



PHAKAMANI  
LEARNING ACADEMY

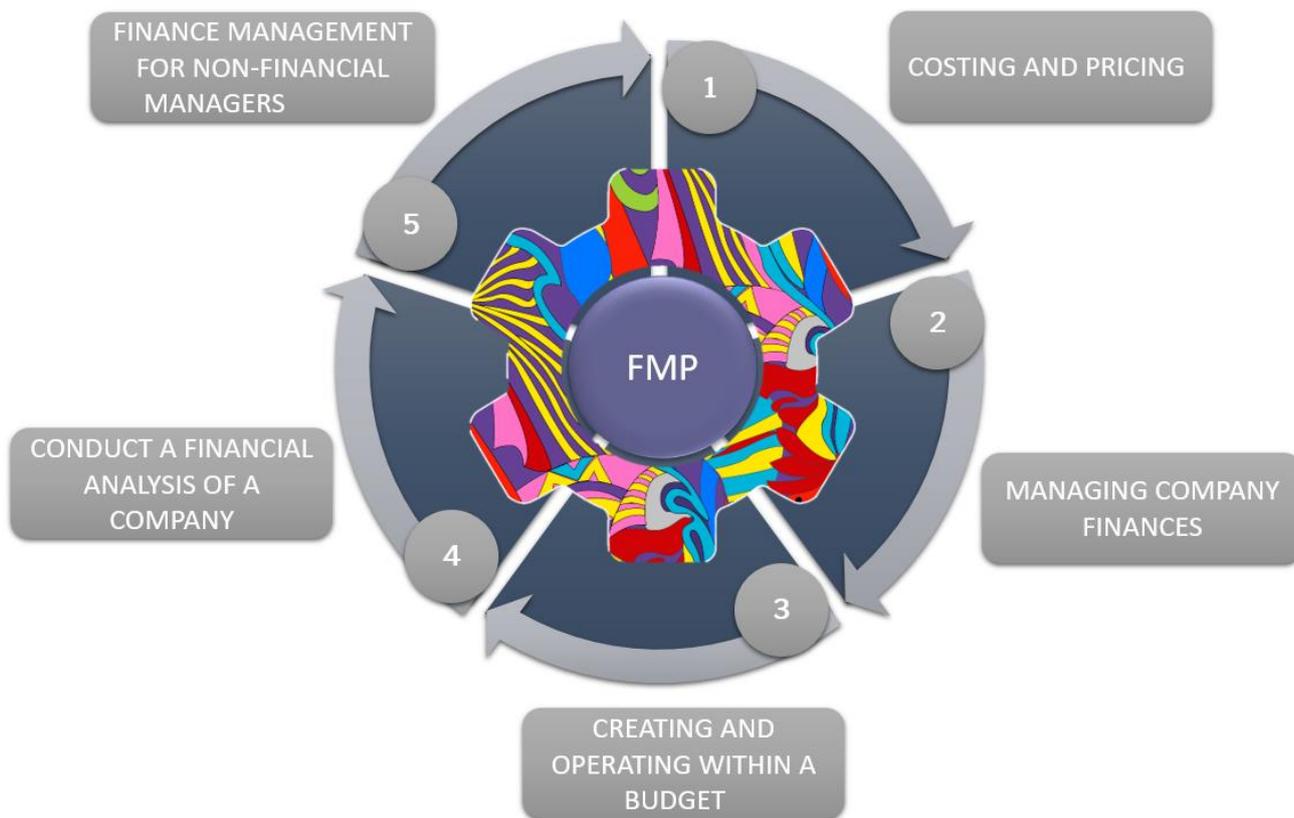
# FINANCIAL MANAGEMENT PROGRAMME



Complete Guide

All Modules: FMP

## PROGRAMME STRUCTURE



## WELCOME AND INTRODUCTION

Thank you for attending this Skills Programme, it is designed to assist your Business in developing in key areas of business management. There are 5 modules completed over a working week period. You will be required to do self-study and reflection on the material.

We have designed this program to ensure that as an owner of a business you will gain knowledge and practical experience in the KEY AREAS of business, which are finances, tendering, marketing, business plans and ethics and HR management.

Please ensure you complete all of the exercises and attend the full programme either online (digital learning) or in the classroom with the facilitator.

We look forward to taking you with us on this exciting journey of learning and business development.

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## **ADMIN AND HOUSEKEEPING**

This Program is designed to be completed as a distance Learning program, but may also be an in-house facilitation programme. Due to the need for clarification on the process involved in this program please follow the following steps:

1. You are required to complete and sign ***all contracts and agreements*** related to this program
2. You are required to submit a ***letter of thanks to the mining company which has supported this program*** by financially providing for you to attend it
3. You need to go through your training toolkit and understand all of the parts of it.

\*Please note *ED stands for Enterprise Development* and applies if you have not done any work with the mine which is funding this training. *SD stands for Supplier Development* and applies if you have done work for the mine which is providing this training.

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## **IMPORTANT INFORMATION ON THE SKILLS PROGRAM**

1. Your **LEARNING TOOLKIT** consists of
  - a. This **LEARNER GUIDE** which is the learning material
  - b. The **LEARNER WORKBOOK** which is the guide you will complete and submit as part of your Portfolio of Evidence (Formative and Summative Assessments)
  - c. Slides / Presentations and videos which are included to help you in this course
  - d. Contact with your facilitator on social media platforms and one on one in distance learning
2. If you ***DO NOT*** wish to obtain the credits for this skills program, you ***DO NOT NEED TO SUBMIT A POE***
3. If you wish to obtain the credits for this skills program ***ALL REQUIRED DOCUMENTATION MUST BE SUBMITTED AND FORMATIVE AND SUMMATIVE ASSESSMENTS MUST BE SIGNED. SHOULD YOU NOT SIGN AND SUBMIT ALL THAT IS REQUIRED, ON TIME, YOUR POE WILL NOT BE ACCEPTED AND SUBMITTED FOR ASSESSMENT.***
4. The Notional Hours and the timelines for submission must be followed. If you do not submit your POE and required documentation in time you will need to **APPLY FOR LATE SUBMISSION.**

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## HOW TO USE THIS GUIDE

This Learner Guide belongs to you. It is designed to serve as a guide for the duration of your training programme and as a resource for you. It contains readings, activities, and application aids that will assist you in developing the knowledge and skills stipulated in the specific outcomes and assessment criteria. Follow along in the guide as the facilitator takes you through the material, and feel free to make notes and diagrams that will help you to clarify or retain information. Jot down things that work well or ideas that come from the group. Also, note any points you would like to explore further. Participate actively in the skill practice activities, as they will give you an opportunity to gain insights from other people's experiences and to practice the skills. Do not forget to share your own experiences so that others can learn from you too.

## ICONS

For ease of reference, an icon will indicate different activities. The following icons indicate different activities in the manual.

	SPECIFIC OUTCOME		DEFINITION
	ASSESSMENT CRITERIA		LEARNING ACTIVITIES
	COURSE MATERIAL		TAKE NOTE
	REFLECTION		SUMMARY

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## OVERVIEW

<b>PURPOSE</b>	At the end of this training session you will have achieved the Learning Outcomes
<b>LEARNING ASSUMPTIONS</b>	GRADE 9 PASS
<b>HOW YOU WILL LEARN</b>	The programme methodology includes facilitator presentations, readings, individual activities, group discussions, and skill application exercises, self-reflection and distance learning
<b>HOW YOU WILL BE ASSESSED</b>	This programme has been aligned to registered unit standards. You will be assessed against the outcomes of the unit standards by completing a knowledge assignment that covers the essential embedded knowledge stipulated in the unit standards. When you are assessed as competent against the unit standards, you will be awarded credits for competencies.
<b>FORMATIVE ASSESSMENT</b>	In each Learner Guide, several activities are spaced within the content to assist you in understanding the material through application. Activities in the learner manual are not for assessments. Formative assessments are in a separate module written formative assessment. Please make sure that you complete ALL assessments in the Learner Workbook.
<b>SUMMATIVE ASSESSMENT</b>	<p>You will be required to complete a Portfolio of Evidence for summative assessment purposes. A portfolio is a collection of different types of evidence relating to the work being assessed. It can include a variety of work samples.</p> <p>The Workbook will assist you in identifying the portfolio and evidence requirements for final assessment purposes. You will be required to complete Portfolio assessments on your own time, using real life projects in your workplace environment in preparing evidence towards your portfolio.</p>

### Being Declared Competent Entails:

Competence is the ability to perform whole work roles, to the standards expected in employment, in a real working environment.

There are three levels of competence:

Foundational competence: an understanding of what you do and why.

Practical competence: the ability to perform a set of tasks in an authentic context.

Reflexive competence: the ability to adapt to changed circumstances appropriately and responsibly, and to explain the reason behind the action.

To receive a certificate of competence and be awarded credits, you are required to provide evidence of your competence by compiling a portfolio of evidence, which will be assessed by a Services SETA accredited assessor.

### You Have to Submit a Portfolio of Evidence

A Portfolio of Evidence is a structured collection of evidence that reflects your efforts, progress and achievement in a specific learning area, and demonstrates your competence.

### The Assessment of Your Competence

Assessment of competence is a process of making judgments about an individual's competence through matching evidence collected to the appropriate national standards. The evidence in your portfolio should closely reflect the outcomes and assessment criteria of the unit standards of the learning programme for which you are being assessed.

To determine a candidate's knowledge and ability to apply the skills before and during the learning programme, formative assessments are done to determine the learner's progress towards full competence. This normally guides the learner towards a successful summative (final) assessment to which both the assessor and the candidate only agree when they both feel the candidate is ready.

Should it happen that a candidate is deemed not yet competent upon a summative assessment, that candidate will be allowed to be re-assessed. The candidate can, however, only be allowed two reassessments.

When learners have to undergo re-assessment, the following conditions will apply:

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Specific feedback will be given so that candidates can concentrate on only those areas in which they were assessed as not yet competent.

Re-assessment will take place in the same situation or context and under the same conditions as the original assessment.

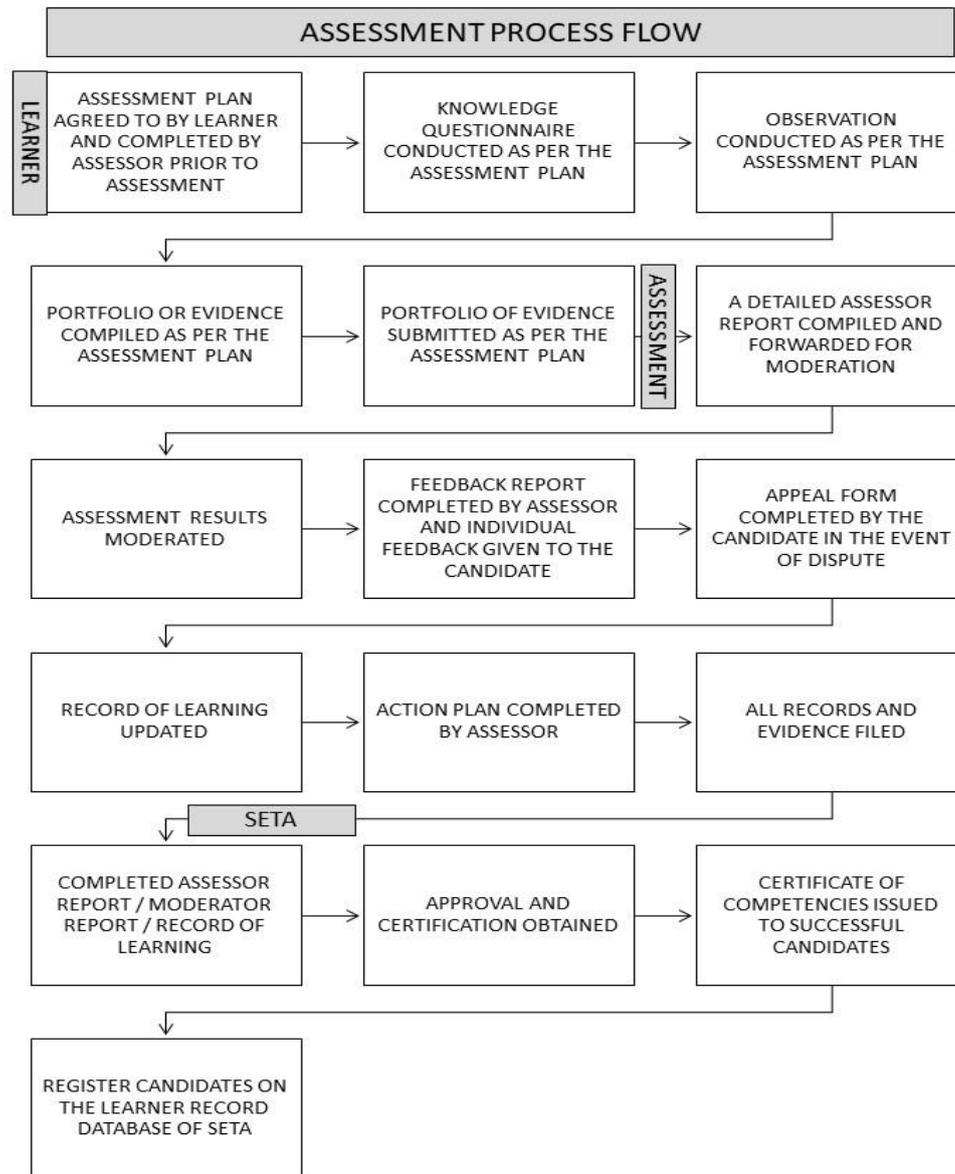
Only the specific outcomes that were not achieved will be re-assessed.

