overhead treatments.

Target Costing

Target costing is very much a marketing approach to costing, questions to be asked:

1. What do customers want?
2. What will customers pay?
3. What do competitors offer?

Target costing: start with the selling price of a particular product and work back to the cost by removing the profit.

It emphasis on the planning and design stage.

Life-cycle costing

Basic concept: When seeking to make profit on a product it is essential that the total revenue arising from the product exceeds total costs, whether these costs are incurred before, during or after the product is produced.

4 Principal Lessons:

1. All costs should be taken into account;
2. Attention to all costs help to reduce the cost per unit;
3. Many costs will be linked;
4. Costs are committed and incurred at very different times.

Environmental accounting

It is the identification, collection, analysis and use of physical and monetary information for decision making.

- Physical information on the use, flows and destinies of energy, water and materials;
- Monetary information on environment-related costs, earnings and savings.

Categories of environmental costs:

- Prevention
- Detection
- Internal / External failure

Activity based costing

Absorption costing is a conventional approach in which absorption rate is presented in terms of overhead cost per labour hour, or overhead cost per machine hour.

Activity based costing (ABC): A more accurate estimate of what each unit costs to produce, and to do this it's needed to examine what activities are necessary to produce each unit because activities usually have a cost attached.

ABC Process: 1) Split fixed overheads into activities; 2) For each cost pool identify what causes that cost ("cost driver"); 3) Calculate a cost per unit of cost driver; 4) Allocate costs to product based on how much the product uses the cost driver.

ABC vs Conventional Approach

ABC: It estimates more accurately the true cost of production, and a better indication of where cost savings can be made.

Conventional Approach: Simple to calculate and apply

Throughput accounting

Throughput: the rate at which the system generates money through sales

Inventory: all the money that the system has invested in purchasing things that it intends to sell

Operational expense: all the money that the system spends in order to turn inventory into throughput

The theory of constraints is applied within an organisation by "The five focusing steps"

1. Identify the system's bottlenecks;
2. Decide how to exploit the system's bottlenecks;
3. Subordinate everything else to the decisions made in step 2;
4. Elevate the system's bottlenecks;
5. If a new constraint is broken in step 4, go back to step 1, but do not let inertia become the system's new bottleneck.

Limiting factor analysis and throughput accounting



1. Relevant cost analysis

A relevant cost is simply a cost that is relevant to the decision being made. A sunk cost is not a relevant cost for the reasons stated above.

It is a marginal cost approach with consideration of opportunity cost forgone.

Opportunity cost: This is the value of a benefit sacrificed when one course of action is taken in preference to an alternative.

2. Cost volume profit analysis

Cost-volume-profit analysis looks primarily at the effects of differing levels of activity on the financial results of a business.

Methods of calculating break-even point:

1. Equation method
2. Contribution margin method
3. Graphical method

Ascertaining the sales volume required to achieve a target profit

- Margin of safety
- Contribution to sales ratio

3. Limiting factors

With a single limiting factor, throughput analysis and “make-or-buy” analysis are applicable; If more than one limiting factor, linear programming applies.

Linear programming:

1. Define the variables and the objective function.
Defining variables
Let X = number of X to be produced Let Y = number of Y to be produced
2. Define constraints
3. Plot a graph

Decision-making Techniques

6 types of decision-making techniques are tested. You need to appreciate the problems surrounding scarce resource, pricing and make-or-buy decisions, and how this relates to the assessment of performance. Risk and uncertainty are a factor of real-life decisions and you need to understand risk and be able to apply some basic methods to help resolve the risks inherent in decision-making.

4. Pricing decisions

Factors influencing pricing of a product or service:

1) Costs; 2) Competitors; 3) Customers

Cost-plus pricing: 1) Full cost plus; 2) Marginal cost plus; 3) Opportunity cost plus

Problem of cost-plus pricing: it completely ignores the possible effect of the selling price on the level of demand

Price elasticity of demand =
 $(\% \text{ change in demand}) / (\% \text{ change in price})$

Optimal pricing equations: Price = $a - bQ$

Pricing strategies: Skimming, penetration, product-line, volume discounting, discrimination, relevant cost

5. Make-or-buy and other short term decisions

In order to overcome problems of limited resources, a firm may buy in a product instead of making it itself.

If incremental costs of manufacturing are less than buying in, the company should make, assuming no limiting factors.

If resources are limited, company should focus on making those products which gave the largest saving per unit of scarce resource.

The calculation of saving per unit of scarce resource from making the product rather than buying it.

6. Dealing with risk and uncertainty

Risk is when the probabilities of the possible outcomes are;

Uncertainty is where the randomness of outcomes cannot be expressed in terms of specific probabilities.

An independent event occurs when the outcome does not depend on the outcome of a previous event.

A conditional event, the outcomes of two or more events are related

The expected value of the outcome can be calculated simply by multiplying the value associated with each potential outcome by its probability.



Budgeting and Control

Different budgeting techniques are asked; you need to understand the behavioural aspects of budgeting. In addition, standard costing and variances are key to performance management. Mix and yield variances, and planning and operational variances are highlighted.