Candidates who are repeatedly unsuccessful will be given guidance on other possible and more suitable learning avenues.

In order for your assessor to assess your competence, your portfolio should provide evidence of both your knowledge and skills, and of how you applied your knowledge and skills in a variety of contexts.

The Workbook directs you in the activities that need to be completed so that your competence can be assessed and so that you can be awarded the credits attached to the programme

**NOTE: YOUR POE GUIDE HAS MORE INFORMATION ON THE ASSESSMENT PROCESS**



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## MODULE 1: COSTING AND PRICING

### MODULE 1: LEARNING OUTCOMES

Apply the principles of costing and pricing to a business venture
Explain the criteria of a price setting policy for a new venture.
The flow of the trading cycle is explained and illustrated for a new venture.
The concepts costing and pricing are differentiated in terms of a product or service.
The difference between fixed costs, variable costs and total costs are explained in the context of own venture.
Analyse internal and external factors that impact upon pricing decisions.
The internal factors impacting upon pricing decisions are identified and discussed in relation to the profitability of own venture.
The external factors impacting upon pricing decisions are identified and discussed in relation to the profitability of own venture.
The business activity levels are recognised and specified in terms of their limitations.
Variations in pricing decisions are to be calculated in terms of the impact on the break-even point.
Demonstrate an understanding of the relationship between costs, revenue and profits.
Available costing methods are reviewed in relation to own business.
Profit mark-up is calculated and analysed for own business.
A distinction between types of profit is made in relation to own business venture.
Competitive pricing is investigated and compared to inform effective costing and forecasting of operating a business.

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**MODULE 1: COSTING AND PRICING**

UNIT STANDARDS IN THIS MODULE	119674	APPLY THE PRINCIPLES OF COSTING AND PRICING TO A BUSINESS VENTURE	
	EXPLAIN THE CRITERIA OF A PRICE SETTING POLICY FOR A NEW VENTURE.	SO 1	
	ANALYSE INTERNAL AND EXTERNAL FACTORS THAT IMPACT UPON PRICING DECISIONS.	SO 2	
	DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN COSTS, REVENUE AND PROFITS.	SO 3	
	The flow of the trading cycle is explained and illustrated for a new venture.	SO 1 AC 1	
	The concepts costing and pricing are differentiated in terms of a product or service.	SO 1 AC 2	
	The difference between fixed costs, variable costs and total costs are explained in the context of own venture.	SO 1 AC 3	
	The internal factors impacting upon pricing decisions are identified and discussed in relation to the profitability of own venture.	SO 2 AC 1	
	The external factors impacting upon pricing decisions are identified and discussed in relation to the profitability of own venture.	SO 2 AC 2	
	The business activity levels are recognised and specified in terms of their limitations.	SO 2 AC 3	
	Variations in pricing decisions are to be calculated in terms of the impact on the break-even point.	SO 2 AC 4	
	Available costing methods are reviewed in relation to own business.	SO 3 AC 1	
	Profit mark-up is calculated and analysed for own business.	SO 3 AC 2	
	A distinction between types of profit is made in relation to own business venture.	SO 3 AC 3	
Competitive pricing is investigated and compared to inform effective costing and forecasting of operating a business.	SO 3 AC 4		

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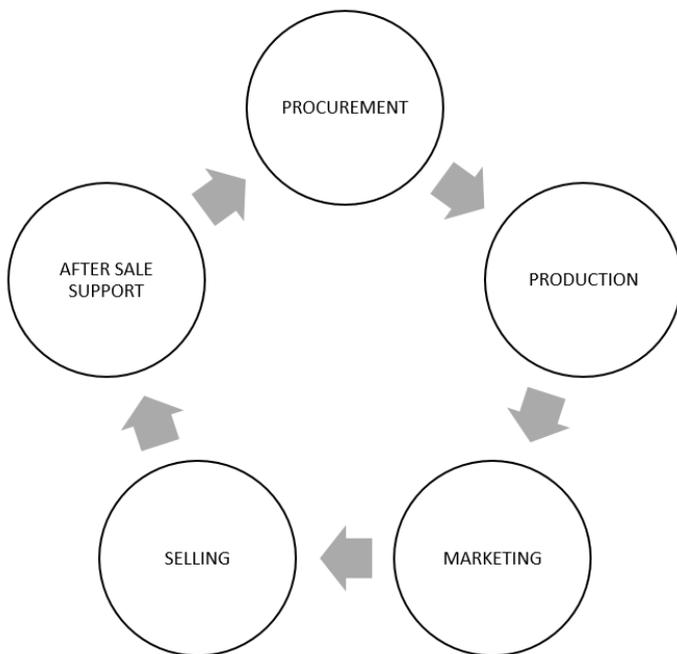
## INTRODUCTION

Setting a price for goods and services has always been difficult for new ventures in South Africa. Pricing is a critical marketing decision. The price you set for your goods and services is a key determinant in the final profit (or loss) that your business will make. Even though it is so obviously vital, there is evidence to suggest that the attention paid to pricing among some new ventures is scant. Problems that develop because of inattention to pricing, range from poor margins on products sold, through to losses on specific products/services due to cost inflation and failure to re-price. At worst it could mean the difference between making a profit or a loss

It must be noted that, there are no firm rules; no ideal method for setting a price, but there are many indicators that can help entrepreneur when deciding on the price. It is a matter of discovering a reasonable price by careful consideration.

## TRADING CYCLE

Every business follows a cycle from the point that it procures raw materials until it sales goods and services to the customers. This process is called the trading cycle. For a new venture to be able to cost and price its products, it must know this cycle. The diagram below shows a basic trading cycle for a business;



1. **Procurement:** It is the stage at which the business buys raw materials from suppliers. For example, raw materials to a company that manufactures furniture can be nails, wood, and boards. The procurement stage also covers the transportation of the raw material to the business.
2. **Production:** is that stage where the raw materials are converted into finished goods. Using the carpentry business as an example, this stage where products like chairs, tables, beds are produced.
3. **Marketing:** this is the stage where the business is informing and persuading the market to buy its products. Marketing includes advertising, and promotions.
4. **Selling:** This is the point where the business interacts with the buyer. That is, the business will exchange the finished goods or services for money.
5. **After-sale support:** This is the stage where the business provides technical assistance to customers who have bought goods and services.

## THE CONCEPT OF COSTING

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Costing is the process of determining and accumulating the cost of product or activity. It is a process of accounting for the incurrence and the control of cost. It also covers classification, analysis, and interpretation of cost.

In essence, costing involves the classifying, recording and appropriate allocation of expenditure for the determination of costs of products or services; the relation of these costs to sales value; and the ascertainment of profitability.

#### OBJECTIVES OF COSTING

Costing has the following main objectives to serve:

- Determining selling price,
- Controlling cost
- Providing information for decision-making
- Ascertaining costing profit
- Facilitating preparation of financial and other statements.

#### ***Determining selling price***

The objective of determining the cost of products is of main importance in costing. The total product cost and cost per unit of product are important in deciding selling price of a product. Costing thus provides information regarding the cost to make and sell product or services. Other factors such as the quality of product, the condition of the market, the area of distribution, the quantity which can be supplied etc., are also to be given consideration by the management before deciding the selling price, but the cost of product plays a major role.

#### ***Controlling cost***

Costing helps in attaining aim of controlling cost by using various techniques such as Budgetary Control, Standard costing, and inventory control.

#### ***Providing information for decision-making***

Costing helps the management in providing information for managerial decisions for formulating operative policies. These policies relate to the following matters:

- Determination of cost-volume-profit relationship.
- Make or buy a component
- Shut down or continue operation at a loss
- Continuing with the existing machinery or replacing them by improved and economical machines.

#### ***Ascertaining costing profit***

Costing helps in ascertaining the costing profit or loss of any activity on an objective basis by matching cost with the revenue of the activity.

#### ***Facilitating preparation of financial and other statements***

Costing provides immediate information regarding stock of raw material, semi-finished and finished goods. This helps in preparation of financial statements.

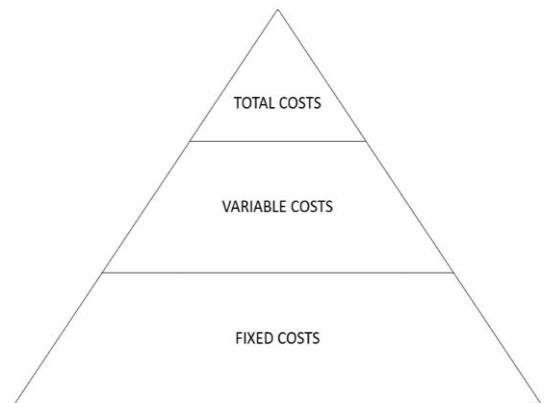
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## CLASSIFICATION OF COSTS

At this point it is important to differentiate between fixed and variable costs;

### **FIXED COSTS**

Fixed costs are those business costs that are not directly related to the level of production or output. In other words, even if the business has a zero output or high output, the level of fixed costs will remain broadly the same. In the long term fixed costs can alter - perhaps as a result of investment in production capacity (e.g. adding a new factory unit) or through the growth in overheads required to support a larger, more complex business. *Examples of fixed costs:* Rent and rates, Depreciation, Research and development and Administration costs.



### **VARIABLE COSTS**

Variable costs are those costs which vary directly with the level of output. They represent payment output-related inputs such as raw materials, direct labour, fuel and revenue-related costs such as commission. A distinction is often made between "Direct" variable costs and "Indirect" variable costs.

Direct variable costs are those which can be directly attributable to the production of a particular product or service and allocated to a particular cost centre. Raw materials and the wages those working on the production line are good examples.

Indirect variable costs cannot be directly attributable to production but they do vary with output. These include depreciation (where it is calculated related to output - e.g. machine hours), maintenance and certain labour costs.

### **TOTAL COSTS**

If we combine variable and fixed costs, we get the total cost. That is, total cost (TC) describes the total cost of production and is made up of variable costs, which vary according to the quantity of a good produced and include inputs such as labour and raw materials, plus fixed costs, which are independent of the quantity of a good produced and include inputs that cannot be varied in the short term, such as buildings and machinery. The total cost of producing a specific level of output is the cost of all the factors of input used.

## THE CONCEPT OF PRICING

All organisations always want to make sure that their products and services are priced appropriately. Prices should be consistent with the business strategy and also linked to the cost of producing the product or service.

Pricing is the process of determining what a business will receive in exchange for its products. Pricing is based on factors like total cost, market place, competition, market condition, and quality of product. Pricing is a fundamental aspect of the four Ps of the marketing mix. The other three aspects are product, promotion, and place. Price is the only revenue generating element amongst the four Ps, the rest being cost centers.

## OBJECTIVES OF PRICING

The following are some of the common pricing objectives.

### **Partial cost recovery**

A company that has sources of income other than from the sale of products may decide to implement this pricing objective, which has the benefit of providing customers with a quality product at a cost lower than expected.

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Competitors without other revenue streams to offset lower prices will likely not appreciate using this objective for products in direct competition with one another. Therefore, this pricing objective is best reserved for special situations or products.

**Profit margin maximisation**

Seeks to maximise the per-unit profit margin of a product. This objective is typically applied when the total number of units sold is expected to be low.

**Profit maximisation**

Seeks to garner the greatest dollar amount in profits. This objective is not necessarily tied to the objective of profit margin maximisation.

**Revenue maximisation**

Seeks to maximise revenue from the sale of products without regard to profit. This objective can be useful when introducing a new product into the market with the goals of growing market share and establishing long-term customer base.

**Quality leadership**

Used to signal product quality to the consumer by placing prices on products that convey their quality.

**Quantity maximisation**

Seeks to maximise the number of items sold. This objective may be chosen if you have an underlying goal of taking advantage of economies of scale that may be realised in the production or sales arenas.

**Status quo**

Seeks to keep your product prices in line with the same or similar products offered by your competitors to avoid starting a price war or to maintain a stable level of profit generated from a particular product.

**Survival**

Put into place in situations where a business needs to price at a level that will just allow it to stay in business and cover essential costs. For a short time, the goal of making a profit is set aside for the goal of survival. Survival pricing is meant only to be used on a short-term or temporary basis. Once the situation that initiated the survival pricing has passed, product prices are returned to previous or more appropriate levels.

**TYPES OF PRICING**

The following are the 6 main types of pricing.

**1. Profit mark-up pricing**

Set the price at your production cost, including both cost of goods and fixed costs at your current volume, plus a certain profit margin.

For example:

You are a manufacturer of candles; the cost of raw materials and production costs is R20, fixed costs come to R30 per unit. Your total cost is R50 per unit.

You decide that you want to operate at a 20% mark up, so you add R10 (20% x R50) to the cost and come up with a price of R60 per unit.

NOTE: So long as you have your costs calculated correctly and have accurately predicted your sales volume, you will always be operating at a profit.

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## 2. Target return pricing

Set your price to achieve a target return-on-investment (ROI).

For example:

We assume that you have R10, 000 invested in the company. Your expected sales volume is 1,000 units in the first year.

You want to recoup all your investment in the first year, so you need to make R10, 000 profit on 1,000 units, or R10 profit per unit, giving you again a price of R60 per unit.

## 3. Value-based pricing

Price your product based on the value it creates for the customer. This is usually the most profitable form of pricing, if you can achieve it. The most extreme variation on this is "pay for performance" pricing for services, in which you charge on a variable scale according to the results you achieve

For example:

Let's say that your candles save the typical customer R1, 000 a year in, say, energy costs. In that case, R60 seems like a bargain - maybe even *too* cheap.

If your product reliably produced that kind of cost savings, you could easily charge R200, R300 or more for it, and customers would gladly pay it, since they would get their money back in a matter of months.

## 4. Psychological pricing

Ultimately, you must take into consideration the consumer's perception of your price, figuring things like:

### a. Positioning

If you want to be the "low-cost leader", you must be priced lower than your competition. If you want to signal high quality, you should probably be priced higher than most of your competition.

### b. Popular price points

There are certain "price points" (specific prices) at which people become much more willing to buy a certain type of product.

For example;

Under R100" is a popular price point. "Enough under R20 to be under R20 with sales tax" is another popular price point, because it's "one bill" that people commonly carry.

Meals under R50 are still a popular price point, as are entree or snack items under R1 (notice how many fast-food places have a R0.99 "value menu").

Dropping your price to a popular price point might mean a lower margin, but more than enough increase in sales to offset it.

## 5. Fair pricing

Sometimes it simply doesn't matter what the value of the product is, even if you don't have any direct competition. There is simply a limit to what consumers perceive as "fair". If it's obvious that your product only cost R20 to manufacture, even if it delivered R10,000 in value, you'd have a hard time charging two or three thousand Rands for it -- people would just feel like they were being gouged. A little market testing will help you determine the maximum price consumers will perceive as fair. Now, how do you combine all of these calculations to come up with a price?

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## 6. Marginal cost pricing

Marginal cost pricing is the practice of setting the price of a product at or slightly above the variable to produce it. This situation usually arises in one of two circumstances:

- A company has a small amount of remaining unused production capacity available that it wishes to use; or
- A company is unable to sell at a higher price

The first scenario is one in which a company is more likely to be financially healthy - it simply wishes to maximise its profitability with a few more unit sales. The second scenario is one of desperation, where a company can achieve sales by no other means. In either case, the sales are intended to be on an incremental basis; they are not intended to be a long-term pricing strategy.

The variable cost of a product is usually only the direct materials required to build it. Direct labour is rarely completely variable, since a minimum number of people are required to crew a production line, irrespective of the number of units produced.

For example:

ABC International has designed a product that contains R5.00 of variable expenses and R3.50 of allocated expenses. ABC has sold all possible units at its normal price point of R10.00, and still has residual production capacity available. A customer offers to buy 6,000 units at the company's best price. To obtain the sale, the sales manager sets the price of R6.00, which will generate an incremental profit of R1.00 on each unit sold, or R6,000 in total. The sales manager ignores the allocated overhead of R3.50 per unit, since it is not a variable cost.

## PRICING STRATEGIES

After selecting a pricing objective, an entrepreneur needs to determine a pricing strategy. This will assist you when it comes time to actually price your products. As with the pricing objectives, numerous pricing strategies are available from which to choose. Certain strategies work well with certain objectives, so make sure you have taken your time selecting an objective.

### 1. Competitive pricing

This entails pricing your product(s) based on the prices your competitors have on the same product(s). This pricing strategy can be useful when differentiating your product from other products is difficult. So, let's say you produce fruit jams such as blueberry, strawberry, blackberry, and raspberry. You may consider using competitive pricing since there are many other jams on the market and you are unable to differentiate your jams to an extent that customers may be willing to pay more for yours. Thus, if the price range for jams currently on the market is R14.50 to R18.50 per jar, you may price your jams at R16.50 per jar to fall in line with the competition.

The strategy of competitive pricing can be used when the pricing objective is either survival or status quo. When the objective for pricing products is to allow the business to either maintain status quo or simply survive a difficult period, competitive pricing will allow the business to maintain profit by avoiding price wars (from pricing below the competition) or falling sales (from pricing above the competition).

### 2. Good, better, best pricing

It charges more for products that have received more attention (for example, in packaging or sorting). The same product is offered in three different formats, with the price for each level rising above that of the previous level. For example, the manager of a farm market that sells fresh apples may place some portion of apples available for sale in a large container through which the customers have to sort to choose the apples they wish to purchase.

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These apples would be priced at the “good” price. Another portion of apples could also be placed in a container from which customers can gather, but these apples would have been pre-sorted to remove less desirable apples, such as those with soft spots. These would be priced at the “better” price. The “best” apples those priced higher than the rest may have been pre-sorted, just as the “better” apples, but have also been pre-packaged for customer convenience. As demonstrated in this example, the “better” and “best” levels require more attention by management or labour but, if priced appropriately, may be worth the extra effort.

This pricing strategy should be used when pursuing revenue maximisation and quantity maximisation objectives. Revenue maximisation should occur as a result of quantity maximisation. Quantity maximisation should occur from the use of this pricing strategy because product is available to customers in three prices ranges.

### 3. Loss leader

Loss leader refers to products having low prices placed on them in an attempt to lure customers to the business and to make further purchases. For example, grocery stores might use bread as a loss leader product. If you come to their store to purchase your bread, you are very likely to purchase other grocery items at their store rather than going to another store. The goal of using a loss leader pricing strategy is to lure customers to your business with a low price on one product with the expectation that the customer will purchase other products with larger profit margins. The loss leader pricing strategy should be paired with either the quantity maximisation or partial cost recovery pricing objectives. The low price placed on the product should result in greater quantities of the product being sold while still recovering a portion of the production cost.

### 4. Multiple pricing

This strategy seeks to get customers to purchase a product in greater quantities by offering a slight discount on the greater quantity. In the display of prices, a price for the purchase of just one item is displayed along with the price for a larger quantity. For example, a farm market may price one melon at R16.90 and two at R30.00. Pricing in this way offers the customer an apparent discount (in this example R0.38) for purchasing the greater quantity.

Customers feel like they’re getting a discount since R15 ( $R30.00 \div 2$ ) is less than the R16.90 price for one melon. However, R15 is the price you would typically charge if you were not employing a multiple pricing strategy. If you think the majority of your customers will purchase the greater quantity, you will want to price the quantity so that your costs are covered and your profit margin is maintained. A customer purchasing just one item will pay more for the item than what you would typically charge if you were not using a multiple pricing strategy.

The multiple pricing strategies works well with the profit maximisation and quantity maximisation objectives. By enticing your customer to purchase more than one item you are generating more profit since you have set the price for just one item so that you receive a greater profit margin than for which you would typically price. Essentially, the customer is being penalised for purchasing just one item. In addition, multiple pricing should increase the quantity of items being sold, hopefully resulting in less product loss or fewer unsold items

### 5. Optional product pricing

It is used to attempt to get customers to spend a little extra on the product by purchasing options or extra features. For example, some customers may be willing to spend a little extra to be assured that they receive product as soon as it becomes available. This can be an excellent strategy for custom operators.

Optional product pricing is best used when the pricing objective is revenue maximisation or quality leadership. By enticing customers to purchase one or more of the options offered to them, you will be increasing your revenue since the customers may not have purchased the option if it were not offered or may have gone elsewhere to purchase it. By offering optional products to complement your base product or service, you are projecting an image of quality to your customers. They will likely recognise your offer of additional products or services as awareness of and sensitivity to their needs.

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## 6. Penetration pricing

This strategy is used to gain entry into a new market. The objective for employing penetration pricing is to attract and grow market share. Once desired levels for these objectives are reached, product prices are typically increased. Penetration prices will not garner the profit that you may want; therefore, this pricing strategy must be used strategically.

The strategy of penetration pricing can be used when your pricing objective is either revenue or quantity maximisation. The lower price set on products by using penetration pricing is done to entice the maximum number of customers possible to purchase your product. Large numbers of customers purchasing your product should maximise your revenue and the quantity of product sold. If the price were higher, you would expect fewer purchases, thus leading to lower revenues.

## 7. Premium pricing

This strategy is employed when the product you are selling is unique and of very high quality, but you only expect to sell a small amount. These attributes demand that a high, or premium, price be attached to the product. Buyers of such products typically view them as luxuries and have little or no price sensitivity. The advantage of this pricing strategy is that you can price high to recoup a large profit to make up for the small number of items being sold.

Premium pricing can be employed with the profit margin maximisation or quality leadership pricing objectives. The premium price charged for the uniqueness and quality of your product allows you to generate large profit margins on each item sold. Your product will also demonstrate your commitment to quality, and customers will think of you when they desire such quality.

## 8. Product bundle pricing

This strategy can be used to group several items together for sale. This is a useful pricing strategy for complementary, overstock, or older products. Customers purchase the product they really want, but for a little extra they also receive one or more additional items. The advantage of this pricing strategy is the ability to get rid of overstock items.

Product bundle pricing can be employed with revenue maximisation or quantity maximisation objectives since bundling products may result in the sale of products that may have gone unsold. Quality leadership can be achieved since some customers will appreciate having the opportunity to purchase a group of items at a discount. The partial cost recovery or survival objectives can be fulfilled from a product bundling pricing strategy when products likely would have gone unsold otherwise and selling the products at a discount

## 9. Skim pricing

It is similar to premium pricing, calling for a high price to be placed on the product you are selling. However, with this strategy the price eventually will be lowered as competitors enter the market. This strategy is mostly used on products that are new and have few, if any, direct competitors when first entering the market.

The skim pricing strategy should be reserved for when your pricing objective is profit maximisation, revenue maximisation, or profit margin maximisation.

## INTERNAL FACTORS

The main internal factors affecting pricing are marketing objectives and cost.

## MARKETING OBJECTIVES

The four main marketing objectives affecting price include:

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**Return on Investment (ROI)** – A firm may set as a marketing objective the requirement that all products attain a certain percentage return on the organization’s spending on marketing the product. This level of return along with an estimate of sales will help determine appropriate pricing levels needed to meet the ROI objective.

**Cash Flow** – Firms may seek to set prices at a level that will insure that sales revenue will at least cover product production and marketing costs. This is most likely to occur with new products where the organizational objectives allow a new product to simply meet its expenses while efforts are made to establish the product in the market. This objective allows the marketer to worry less about product profitability and instead directs energies to building a market for the product.

**Market Share** – The pricing decision may be important when the firm has an objective of gaining a hold in a new market or retaining a certain percent of an existing market. For new products under this objective the price is set artificially low in order to capture a sizeable portion of the market and will be increased as the product becomes more accepted by the target market (we will discuss this marketing strategy in further detail in our next tutorial). For existing products, firms may use price decisions to insure they retain market share in instances where there is a high level of market competition and competitors who are willing to compete on price.

**Maximize Profits** – Older products that appeal to a market that is no longer growing may have a company objective requiring the price be set at a level that optimizes profits. This is often the case when the marketer has little incentive to introduce improvements to the product (e.g., demand for product is declining) and will continue to sell the same product at a price premium for as long as some in the market is willing to buy.

**Marketing strategy** concerns the decisions marketers make to help the company satisfy its target market and attain its business and marketing objectives. Price, of course, is one of the key marketing mix decisions and since all marketing mix decisions must work together, the final price will be impacted by how other marketing decisions are made. For instance, marketers selling high quality products would be expected to price their products in a range that will add to the perception of the product being at a high-level.

**COST**

Costs have traditionally played a major role in pricing decisions. They constitute a basic ingredient for setting a price floor or lower boundary on acceptable prices. Yet, while costs are an essential ingredient to pricing, their role in the pricing process can be very complex. The costs that must be taken into account are:

- Fixed costs
- Variable costs
- Total cost

**EXTERNAL FACTORS**

**Price–Volume Relationship**

A core issue in pricing is the impact of price on demand and sales volume. Following classical economic theory, the typical demand function is negatively sloped; indicating that the number of units sold is inversely related to price. The strength of the relationship between demanded volume and price is the customers’ price sensitivity which is usually measured by the price elasticity. The price elasticity is the relative change in demand (sales) resulting from a relative change in the unit price of the product. A price elasticity of -2, for instance, indicates that a 1 per cent price increase would reduce the sales volume by 2 per cent of its current value.

**Elasticity of Demand**

When it comes to adjusting price, the marketer must understand what effect a change in price is likely to have on target market demand for a product.

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Understanding how price changes impact the market requires the marketer have a firm understanding of the concept economists call elasticity of demand, which relates to how purchase quantity changes as prices change.

Elasticity is evaluated under the assumption that no other changes are being made (i.e., “all things being equal”) and only price is adjusted. The logic is to see how price by itself will affect overall demand.

Obviously, the chance of nothing else changing in the market but the price of one product is often unrealistic.

For example, competitors may react to the marketer’s price change by changing the price on their product. Despite this, elasticity analysis does serve as a useful tool for estimating market reaction.

Elasticity deals with three types of demand scenarios:

**Elastic Demand** – Products are considered to exist in a market that exhibits elastic demand when a certain percentage change in price results in a larger and opposite percentage change in demand.

*For example: if the price of a product increases/ decreases by 10%, the demand for the product is likely to decline/ rise by greater than 10%.*

**Inelastic Demand** – Products are considered to exist in an inelastic market when a certain percentage change in price results in a smaller and opposite percentage change in demand.

*For example, if the price of a product increases/ decrease by 10%, the demand for the product is likely to decline/ rise by less than 10%.*

**Unitary Demand** – This demand occurs when a percentage change in price results in an equal and opposite percentage change in demand.

*For example, if the price of a product increases/ decreases by 10%, the demand for the product is likely to decline/ rise by 10%.*

For marketers the important issue with elasticity of demand is to understand how it impacts company revenue.

In general, the following scenarios apply to making price changes for a given type of market demand:

- For elastic markets – increasing price lowers total revenue while decreasing price increases total revenue.
- For inelastic markets – increasing price raises total revenue while decreasing price lowers total revenue.
- For unitary markets – there is no change in revenue when price is changed.

## **UNDERSTANDING THE EXTERNAL FACTORS**

There are many factors external to the firm that must be taken into account when prices are set. It is useful to consider these in four groups. First the characteristics of the customers themselves, and then three aspects of the environment within which the firm operates: the competitive, the channel, and the legal environments.