1. Budgetary systems and types of budget

A flexible budget is a summary of revenues and costs across a range of different activity levels.

Rolling budget approach means that the budget will be updated more frequently than annually.

Activity-based budgeting (ABB) focuses on understanding how overheads are consumed by the production process.

Zero-based budgeting is an approach to budgeting where all expenses must be justified at the start of each new budgeting period.

Beyond Budgeting encompasses a modern, alternative approach to performance management that annual budget as the primary control tool of a company.

2. Quantitative analysis in budgeting

The learning curve is not about cost reduction. It is a human phenomenon that occurs because of the fact that people get quicker at performing repetitive tasks once they have been doing them for a while.

The effect of the learning rate on labour time will become much less significant as production increases. Eventually, the learning effect will come to an end altogether.

The learning curve effect will not always apply, of course. It flourishes where certain conditions are present. It is necessary for the process to be a repetitive one.

3. Standard costing

Standard costing is a system of accounting based on pre-determined costs and revenue per unit which are used as a benchmark to assess actual performance and therefore provide useful feedback information to management.

Uses of standard costing –

- Inventory valuation
- Basis for pricing decisions
- Budget preparation and control
- Performance measurement

4. Material variances

Materials 'mix' refers to the quantity of each material that is used to make our product

Material yield is about how much of our product is produced

Materials yield variance –

Where there is a difference between the actual level of output for a given set of inputs and the standard output for a given set of inputs.

Formula –

(Actual yield – standard yield from actual input of material) x standard cost per unit of output

6. Planning & operational var.

Planning variance: This is a classification of variances calculated by comparing the original budget (or ex ante budget) to a budget revised for any permanent changes to a more realistic budget (ex post budget).

Operational variance: This is a classification of variances calculated by comparing actual performance with a revised (or ex post) budget.

5. Sales variances

Sales Volume Variance is the measure of change in profit or contribution as a result of the difference between actual and budgeted sales quantity.

Sales Mix Variance measures the change in profit or contribution attributable to the variation in the proportion of the different products from the standard mix.

Sales Quantity Variance measures the change in standard profit or contribution arising from the difference between actual and anticipated number of units sold during a period.

7. Performance analysis

Modern management places great emphasis on quality - Total Quality Management (TQM), and on increasing efficiency and reducing waste - Just In Time (JIT).

Traditional variance analysis focuses on quantity rather than quality. This could mean, for example, using lower quality material to save money. This would again be contrary to the TQM and JIT culture.

Another element of the TQM culture is the idea of trying to achieve continuous improvement.



Performance measurement and control

It is a section leads directly to Advanced Performance Management (APM) including all major areas of the syllabus.

1. Private Sector analysis

Financial Performance Indicators – Cost centres: Standard costing variance analysis is commonly used in the measurement of cost centre performance.

Profit centres: Controllable profit statements are commonly used in profit centres.

Investment centres: In an investment centre, managers have the responsibilities of a profit centre plus responsibility for capital investment.

2 measures of divisional performance are commonly used:

- Return on investment (ROI) %
- Residual income

Non-Financial Performance Indicators – Balanced scorecard

Perspective

- Financial
- Customer
- Internal process
- Learning and growth

Fitzgerald and Moon's Building Block Model is an evolution of the Balanced Scorecard, developed to meet the needs of service organisations.

The Building Block model looks at three areas of performance: dimensions, standards, and rewards.

2. Transfer pricing

Transfer prices are a way of promoting divisional autonomy, ideally without prejudicing the measurement of divisional performance or discouraging overall corporate profit maximisation.

Transfer prices should be set at a level which ensures that profits for the organisation as a whole are maximised.

Market price available

Spare capacity: where a selling division has spare capacity the minimum transfer price is effectively just marginal cost.

No spare capacity: In situations where there is no spare capacity, the minimum transfer price is such that the selling division would make just as much profit from selling internally as selling externally.

No external market for the product being transferred

- Variable cost
- Full cost
- Full cost plus
- Variable cost plus

2. Transfer pricing (Cont'd)

The **limits** within which transfer prices should fall as follows.

The **minimum.** The sum of the supplying division's marginal cost and opportunity cost of the item transferred.

The **maximum.** The lowest market price at which the receiving division could purchase the goods or services externally, less any internal cost savings in packaging and delivery.

3. Not-for-profit organisations

Not-for-profit organisations are distinguished from profit maximising organisations by three characteristics

- do not have external shareholders
- do not distribute dividends
- their objectives usually include some social, cultural, philanthropic, welfare or environmental dimension

Most not for-profit organisations rely on measures (**value for money**) that estimate the performance of the organisation in relation to:

1. Effectiveness
2. Economy
3. Efficiency

4. Other aspects

Performance management needs to allow for external considerations including stakeholders, market conditions and allowance for competitors.

- Stakeholders include customers, employees, the community, shareholders, suppliers and lenders.

Management performance measures should only include those items that are directly controllable by the manager in question.

- Controllability principle