## **INDIVIDUAL CONSUMERS**

The traditional microeconomic picture of a consumer who correctly registers all prices and price changes, and acts ‘rationally’ upon them so as to maximise his utility, has been falsified for quite some time. A myriad of studies on consumer price knowledge, perception, and evaluation uncover that consumers’ reactions to price are much less stylised and homogeneous than suggested by traditional microeconomics. Understanding the implications of pricing, therefore, requires consideration not only of factual prices and their sales outcomes, but also of how these prices are perceived and evaluated.

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## ASPECTS OF THE ENVIRONMENT

### **Competitive environment**

In determining prices, the competitive environment should explicitly be accounted for. The level of demand associated with a given company price strongly depends on prevailing competitive prices. Moreover, in a dynamic setting, not only must current prices of competitors be taken into account, but so should competitive reactions. Competitive retaliation may attenuate pricing effects. It could even provoke price wars where prices of all market players are systematically reduced, possibly to unprofitable levels.

### **Channel environment**

Most companies operate within a marketing channel: they obtain products, components, and/or materials from suppliers; and many pass their products onto intermediaries before they reach the end-users. The characteristics of the channel, and the (associated) reactions of channel members, strongly affect the nature of the pricing problem as well as the effectiveness of alternative pricing strategies, structures, and instruments.

### **Legal environment**

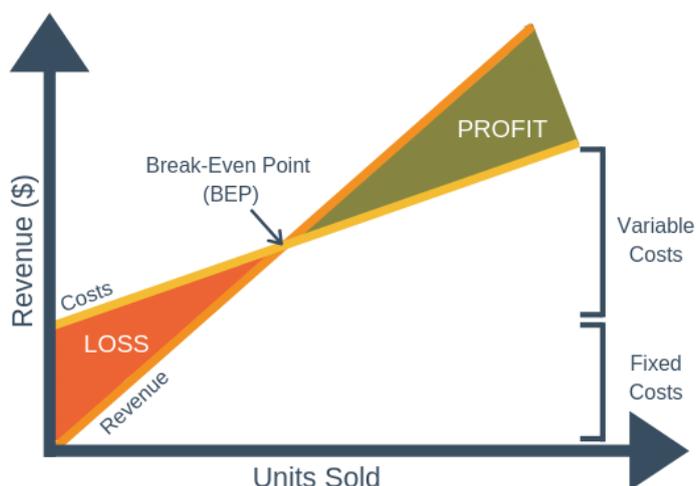
In setting prices, managers must be aware of legal constraints that restrict their decision freedom. In most countries, governments have installed price regulations, the objective of which is to defend consumers and/or preserve competition. In an international setting, additional constraints have been formulated to limit tax evasion or keep cash, employment, and economic activity within country boundaries.

## **BREAKEVEN ANALYSIS**

Break-even analysis is a technique widely used by production management and management accountants. It is based on categorising production costs between those which are "variable" (costs that change when the production output changes) and those that are "fixed" (costs not directly related to the volume of production). Total variable and fixed costs are compared with sales revenue in order to determine the level of sales volume, sales value or production at which the business makes neither a profit nor a loss (the "break-even point").

### **THE BREAK-EVEN CHART**

In its simplest form, the break-even chart is a graphical representation of costs at various levels of activity shown on the same chart as the variation of income (or sales, revenue) with the same variation in activity. The point at which neither profit nor loss is made is known as the "break-even point" and is represented on the chart below by the intersection of the two lines:



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As output increases, variable costs are incurred, meaning that total costs (fixed + variable) also increase. At low levels of output, Costs are greater than Income. At the point of intersection, P, costs are exactly equal to income, and hence neither profit nor loss is made.

At this point it is important to differentiate between fixed and variable costs:

### Fixed Costs

Fixed costs are those business costs that are not directly related to the level of production or output. In other words, even if the business has a zero output or high output, the level of fixed costs will remain broadly the same. In the long term fixed costs can alter - perhaps as a result of investment in production capacity (e.g. adding a new factory unit) or through the growth in overheads required to support a larger, more complex business. *Examples of fixed costs:* Rent and rates, Depreciation, Research and development and Administration costs.

### Variable Costs

Variable costs are those costs which vary directly with the level of output. They represent payment output-related inputs such as raw materials, direct labour, fuel and revenue-related costs such as commission. A distinction is often made between "Direct" variable costs and "Indirect" variable costs.

Direct variable costs are those which can be directly attributable to the production of a particular product or service and allocated to a particular cost centre. Raw materials and the wages those working on the production line are good examples.

Indirect variable costs cannot be directly attributable to production but they do vary with output. These include depreciation (where it is calculated related to output - e.g. machine hours), maintenance and certain labour costs.

### DRAWING A BREAK EVEN CHART

To draw a chart, the following steps, need to be followed:

1. Label the vertical axis "sales and costs in Rands".
2. Label the horizontal axis "sales/production (units)".
3. On another piece of paper sketch, the scales that you want to use given the data, then use this plan on the chart.
4. Plot any two points from the sales revenue data for the sales revenue line and then draw a straight line for sales revenue (assumes that the price per unit does not change) if the information is not given for sales revenue, then work out two points, e.g. for 1000 units sold and 1500 units sold. The start of the line should be through the origin (where the axes meet).
5. Draw a horizontal line for total fixed costs starting at the point on the vertical axis at the level of costs.
6. At the same starting point it is possible to draw the total costs line. Total costs are fixed costs plus variable costs. Work out what the total costs are for say 1000 units and 1500 units. Then draw the straight line starting at the same point as the fixed costs started and then through the two plotted points.
7. Where the sales revenue crosses the total costs line is the breakeven point. Read off the units of sales to give the breakeven level of sales.
8. The gap between the total costs line and sales revenue line after the breakeven point represents the level of profit.

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$$\text{Break Even Point (in unit)} = \frac{\text{Fixed Cost}}{\text{Contribution Per Unit}}$$

$$\text{Contribution Per Unit} = \text{Selling Price Per Unit} - \frac{\text{Variable Cost}}{\text{Number of Units}}$$

$$\text{Break Even Point (in volume)} = \frac{\text{Fixed Cost}}{\text{Contribution Per Unit}} \times \text{Selling Price Per Unit}$$

<b>WORKED EXAMPLE 1</b>	
<b>PARTICULARS</b>	<b>AMOUNT</b>
Sales (80,000 units @R 50)	4, 000,000
Less: Variable costs (80 000 units @R30)	2,400,000
Contribution margin	1,600,000
Less Fixed costs	900,000
Operating income	700,000
Breakeven point =900, 000/ (50-30) units	45,000
Breakeven point (value) =900,000/(50-30) * R50	2,250,000

### WORKED EXAMPLE 2

A company producing a single article sells it at R 10 each. The variable cost of production is R. 6 each and fixed cost is R 400 per annum. Calculate the Breakeven point in volume and sales;

$$400/(10-6)= 100 \text{ units}$$

$$400/(10-6)= 100 \text{ units} * 10$$

$$=R1, 000$$

### WORKED EXAMPLE 3

A product sells for R15 and has variable costs per unit of R11. Each unit sale therefore makes a contribution of R4 towards the fixed costs of the business. If the business had fixed costs of R20, 000

Calculate the breakeven

#### Solution

$$200,000/ (15-11) = 5000 \text{ units}$$

### DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN COSTS, REVENUE AND PROFITS.

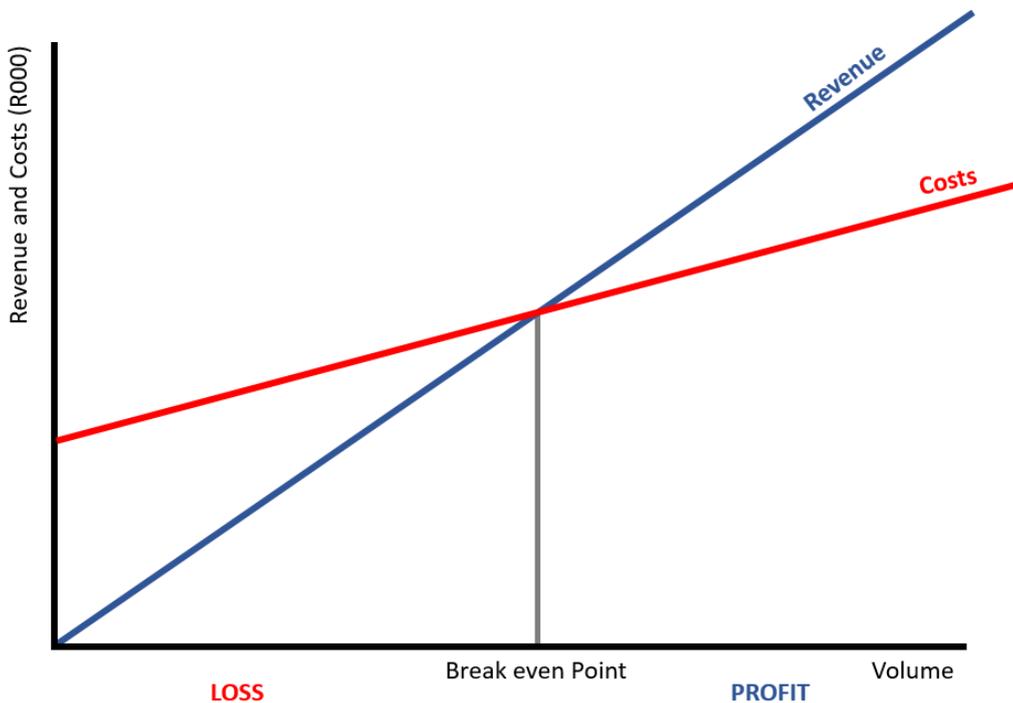
There are three fundamental relationships in business:

1. Revenue varies directly with the number of units sold and the price the sales units are sold at.

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2. Some costs vary directly with the number of units sold but, some costs in the business are fixed for a period and do not vary directly with sales levels.
3. These costs do not automatically increase if sales increase and do not reduce if sales are lower than expected.

This creates a cost volume profit relationship which can be seen by the graph below:



- As you can see the Revenue line starts from zero (if you don't sell anything, you don't generate any revenue) while the Cost line starts from a point on the R000 axis which represents the fixed costs of the business.
- Where the Revenue line and the cost line meet, the business does not make a profit or loss and is said to be at the breakeven point.
- To the left of the breakeven point, the business is making a loss because costs are greater than revenue. While the angle of the revenue line is steeper than the cost line, it takes single sales to pay for the fixed costs.
- To the right of the breakeven point, the business is making a profit because revenue is greater than costs.

EXAMPLE 1:

**PROFIT = REVENUE – COST**

A shopkeeper buys scientific calculators in bulk for R15 each. He sells them for R40 each. Calculate the profit on each calculator in Rands, and as a percentage of the cost price.

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Given: cost price = R15, selling price = R40

$$\begin{aligned} \text{Profit} &= \text{selling price} - \text{cost price} \\ &= R40 - R15 \\ &= R25 \end{aligned}$$

Expressing the profit as a percentage of the cost price

$$\begin{aligned} \text{Profit \%} &= \frac{\text{R PROFIT}}{\text{R COST PRICE}} \times 100\% \\ &= \frac{R25}{R15} \times 100\% \\ &= 166.7\% \end{aligned}$$

### EXAMPLE 2:

A school bookshop sells an outdated biology text book for R49.35, making a 6% loss. What was the cost price of the book, and what is the cash value of the loss?

**Given:** selling price = R49.35,  
loss = 6% of cost price

but, (cost price) = (selling price) + loss

Expressing as percentages of the cost price:

$$\text{(cost price)} = \text{(selling price)} + \text{loss}$$

$$100\% \quad X\% \quad + \quad 6\%$$

This means that the selling price is  $(100-6) = 94\%$  of the cost price.

$$\text{Selling price} = \frac{94}{100} \times (\text{cost price})$$

So:  $\frac{100}{94} \times (\text{selling price})$

$$\begin{aligned} &= \frac{100}{94} \times 49.35 \\ &= R52.50 \end{aligned}$$

loss = (cost price) - (selling price)

$$\begin{aligned} &= R52.50 - R49.35 \\ &= R3.15 \end{aligned}$$

## METHODS OF COSTING

There are a number of methods for calculating costs. For the purpose of this module we shall discuss the following;

1. Absorption costing
2. Variable costing

### A. ABSORPTION COSTING

Absorption costing is a method for accumulating fixed and variable costs associated with the production process and apportioning them to individual products. Thus, a product must absorb a broad range of costs. These costs are not recognized as expenses in the month when an entity pays for them. Instead, they remain in inventory as an asset until such time as the inventory is sold; at that point, they are charged to cost of goods sold.

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Product absorption costing follows these steps:

1. Identify the **cost object**;
2. Identify the **direct costs** associated with the cost object;
3. Identify the **overhead costs**;
4. Select the **cost allocation base** to use in assigning overhead costs to the cost object;
5. Develop the **overhead rate** for allocating overhead to the cost object.

1. **COST OBJECTS:** Recall that a cost object is anything that we want to know the cost of, such as a product or service.

2. **DIRECT COSTS:** Management accounting classifies product costs as either direct costs or overhead costs (indirect costs). This distinction is important because costing systems handle these two types of costs very differently. The distinction is sometimes subtle, because whether a cost is direct or overhead is a function of the cost object, and also partly a matter of choice on the part of managers and accountants.

**Direct materials:** materials that become part of the finished product and that can be conveniently and economically traced to specific units (or batches) or product. Example of direct materials for an apparel manufacturer: fabric. All other materials, such as thread and zippers, are probably indirect.

**Direct labour:** costs for labour that can be conveniently and economically traced to a unit (or batch) of product. The following examples show how the determination of whether a cost is direct or overhead depends on the identification of the cost object.

3. **OVERHEAD COSTS:** Overhead costs are costs that are related to the cost object, but cannot be traced to the cost object in an economically feasible way. Overhead costs are not directly traceable to specific units of production. Examples of overhead costs incurred at an apparel manufacturer, when the cost object is a batch of product, probably include the following:

- Electricity
- Factory office salaries
- Building and machine maintenance
- Factory depreciation

The distinction between direct costs and overhead costs relate, in some measure, to the way the accounting system treats the cost. For example, one apparel manufacturer might track thread using the same methods that are used to track fabric, thus treating thread as a direct material. Another apparel manufacturer might decide that the cost of thread is immaterial, and does not warrant the cost and effort to track it as a direct cost. For this company, thread is an overhead cost. Therefore, whether some costs are direct or overhead depend on a choice made by the manager and the cost accountant.

There are three ways overhead costs can be treated in any decision-making context: (1) they can be ignored, (2) they can be treated as a lump-sum, or (3) they can be allocated to the products and services (i.e., to the cost objects) to which they relate. Each of these three alternatives is appropriate, depending on the circumstances and the purpose for which the accounting is done. However, in this chapter and throughout much of this book, we are concerned with the third alternative: how to allocate overhead costs to products and services.

4. **COST ALLOCATION BASES:** The allocation base is the “link” that is used to attach overhead costs to the cost object. In a manufacturing setting, the simplest allocation base is the number of units produced. For example, if the factory makes 15,000 units, the accounting system can simply “spread” the overhead costs evenly over all 15,000 units. The problem with using units as an allocation base, however, is that if the factory makes a range of

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different products, those products might differ significantly in their resource utilisation. A deluxe widget might require twice as much labour and 20% more materials than a standard widget, and one might infer that the deluxe widget also requires more resources that are represented by overhead costs.

Whatever cost allocation base is chosen, it must be a “common denominator” across all cost objects. For example, a furniture factory could allocate overhead costs across all products using direct labour hours, because direct labour is incurred by all products made at the factory. However, it would not seem appropriate to allocate factory overhead based on the quantity of wood used in each unit, if the factory makes both wood furniture and a line of plastic-moulded, because no overhead would be allocated to the plastic chairs.

- I. **OVERHEAD RATES:** The overhead rate is the ratio of cost pool overhead dollars in the numerator, and the total quantity of the allocation base in the denominator:

$$\text{OVERHEAD RATE} = \frac{\text{OVERHEAD COSTS IN THE COST POOL}}{\text{TOTAL QUANTITY OF THE ALLOCATION BASE}}$$

The result represents dollars of overhead per unit of the allocation base. For example, if an apparel factory allocates overhead based on direct labour hours, the overhead rate represents dollars of overhead per direct labour hour. Assume the overhead rate is R20 per direct labour hour. Then for every hour that a sewing operator spends working on product, R20 will be allocated to the products that the sewing operator assembles during that hour.

**EXAMPLE**

The ZFN Company, a newly formed company based in Cape Town makes jeans and premium khakis. Each product line has its own assembly line on the factory floor. Overhead costs for the factory for 2005 were R3, 300,000. 500,000 jeans and 400,000 khakis were produced during the year. 500,000 direct labour hours were used: 200,000 for jeans, and 300,000 for khakis. The average direct labour wage rate was the same on both assembly lines, and was R14 per hour. Denim fabric is used to make jeans, and khakis are made from a cotton twill fabric. Overhead is allocated using direct labour hours.

The following journal entries and T-accounts illustrate how the accounting system records the manufacturing activities of the factory in order to derive product cost information for jeans and khakis. Journal entry (6) to debit overhead to work-in-process is based on an overhead rate calculated as follows.

$$R3, 300,000 \div 500,000 \text{ direct labour hours} = R6.60 \text{ per direct labour hour.}$$

In practice, the factory would track costs by batch, or perhaps weekly, but to simplify our example, we record only one journal entry for each type of transaction. We also make the unrealistic assumption that there is no work-in-process at the end of the period. To focus the presentation on inventory-related accounts, T-accounts for some non-inventory accounts, and the entry to debit accounts receivable and credit revenue, are omitted.

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1.

Raw Materials: denim fabric R3, 000,000  
 Raw Materials: cotton twill R2,250,000  
 Accounts Payable R5, 250,000  
 (To record the purchase of 600,000 yards of denim fabric at R5.00 per yard, and 500,000 yards of cotton twill fabric at R4.50 per yard.)

2.

Work-in-process: Jeans R2, 500,000  
 Raw Materials: denim fabric R2, 500,000  
 (To record materials requisitions for 500,000 yards, for the movement of denim from the receiving department to the cutting room.)

3.

Work-in-process: Khakis R2, 160,000  
 Raw Materials: cotton twill R2, 160,000  
 (To record materials requisitions for 480,000 yards, for the movement of cotton twill from the receiving department to the cutting room.)

4.

Work-in-process: Jeans R2, 800,000  
 Work-in-process: Khakis R4,200,000  
 Accrued Sewing Operator Wage R7, 000,000  
 (To record sewing operator wages for the year: 200,000 hours for jeans, and 300,000 hours for khakis, at R14 per hour.)

5.

Factory Overhead R3, 300,000  
 Accounts Payable R1, 800,000  
 Accrued Wages for Indirect Labour R900,000  
 Accumulated Depreciation R600,000  
 (To record overhead costs incurred during the year, including utilities, depreciation, repairs and maintenance, and indirect wages and salaries.)

6.

Work-in-process: Jeans R1,320,000  
 Work-in-process: Khakis R1,980,000  
 Factory Overhead R3, 300,000  
 (To allocate factory overhead to production, using an overhead rate of R6.60 per direct labour hour.)

7.

Finished Goods: Jeans R6, 620,000  
 Work-in-process: Jeans R6, 620,000  
 (To record the completion of all 500,000 jeans, at R13.24 per pair.)

8.

Finished Goods: Khakis R8, 340,000  
 Work-in-process: Khakis R8, 340,000  
 (To record the completion of all 400,000 khakis, at R20.85 per pair.)

9.

Cost of Goods Sold: Jeans R5, 296,000  
 Cost of Goods Sold: Khakis R7, 297,500  
 Finished Goods: Jeans R5, 296,000  
 Finished Goods: Khakis R7, 297,500

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Raw Materials:

Denim Fabric

(1)	R3,000,000	R2,500,000	(2)
	<u>R 500,000</u>		

Raw Materials:

Cotton Twill

(1)	R2,250,000	R2,160,000	(3)
	<u>R 90,000</u>		

Accrued Sewing

Operator Wages

	R7,000,000	(4)
--	------------	-----

Factory Overhead

(5)	R3,300,000	R3,300,000	(6)
	<u>R0</u>		

Work-in-Process: Jeans

(2)	R2,500,000	R6,620,000	(7)
(4)	2,800,000		
(6)	1,320,000		
	<u>R0</u>		

Work-in-Process: Khakis

(3)	R2,160,000	R8,340,000	(8)
(4)	4,200,000		
(6)	1,980,000		
	<u>R0</u>		

Finished Goods: Jeans

(7)	R6,620,000	R5,296,000	(9)
	<u>R1,324,000</u>		

Finished Goods: Khakis

(8)	R8,340,000	R7,297,500	(9)
	<u>R1,042,500</u>		

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Cost of Goods Sold: Jeans

(9)	<u>R5,296,000</u>	
-----	-------------------	--

Cost of Goods Sold: Khakis

(9)	<u>R7,297,500</u>	
-----	-------------------	--

Accounts Payable

	R5,250,000	(1)	
	1,800,000	(5)	

The per-unit inventory cost is calculated as follows:

Jeans:  $R6,620,000 \div 500,000 \text{ pairs} = R13.24 \text{ per pair}$

Khakis:  $R8,340,000 \div 400,000 \text{ pairs} = R20.85 \text{ per pair}$

These amounts, which are used in journal entry (9), can be detailed as follows:

Input	Jeans	Khakis
Fabric	1 yard per jean x R5 per yard = R5.00	1.2 yards per chino x R4.50 per yard = R5.40
Direct labour	0.4 hours per jean x R14 per hour = R5.60	0.75 hours per chino x R14 per hour = R10.50
Overhead	<u>0.4 hours per jean x R6.60 per hour = R2.64</u>	<u>0.75 hours per chino x R6.60 per hour = R4.95</u>
Total	<u>R13.24</u>	<u>R20.85</u>

In the above table, the direct labour hours per jean and per chino appear in the lines for both the per-unit direct labour cost and the per-unit overhead cost, because overhead is allocated based on direct labour hours. If the allocation base had been something else, such as machine hours, the hours per unit would only appear in the calculation of the direct labour cost.

More overhead is allocated to each pair of khakis than to each pair of pants (R4.95 versus R2.64) because direct labour hours has been chosen as the allocation base, and each chino requires more direct labour time than each pair of jeans (0.75 hours versus 0.40 hours). Changing the allocation base cannot change the total amount of overhead incurred, but it will usually shift costs from some products to others. For example, if the allocation base were units of production instead of direct labour hours, the overhead rate would be:

$R3,300,000 \div 900,000 \text{ units} = R3.67 \text{ per unit.}$

In this case, the total cost per pair of jeans would increase from R13.24 to R14.27, and the total cost per pair of khakis would decrease from R20.85 to R19.57.

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## B. VARIABLE COSTING

Variable costing is a costing system under which those costs of production that vary with output are treated as product costs. This would usually include direct materials, direct labour and variable portion of manufacturing overhead. Fixed manufacturing cost is not treated as a product costs under variable costing. Rather, fixed manufacturing cost is treated as a period cost and, like selling and administrative expenses, it is charged off in its entirety against revenue each period. Consequently, the cost of a unit of product in inventory or cost of goods sold under this method does not contain any fixed overhead cost. Variable costing is some time referred to as direct costing or marginal costing.

The main features of marginal costing are as follows:

1. Cost classification
2. Stock/inventory valuation
3. Marginal contribution

### 1. COST CLASSIFICATION

The marginal costing technique makes a sharp distinction between variable costs and fixed costs. It is the variable cost on the basis of which production and sales policies are designed by a firm following the marginal costing technique.

### 2. STOCK/INVENTORY VALUATION

Under marginal costing, inventory/stock for profit measurement is valued at marginal cost. It is in sharp contrast to the total unit cost under absorption costing method.

### 3. MARGINAL CONTRIBUTION

Marginal costing technique makes use of marginal contribution for marking various decisions. Marginal contribution is the difference between sales and marginal cost. It forms the basis for judging the profitability of different products or departments.

$$\text{Contribution} = \text{Sales revenue per unit} - \text{Variable cost per unit}$$

As long as a product generates positive contribution, it may be continued. Contribution accounting looks at the contribution generated

#### EXAMPLE

Walter and Sons makes a product, the Splash, which has a variable production cost of R6 per unit and a sales price of R10 per unit. At the beginning of September 20X0, there were no opening inventories and production during the month was 20,000 units. Fixed costs for the month were R30, 000 for production and R15, 000 for administration, sales and distribution. There were no variable marketing costs.

#### Required

Calculate the contribution and profit for September, using marginal costing principles, if sales were as follows.

- (a) 10,000 Splashes
- (b) 15,000 Splashes
- (c) 20,000 Splashes

#### SOLUTION

The first stage in the profit calculation must be to identify the variable costs, and then the contribution. Fixed costs are deducted from the total contribution to derive the profit. All closing inventories are valued at marginal production cost (R6 per unit). Production during the month in all three cases is 20,000 units

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	R	R	R	R	R	R
Sales (at R10)		100,000		150,000		200,000
Opening inventory	0		0		0	
Variable production cost	120,000		120,000		120,000	
	120,000		120,000		120,000	
Less value of closing	60,000		30,000		0	
Inventory (at marginal cost)		60,000		90,000		120,000
Contribution		40,000		60,000		80,000
Less Fixed Assets		45,000		45,000		45,000
Profit/loss		(5,000)		15,000		35,000
Profit/loss per unit		0.50		1		1.75
Contribution per unit		4		4		4

## TYPES OF PROFIT

They are five main types of profit quoted by a business:

### **1. GROSS PROFIT**

This is the difference between sales income and the direct costs of making those products. Gross profit is used as a performance indicator to help the business make decisions over its pricing policies and use of materials.

The Gross Profit Margin illustrates the profit a company makes after paying off its Cost of Goods sold (cost of inventory). Gross Profit Margin illustrates to us how efficient the management is in using its labour and raw materials in the process of production. The formula for Gross Profit Margin is:

$$\text{Gross Profit Margin} = (\text{Sales} - \text{Cost of Goods Sold}) / \text{Sales}$$

For example, imagine a company with Gross Sales for 2006 equalling R5 million. The cost of goods sold amounts to R1.2 million. What is the Gross Profit Margin?

$$\text{Gross Profit Margin} = (5,000,000 - 1,200,000) / 5,000,000$$

$$\text{Gross Profit Margin} = 3,800,000 / 5,000,000$$

$$\text{Gross Profit Margin} = 76\%$$

### **2. OPERATING PROFIT MARGIN**

The Operating Profit Margin will illustrate to you how efficiently the managers of a firm are using business operations to generate profit. This ratio also shows the success rate of these managers. The formula for Operating Profit Margin is:

$$\text{Operating Profit Margin} = \text{Earnings before Interest \& Taxes} / \text{Sales}$$

For example, consider a firm that has R2 million sales this year and an EBIT (Earnings before Interest & Taxes) of R450,000. What is the Operating Profit Margin?

$$\text{Operating Profit Margin} = 450,000 / 2,000,000$$

$$\text{Operating Profit Margin} = 22.5\%$$

The higher the Operating Profit Margin, the better. This is because a higher Operating Profit Margin shows the company can keep its costs under control (successful cost accounting). A higher Operating Profit Margin can also mean sales are increasing faster than costs, and the firm is in a relatively liquid position.

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The difference between Gross Profit Margin and Operating Profit Margin is that the gross profit margin accounts for only Cost of Goods sold, but the Operating Profit Margin accounts for both Cost of Goods sold and Administration/Selling expenses.

### 3. NET PROFIT

Net profit represents gross profit less all expenses associated with the normal running of the business. Net profit shows how well the business performs under its normal trading circumstances. It is used to calculate the “primary efficiency” ratio.

Net Profit Margin tells you exactly how the managers and operations of a business are performing. Net Profit Margin compares the net income of a firm with total sales achieved

The formula for Net Profit Margin is:

$$\text{Net Profit Margin} = \text{Net Income} / \text{Sales}$$

For example, consider a firm that has an annual net income of R500,000 while the total sales achieved during the year amount to R2,200,000. What's the Net Profit Margin?

$$\text{Net Profit Margin} = 500,000 / 2,200,000$$

$$\text{Net Profit Margin} = 22.7\%$$

Once you calculate the net profit margin of a firm, compare it with industry standards. For example, typical software companies have a Gross Margin of 90% (as mentioned above).

However, the NET profit margin is only 27%. That's a huge difference right there and it tells us that the marketing/administration costs of software companies is huge!

However, this also tells us that operating costs and cost of goods sold of software companies is relatively low.

### 4. NET PROFIT AFTER INTEREST AND TAXATION

This is the profit available for the shareholders. Net profit after interest and taxation is all due to the owners of the business. They can choose to take out, in the form of dividends, all, some or none of this.

### 5. RETAINED PROFIT

Retained profit is the profit left over after the shareholders have been paid their dividends. Retained profit is normally reinvested in the business. This is the profit that is left over after a firm pays off dividends to its shareholders.

EXAMPLES:

Microsoft has retained R18.9 billion in earning over the years.

It has over 2.5 times that amount in stockholder equity (R47.29 billion), no debt, and earned over 12.57% on its equity last year. Obviously, the company is using the shareholder's money very effectively. With a market cap of R314 billion, the software giant has done an amazing job.

Lear Corporation is a company that creates automotive interiors and electrical components for everyone from General Motors to BWM. As of 2001, the company had retained over R1 billion in earnings and had a negative tangible asset value of R1.67 billion dollars! It had a return on equity of 2.16%, which is less than a passbook savings account.

The company is astronomically priced at 79.01 times earnings and has a market cap of R2.67 billion. In other words: Shareholders have reinvested a billion dollars of their money back into the company and what have they gotten? They owe R1.67 billion. That is a bad investment.

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## MODULE 2: MANAGING COMPANY FINANCES

### MODULE 2: LEARNING OUTCOMES

Manage finances of a new venture
Explain financial aspects involved in running new venture.
The concepts of start-up capital and working capital are explained in relation to a business.
The relationship between cash flow and profit are explained with examples within a business.
An explanation is given of the difference between short-term finance and long-term debt finance with examples.
The difference between fixed and working capital is explained in terms of own business venture.
Apply cash flow management in the running of a new venture.
The importance of cash flow management in a business is discussed in terms of the principles of a healthy business practice.
An explanation is given of the use of cash flow forecast as a budgeting tool.
A cash flow forecast is created in accordance with recognised processes and steps.
A cash flow forecast is used in order to determine a working capital for a business.
Bank statements are interpreted for reconciliation with the cash book.
Apply an accounting system to manage a new venture.
An explanation is given of how an accounting system is applied in a new venture.
An accounting system is established for a new venture.
The accounting system is monitored for effectiveness.
Taxation requirements are catered for in the accounting system of the new venture.
Analyse an income and expenditure statement.
An explanation is given of how income and expenditure statements are applied in terms of their purpose.
Sources of income and expenditure statements are identified for a new venture.
Income and expenditure statements are evaluated to determine the financial viability of new venture.
An income and expenditure statements is created for a new venture.
Analyse a balance sheet.
An explanation is given of the purpose of a balance sheet with reference to how often a balance sheet is necessary.
The liabilities in a balance sheet are classified in terms of long-term and current liabilities.
Assets and liabilities are determined in a new venture context.
A balance sheet is evaluated in terms of equity and/or financial net worth.
A balance sheet is drawn up for a new venture.
Make a financial decision based on financial statements.
Recommendations are made on how to improve the financial ratios of new ventures.
The financial strengths and weaknesses of own venture are analysed in order to make suggestions to improve income and reduce costs.

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## MODULE 2: MANAGING COMPANY FINANCES

### UNIT STANDARDS IN THIS MODULE

263474

### MANAGE FINANCES OF A NEW VENTURE



EXPLAIN FINANCIAL ASPECTS INVOLVED IN RUNNING NEW VENTURE.	SO 1
APPLY CASH FLOW MANAGEMENT IN THE RUNNING OF A NEW VENTURE.	SO 2
APPLY AN ACCOUNTING SYSTEM TO MANAGE A NEW VENTURE.	SO 3
ANALYSE AN INCOME AND EXPENDITURE STATEMENT.	SO 4
ANALYSE A BALANCE SHEET.	SO 5
MAKE A FINANCIAL DECISION BASED ON FINANCIAL STATEMENTS.	SO 6



The concepts of start-up capital and working capital are explained in relation to a business.	SO 1 AC 1
The relationship between cash flow and profit are explained with examples within a business.	SO 1 AC 2
An explanation is given of the difference between short-term finance and long-term debt finance with examples.	SO 1 AC 3
The difference between fixed and working capital is explained in terms of own business venture.	SO 1 AC 4
The importance of cash flow management in a business is discussed in terms of the principles of a healthy business practice.	SO 2 AC 1
An explanation is given of the use of cash flow forecast as a budgeting tool.	SO 2 AC 2
A cash flow forecast is created in accordance with recognised processes and steps.	SO 2 AC 3
A cash flow forecast is used in order to determine a working capital for a business.	SO 2 AC 4
Bank statements are interpreted for reconciliation with the cash book.	SO 2 AC 5
An explanation is given of how an accounting system is applied in a new venture.	SO 3 AC 1
An accounting system is established for a new venture.	SO 3 AC 2
The accounting system is monitored for effectiveness.	SO 3 AC 3
Taxation requirements are catered for in the accounting system of the new venture.	SO 3 AC 4
An explanation is given of how income and expenditure statements are applied in terms of their purpose.	SO 4 AC 1
Sources of income and expenditure statements are identified for a new venture.	SO 4 AC 2
Income and expenditure statements are evaluated to determine the financial viability of new venture.	SO 4 AC 3
An income and expenditure statements is created for a new venture.	SO 4 AC 4
An explanation is given of the purpose of a balance sheet with reference to how often a balance sheet is necessary.	SO 5 AC 1
The liabilities in a balance sheet are classified in terms of long-term and current liabilities.	SO 5 AC 2
Assets and liabilities are determined in a new venture context.	SO 5 AC 3
A balance sheet is evaluated in terms of equity and/or financial net worth.	SO 5 AC 4
A balance sheet is drawn up for a new venture.	SO 5 AC 5
Recommendations are made on how to improve the financial ratios of new ventures.	SO 6 AC 1
The financial strengths and weaknesses of own venture are analysed in order to make suggestions to improve income and reduce costs.	SO 6 AC 2



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**EXPLAIN FINANCIAL ASPECTS INVOLVED IN RUNNING NEW VENTURE**

Finance and accounting systems help drive business performance by efficiently handling a multitude of daily transactions, sharing valuable information hidden in transactional data, and adapting processes fluidly as business conditions and regulatory environments change.

Financial Management Systems enables business integrates and streamline financial resources and processes. By doing so, they achieve a reliable, apples-to-apples view of financial performance across the entire enterprise, as well as the flexibility and control necessary for adapting to the demands of even the most challenging business environment. An effective Financial Management system will ensure that the business:

- ✓ Reduce transaction costs
- ✓ Shorten process cycle times
- ✓ Achieve data consistency
- ✓ Enforce global financial standards and processes
- ✓ Improve financial transparency

**IMPORTANCE OF MANAGING YOUR FINANCES**

Financial management is about planning income and expenditure, and making decisions that will enable a new venture to survive financially.

**FINANCIAL MANAGEMENT INCLUDES:**

- ✓ financial planning and budgeting,
- ✓ financial accounting
- ✓ financial analysis,
- ✓ financial decision-making
- ✓ financial problem solving

**FINANCIAL PLANNING**

Financial planning is about:

- ✓ Making sure that the organisation can survive
- ✓ Making sure the money is being spent in the most efficient way.
- ✓ Making sure that the money is being spent to fulfil the objectives of the organisation
- ✓ Being able to plan for the future of the organisation in a realistic way.

**FINANCIAL ACCOUNTABILITY**

Financial accountability means having to account for the way money is spent in the business.

Being able to account for the way the money is spent to:

- ✓ boards and committees
- ✓ members, and
- ✓ the people whom the money is meant to benefit

**FINANCIAL RESPONSIBILITY**

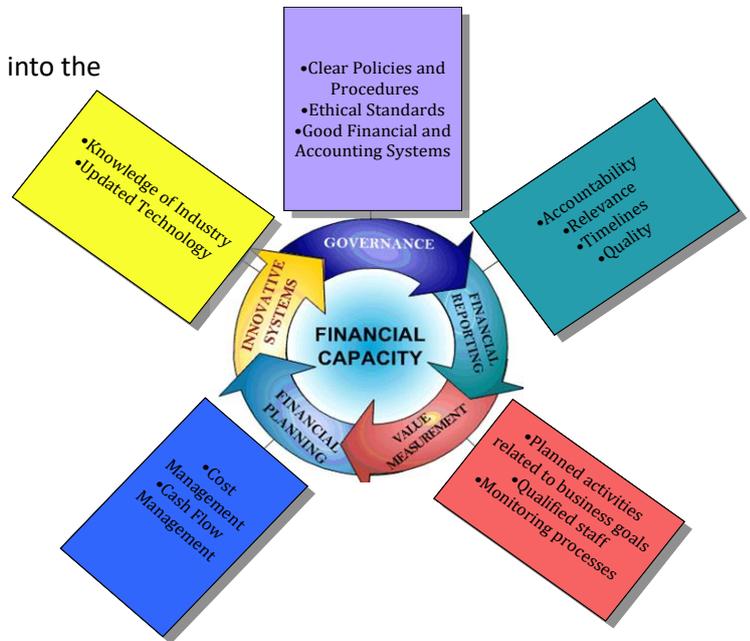
Managing finances also include meeting all obligations required such as:



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- ✓ Paying staff and accounts on time
- ✓ Keeping proper records of the money that comes into the organisation and goes out of the organisation

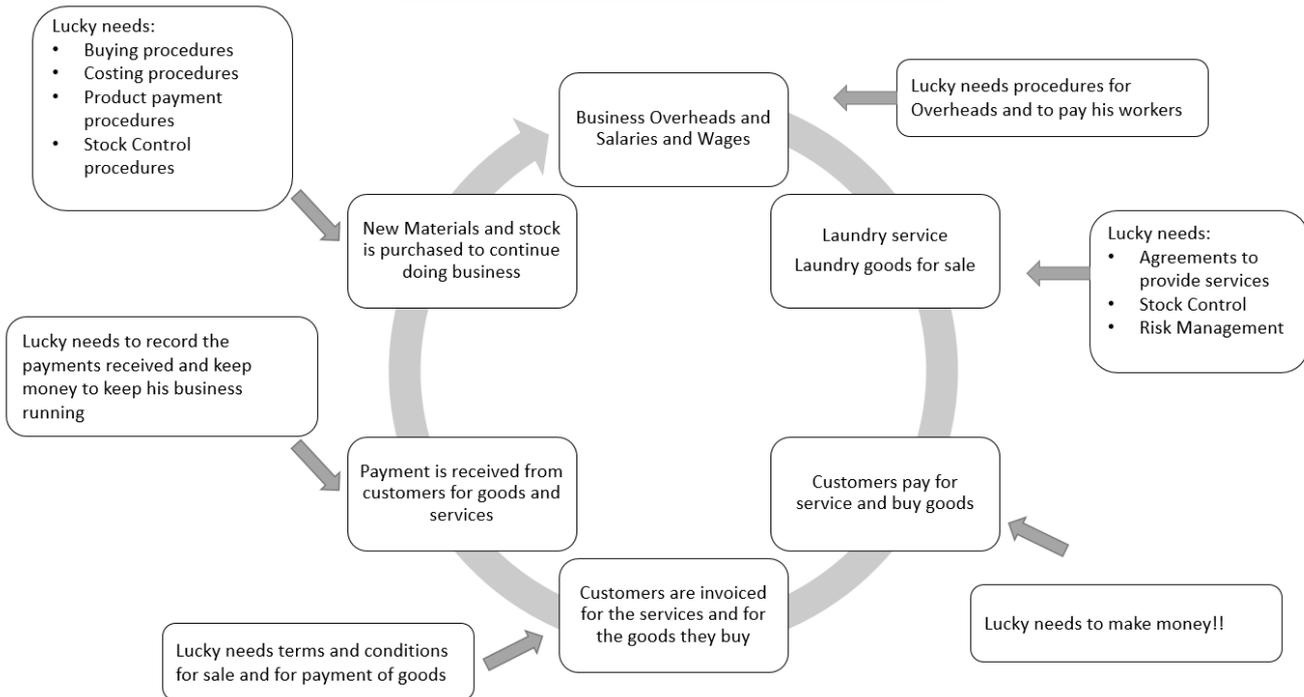
Financial Capacity is the essence of financial management and is summarised in the following diagram:



**TYPICAL FINANCIAL PROCESSES**

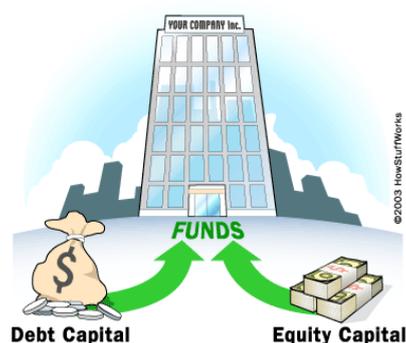
The following diagram illustrates a typical financial process. This is for Lucky’s Lovely Laundry. Lucky provides a service (he washes laundry) and also makes his own washing powder that his customers buy called “Lucky’s Magic Bubbly Wubbly”. His company is thus both a service and a goods company. He needs to make sure he follows the following process:

**LUCKY’S LOVELY LAUNDRY: FINANCIAL PROCESS**



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The key financial concepts and principles that apply to new ventures include the following:



**1: START-UP CAPITAL**

Start-up capital is the money needed to begin your business. This would include everything essential for product development and the product launch. Before going after start-up capital make sure you know how much money you need, and then how you will apply those funds. Being as specific as possible with the plans for the money will increase the likelihood that your business will get financed.

**WHERE DO YOU FIND START UP CAPITAL?**

**Banks** are a straightforward source of funds. Many offer small-business loans if you've already started your business. You'll need a business plan and perhaps a personal guarantee. The funds are a loan, so you must generate enough cash to cover loan payments.

**Finding friends and family** who will invest in your start-up is straightforward:

Start calling. You're after high-net-worth investors who take personal referrals seriously. The best way to find them is through personal networking.

**Suppliers and customers** may also back you. If your product complements a supplier's, they might invest--for example, if you distribute its music, a record label might want to invest.

Be careful, though: Taking money from a supplier may prevent you from using that supplier's competitors.

**Strategic investors** get their return in many forms: increased sales of their own products, stock sale of your company, advertising through your distribution channels, etc. These arrangements are rarely made just for a cash return, so the payback can take many forms.

**2. WORKING CAPITAL**

Working capital is the amount of money that a company has tied up in funding its day to day operations. It is regarded as the lifeblood of a business without which, a company can become bankrupt. A company has to tie up money to fund its stock, credit sales and other current assets, but this is offset by its ability to fund this from current liabilities; liabilities such as purchases on credit. If a company buys on credit it does not have to tie up (as much) money in its stocks. In some businesses (such as grocery retail) working capital can even be negative. A business that buys on credit and sells for cash is being partly funded by its suppliers.

Changes in working capital will impact a business' cash flow. When working capital increases, the effect on cash flow is negative. This is often caused by the liquidation of inventory or the drawing of money from accounts that are due to be paid by the business. On the other hand, a decrease in working capital translates into less money to settle short-term debts.

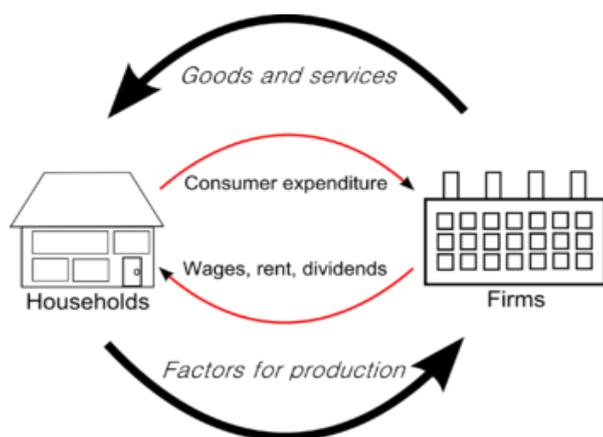
When a company has too little working capital, it can face financial difficulties and may even be forced toward bankruptcy. This is true of both very small companies and billion-dollar organizations. A company with this problem may pay creditors late or even skip payments. It may borrow money in an attempt to remain afloat. If late payments have affected the company's credit rating, it may have difficulty obtaining a loan at an affordable interest rate.

In some types of businesses, it isn't as much of a problem to have a lower amount of working capital. Companies that are operated on as cash basis, have fast inventory turnovers, and can generate cash quickly don't necessarily

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need as much working capital. For example, a grocery store might meet these requirements and do well with less working capital.

### 3. CASHFLOW MANAGEMENT



Cash flow management is the process of monitoring, analyzing, and adjusting your business' cash flows. For small businesses, the most important aspect of cash flow management is avoiding extended cash shortages, caused by having too great a gap between cash inflows and outflows. You won't be able to stay in business if you can't pay your bills for any extended length of time!

Therefore, you need to perform a cash flow analysis on a regular basis, and use cash flow forecasting so you can take the steps necessary to head off cash flow problems. Many software accounting programs have built-in reporting features that make

cash flow analysis easy. This is the first step of cash flow management.

The second step of cash flow management is to develop and use strategies that will maintain an adequate cash flow for your business. One of the most useful strategies for small businesses is to shorten your cash flow conversion period so that your business can bring in money faster.

#### **This short story illustrates that cash is king . . .**

I must have cash; my income statement shows that I made a profit this month?

When I was growing up in the country-side of North Georgia, one of my first jobs was manually picking up eggs on a chicken farm. Now for those of you who are not familiar with that process let's just say that it is not pleasant experience.

Basically, you go to the chicken coop and steal the eggs from underneath a sitting hen while trying not to get pecked to death or pooped on. Chickens it seems have the same motherly instinct as other fowl, and do not take kindly to someone coming into their nest and stealing their eggs. Thankfully, technology has made the process of sending 12 year olds into the chicken house to steal eggs obsolete. Now, when the hen lays her eggs, they miraculously disappear from the nest through a trap door onto a conveyor belt to be collected in a nice safe place. Lucky me, I was just born too early have this the technology!

So, why was I willing to undertake such an unpleasant task at the tender age of 12? It was for one reason and one reason only! CASH! The owner of the farm always paid me in CASH! I would run home to my dad and show him the CASH that I had made from my work at the farm. It was a great experience!

At around the age of fourteen, I got tired of breathing what seemed like one hundred percent ammonia and fighting chickens for their eggs. No matter how much CASH I came out with at the end of the week I was done in the egg business. The next summer, I started another venture; a lawn mowing service.

It was in this little venture that I learned the truth of Law #15 - Cash flow is more important than profit.

The story goes like this. I had around 10 customers. I would mow lawns for them on a weekly basis at an agreed upon price. I did the work during the day and for most of my customers, I would receive CASH when I completed the yard. For some customers, I would collect the CASH later because they were at work during the day and not at home

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to pay me. For those customers, I would leave a note with my bill for cutting the lawn and tell them that I would be back to collect the money.

While all of my customers always paid me, the timing of the payment depended upon when I went back to collect on the account.

One week during my summer of lawn mowing, I had a chance to go to Six Flags Over Georgia, an amusement park in Atlanta. The only requirement was that I had enough money to purchase the ticket in cash when I arrived at the park on Friday.

I worked very hard that week to complete my lawns so I would have the money to buy my ticket. For some reason that week, most of my customers were not home at the time I mowed the lawn.

I left them my customary note and told them I would be by collect before Friday. For whatever reason, I was unable to collect the cash by Friday. Frankly, I do not remember the specific circumstances of why I was unable to collect the money. What I do remember is that I could not go to the amusement park because they were not interested in taking my accounts receivable aging report as payment for the ticket.

That was when I learned Law # 15 - Cash Flow is More Important than Profit. On paper, I made the same amount of profit as in all the other weeks. I cut the same number of yards, charged the same amount of money and had the same expenses. There was only one difference! I did not have sufficient cash flow to go to the amusement park.

(Apparently, I had a spending problem as well, or I could have used some cash from previous weeks.)

Source: <http://www.amplifyadvisors.com>

### **RELATIONSHIP BETWEEN CASHFLOW AND PROFIT**

Best known measure of the success of an enterprise, it is the surplus remaining after total costs are deducted from total revenue, and the basis on which tax is computed and dividend is paid.

There is a relationship between cashflow and profit. Making profit generates cash flow. Any business owner knows that. But the actual increase in cash during a given period is invariably lower or higher than the profit number. The following points illustrate how cash flow relates to profit:

- The amounts of cash flows during the period rarely are equal to the revenue and expense numbers in the P&L (profit and loss) report for the period.
- Actions that *lower* cash flow: increasing accounts receivable and inventory; decreasing accounts payable and accrued expenses payable.
- Actions that *raise* cash flow: decreasing accounts receivable and inventory; increasing accounts payable and accrued expenses payable.
- Depreciation expense is not a cash outlay in the period recorded; neither is amortization expense; unusual losses recorded in the period may not involve cash outlay but rather be write-downs of assets or write-ups of liabilities.

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## LONG TERM AND SHORT TERM FINANCING

A venture depends on financing in order to maintain its cashflow and also to buy necessary assets required in the business. Financing available to a new venture can be divided into;

1. Short term financing and
2. Long term financing

### 1. SHORT TERM FINANCING

Short-term finance is that financial boost that helps a new venture to meet their temporary requirements of money (usually not exceeding 12 months). They do not create a heavy burden of interest on the organisation. Usually after establishment of a business, funds are required to meet its day to day expenses. For example, raw materials must be purchased at regular intervals, workers must be paid wages regularly, water and power charges have to be paid regularly. Thus there is a continuous necessity of liquid cash to be available for meeting these expenses. For financing such requirements short-term funds are needed. The availability of short-term funds is essential. Inadequacy of short-term funds may even lead to closure of business.

### FORMS OF SHORT TERM FINANCING

There are a number of sources of short-term finance which are listed below:

- Trade credit
- Bank credit
- Loans and advances
- Cash credit
- Overdraft
- Discounting of bills
- Customers' advances
- Instalment credit

### PURPOSE OF SHORT TERM FINANCING

Short-term finance serves the following purposes:

1. It facilitates the smooth running of business operations by meeting day to day financial requirements.
2. It enables firms to hold stock of raw materials and finished product.
3. With the availability of short-term finance goods can be sold on credit. Sales are for a certain period and collection of money from debtors takes time. During this time gap, production continues and money will be needed to finance various operations of the business.
4. Short-term finance becomes more essential when it is necessary to increase the volume of production at a short notice.

### MERITS OF SHORT-TERM FINANCE

**Economical:** Finance for short-term purposes can be arranged at a short notice and does not involve any cost of raising. The amount of interest payable is also affordable. It is, thus, relatively more economical to raise short-term finance. **Flexibility:** Loans to meet short-term financial need can be raised as and when required. These can be paid back if not required. This provides flexibility.

**No interference in management:** The lenders of short-term finance cannot interfere with the management of the borrowing concern. The management retain their freedom in decision making.

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**May also serve long-term purposes:** Generally business firms keep on renewing short-term credit, e.g. cash credit is granted for one year but it can be extended up to 3 years with annual review. After three years it can be renewed. Thus, sources of short-term finance may sometimes provide funds for long-term purposes.

### DEMERITS OF SHORT-TERM FINANCE

Short-term finance suffers from a few demerits which are listed below:

**Fixed Burden:** Like all borrowings interest has to be paid on short-term loans irrespective of profit or loss earned by the organisation. That is why business firms use short-term finance only for temporary purposes.

**Charge on assets:** Generally short-term finance is raised on the basis of security of moveable assets. In such a case the borrowing concern cannot raise further loans against the security of these assets nor can these be sold until the loan is cleared (repaid).

**Difficulty of raising finance:** When business firms suffer intermittent losses of huge amount or market demand is declining or industry is in recession, it loses its creditworthiness. In such -circumstances they find it difficult to borrow from banks or other sources of short-term finance.

**Uncertainty:** In cases of crisis business firms always face the uncertainty of securing funds from sources of short-term finance. If the amount of finance required is large, it is also more uncertain to get the finance.

### 2. LONG TERM FINANCING

As the name suggests, Long term financing is a form of financing that is provided for a period of more than a year. Long term financing services are provided to those business entities that face a shortage of capital. It is different from short term financing which is normally used to provide money that has to be paid back within a year. The period may be shorter than one year as well.

**Examples** of long-term financing include

- 30-year mortgage or a 10-year Treasury note.
- Equity, such as when a company issues stock to raise capital for a new project.
- Medium term loans

#### PURPOSE OF LONG TERM FINANCE:

Long-term finance serves the following purposes:

1. To finance fixed assets.
2. Expansion of companies.
3. To finance the permanent part of working capital.
4. Increasing facilities.
5. Construction projects on a big scale.
6. Provide capital for funding the operations. This helps in adjusting the cash flow.

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The table below summarises the difference between long term, medium term and short term financing.

BASIS OF DIFFERENCE		LONG TERM FINANCE	MEDIUM TERM FINANCE	SHORT TERM FINANCE
1	<b>Time Period</b>	This is required for a long period which is generally 5 years or more	This is required for a period exceeding one year but not exceeding 5 years	This is required for a period up to one year
2	<b>Purpose</b>	This is required for the purchase of fixed assets and financing part of working capital which is fixed or permanently required	This is generally required for modernization and renovation of machinery	This is required to finance day to day operations
3	<b>Duration of operating cycle (time gap between)</b>	Need for long term finance does not vary with the length of operation	This type of finance is not likely to vary on account or length	Need for short term finance varies with the operating cycle

### FIXED CAPITAL AND WORKING CAPITAL

**Fixed capital** refers to the total value of assets in a business which are of durable nature and used in a business over a considerable period of time. It comprises of assets like land, building, machinery, furniture etc. The capital invested in these assets is fixed in the sense that these are required for permanent use in business and not for sale.

On the other hand, **working capital** consists of those assets which are either in the form of cash or can easily be converted into cash, e.g. cash and bank balances, debtors, bills receivable, stock, etc. These assets are also known as current assets. Working capital is needed for day to day operations of the business. However, a part of working capital is required at all times to maintain minimum level of stock and cash to pay wages and salaries etc. This part of working capital is called 'permanent' working capital.

The following table shows the difference between fixed and working capital

BASIS OF DIFFERENCE		FIXED CAPITAL	WORKING CAPITAL
1	<b>Time Period</b>	Businesses with manufacturing activity requires more fixed capital as large investments have to be made in fixed assets	Trading business requires more working capital, since in such a type of business, finished goods are bought and sold and money remains in circulation. Hence fixed capital needs are less in trading business.
2	<b>Purpose</b>	Fixed capital is normally required at the time of setting up of business	Working capital is required at all times i.e at the time of setting up of business and to carry on the business
3	<b>Duration of operating cycle (time gap between)</b>	Need for fixed capital does not change with change in the length of operating cycle	Working capital requirements are likely to increase with the increase in the length of operating cycle

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## APPLY CASH FLOW MANAGEMENT IN THE RUNNING OF A NEW VENTURE.

### INTRODUCTION

Business analysts report that poor management is the main reason for business failure. Poor cash management is probably the most frequent stumbling block for entrepreneurs.

### CONCEPTS OF CASH FLOW

Understanding the basic concepts of cash flow will help one to plan for the unforeseen eventualities that nearly every new venture faces.

#### CASH

Cash is ready money in the bank or in the business. It is not inventory, it is not accounts receivable (what you are owed), and it is not property. These can potentially be converted to cash, but can't be used to pay suppliers, rent, or employees. Profit growth does not necessarily mean more cash on hand. Profit is the amount of money you expect to make over a given period of time, while cash is what you must have on hand to keep your business running. Over time, a company's profits are of little value if they are not accompanied by positive net cash flow. You can't spend profit; you can only spend cash.

#### CASH FLOW

Cash flow refers to the movement of cash into and out of a business. Watching the cash inflows and outflows is one of the most pressing management tasks for any business. The outflow of cash includes those checks you write each month to pay salaries, suppliers, and creditors. The inflow includes the cash you receive from customers, lenders, and investors.

#### POSITIVE CASH FLOW

If its cash inflow exceeds the outflow, a company has a positive cash flow. A positive cash flow is a good sign of financial health, but is by no means the only one.

#### NEGATIVE CASH FLOW

If its cash outflow exceeds the inflow, a company has a negative cash flow. Reasons for negative cash flow include too much or obsolete inventory and poor collections on accounts receivable (what your customers owe you). If the company can't borrow additional cash at this point, it may be in serious trouble.

#### THE COMPONENTS OF CASH FLOW

A "Cash Flow Statement" shows the sources and uses of cash and is typically divided into three components:

- I. Operating Cash Flow, often referred to as working capital, is the cash flow generated from internal operations. It comes from sales of the product or service of your business, and because it is generated internally, it is under your control.
- II. Investing Cash Flow is generated internally from non-operating activities. This includes investments in plant and equipment or other fixed assets, nonrecurring gains or losses, or other sources and uses of cash outside of normal operations.
- III. Financing Cash Flow is the cash to and from external sources, such as lenders, investors and shareholders. A new loan, the repayment of a loan, the issuance of stock, and the payment of dividend are some of the activities that would be included in this section of the cash flow statement.

#### CASH-FLOW CYCLE

Cash flow can be described as a cycle: your business uses cash to acquire resources. The resources are put to work and goods and services produced. These are then sold to customers, you collect and deposit the funds, and so the

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cycle repeats. But what is crucially important is that you actively manage and control these cash inflows and outflows. It is the timing of these money flows which can be vital to the success, or otherwise, of your business.

It must be emphasised that your profits are not the same as your cash flow. It is possible to project a healthy profit for the year, and yet face a significant and costly monetary squeeze at various points during the year such that you may worry whether your company can survive.

## INFLOWS

Inflows are the movement of money into your business. Inflows are most likely from the:

- receipt of monies from the sale of your goods/services to customers;
- receipt of monies on customer accounts outstanding;
- proceeds from a bank loan;
- interest received on investments;
- investment by shareholders in the company.

## OUTFLOWS

Outflows are the movement of money out of your business. Outflows are most likely from:

- purchasing finished goods for re-sale;
- purchasing raw materials and other components needed for the manufacturing of the final product;
- paying salaries and wages and other operating expenses;
- purchasing fixed assets;
- paying principal and interest on loans;
- paying taxes.

**Note:** Cash flow management is all about managing the inflows and outflows of money in a new venture.

## IMPORTANCE OF CASH FLOW MANAGEMENT

Everyone knows the saying “it takes money to make money.” No truer words have been spoken. A business needs money in order to purchase materials for resale, pay its employees, and to cover all of the other expenses. The revenues collected from your customers are needed to pay the expenses and turn a profit. If your customers are not paying timely, or not paying at all, your business will soon be without the cash flow it needs to pay its own expenses.

Cash flows are also the fundamental source of intrinsic (or economic) value for the firm or for any other type of financial investment. Private firms are valued using estimates of the future cash flows the business operation will be able to generate. Public companies have their common stock prices determined by supply and demand forces in the stock markets that are influenced by the cash flows the stock investments will return to investors over time. For the investors who are buying the stock, potential cash flows from different investment opportunities (including stocks) provide the information that allows them to decide where to invest their money.

As a measure of liquidity, cash flow, or more precisely stated, consistent and accurate evaluation of cash flow, can lend tremendous insight to any business owner about not only the current condition of their company but, also, the probability of certain potential future states of their company.

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## SUMMARY:

The advantages are straightforward.

- You should know where your cash is tied up.
- You can spot potential bottlenecks and act to reduce their impact.
- You can plan ahead.
- You can reduce your dependence on your bankers and save interest charges.
- You can identify surpluses which can be invested to earn interest.
- You are in control of your business and can make informed decisions for future development and expansion

## CASH FLOW FORECAST

One key skill in cash flow management is forecasting and managing company cash flow. Too few business owners use financial forecasting to identify potential financial issues that can impact earnings. Once learned, forecasting can help small business owners smooth out the regular ups and downs that all companies experience as a normal course of business. In fact, the firm's financial statements and the forecast of future revenues and expenses are some of the most valuable management tools that small business owners have at their disposal.

There are several types of financial forecasts that an owner may need to prepare. The purpose of all of them is to show a realistic picture of the firm's future cash flow. One type of cash flow forecast is those required by prospective lenders. Creditors will look and stress a company's financials and cash flow forecast, to determine if a business will be able to cover principal and interest payments during the life of a loan. Stressing the cash flows means looking at scenarios where income and expenses are negatively impacted, to determine if the company can still fulfil its obligations in tough economic times.

## STEPS IN CREATING A CASHFLOW FORECAST

There are 5 steps in creating a cash flow forecast:

### **STEP 1: PREPARE A LIST OF ASSUMPTIONS**

Forecasts are driven by assumptions and therefore for the forecast to be useful the underlying assumptions must be appropriate to the business.

Assumptions can be based on past performance, industry publications, correspondence from customers and suppliers, etc. and generally include:

1. Timing and quantum of price increases – both yours and your suppliers'
2. Sales growth estimates
3. Impact of seasonality
4. Provision for general cost increases (CPI)
5. Provision for internal salary and wage increases

Listing the assumptions within the forecast adds credibility serves as a reminder when assessing actual performance against forecast.

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## STEP 2 PREPARE ANTICIPATED SALES INCOME

Sales can be difficult to predict, and often the best place to start is to look at sales in previous years to identify trends. You can then identify internal (e.g. price increases) and external (e.g. economic) factors likely to impact the current period, and make necessary adjustments.

When you have determined realistic sales for the period, they need to be broken down into sales receipts (i.e. When is the cash expected to be collected from debtors?). There is often a pattern to debtor remittance (e.g. 60% within terms, 25% one month outside terms with the remainder coming in shortly thereafter). Note: this pattern should form one of the forecast's underlying assumptions.

## STEP 3 PREPARE A LIST OF 'OTHER' ESTIMATED CASH INFLOWS

To ensure your cash flow forecast is complete, compile a list of all other anticipated cash inflows, for example:

- tax refunds
- Insurance proceeds
- Additional equity contributions or loan proceeds
- Government grants receipts
- Cash from asset divestment
- Royalties or franchise/license fees

## STEP 4 PREPARE A LIST OF ESTIMATED EXPENSES

These should include direct and indirect expenses. The key is identifying all the expenses required to operate the business and anticipating the timing of each payment. Cash outflows relating to financing and investing activities should be included, for example:

- Payments to suppliers
- Wages and salaries of all staff
- Purchase of new assets
- Loan repayments
- Director drawings

Bank statements are an easy way of identifying direct debit arrangements.

## STEP 5: PUTTING THE INFORMATION TOGETHER

Simply put, a cash flow forecast is a rolling calculation based on an opening cash position, adding cash inflows and deducting cash outflows, to arrive at a closing cash position.

### Projection Notes

When making projections of items in the cashflow budget, take note of the following:

### INCOME - SALES

Income from sales is the most important source of income and the most difficult to estimate. Two of the things you should bear in mind when trying to estimate your monthly sales figures are the age of your business and seasonal variations. If you are a new business you will need time to build up your trade. Your sales forecast should reflect this. It is advisable to begin with low monthly figures i.e. be conservative or 'realistic'. You should separate cash sales and cash from debtors.

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### **STOCK AND RAW MATERIALS**

The stock figure should include initial stock purchases and the subsequent replenishment of stock. The stock figure should bear a direct relationship to the sales figures i.e. if you buy an item for R25 and intend to sell it for R50. Then the stock should represent 50% of sales. A distinction needs to be made between your cash purchases and your credit purchases

### **CAPITAL EQUIPMENT**

Make a list of all the equipment required to run your business then obtain prices for all items. Establish what you need to obtain at the outset and what could be bought later on in the year then budget accordingly. Consider the options of obtaining these items by outright purchase, hire purchase, leasing, etc. One advantage of hire purchase and leasing is that the cost can be spread over a specified period and this can aid your cash flow. The interest incurred has to be considered.

### **VEHICLE COSTS**

When estimating your vehicle cost include not only the actual cost of the vehicle, (if on hire, purchased or leased) but also all the other costs e.g. road tax, insurance, repairs, renewals, petrol, etc. If purchased outright, see 'capital allowances' under taxation.

### **OPENING BALANCE**

This shows how much should be in your business bank account at the start of the month. When starting up you should put the figure of available funding or capital into the cash flow as its 'opening balance'.

### **CLOSING BALANCE**

Work out the closing balance for the month by adding any opening bank balance to the total receipts and deducting from this the total payments figure. The closing bank balance becomes the opening bank balance automatically at the start of the next month.

The closing balance figure for each month is very important: if it's a minus figure it means you may have to make use of an overdraft facility or plan a sales drive for the months preceding it to avoid 'going into the black'. The cumulative figure tells you whether your bank balance gets bigger or smaller over a period of time and highlights the duration of any borrowing requirements.

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### CASH FLOW FORECAST TEMPLATE

	Pre-Start-up	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	TOTAL
<b>1. CASH ON HAND</b> [Beginning of month]														
<b>2. CASH RECEIPTS</b>														
(a) Cash Sales														
(b) Collections from Credit Accounts														
(c) Loan or Owners injection of Cash														
<b>3. TOTAL CASH RECEIPTS</b> [2a + 2b + 2c=3]														
<b>4. TOTAL CASH AVAILABLE</b> [Before cash out] (1 + 3)														
<b>5. CASH PAID OUT</b>														
(a) Purchases (Merchandise)														
(b) Gross Salaries														
(c) Payroll Expenses (PAYE and UIF)														
(d) Packaging costs														
(e) Supplies (Office and operating)														
(f) Repairs and Maintenance														
(g) Advertising														
(h) Logistics														
(i) Accounting and Legal														
(j) Rent														
(k) Telephone														
(l) Utilities (lights and water)														

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(m) Insurance															
(n) Subtotal															
(o) Loan Repayment monthly															
(p) Capital Purchases [Specify]															
(q) Other Start-up Costs															
(r) Owner's Withdrawal															
<b>6. TOTAL CASH PAID OUT</b> [Total 5a thru 5r]															
<b>7. CASH POSITION</b> [End of month]															
<b>ESSENTIAL OPERATING DATA</b> [Non-cash flow information]															
A. Sales Volume [Rands]															
B. Accounts Receivable [End of Month]															
C. Bad Debt [End of Month]															
D. Inventory on Hand [End of Month]															
E. Accounts Payable [End of Month]															
F. Depreciation															

**BANK STATEMENTS**

The bank statement is a handy way of seeing all your incomings and your outgoings at once. It’s definitely a good idea to open and read your bank statements so you can check you’ve received what you expected, and that you recognise all the payments going out too. We’ll help you to understand how to read and make sense of your bank statement.

Your bank statement might be sent monthly, quarterly or yearly, depending on what type of account you have. Have a look at the table below for a simple explanation:

TYPE OF ACCOUNT	FREQUENCY OF STATEMENTS	REASON
CURRENT	EVERY MONTH	MONEY GOING IN AND OUT REGULARLY
SAVINGS	EVERY 3 MONTHS OR QUARTERLY	NOT MANY PAYMENTS OUT

You’ll probably get your statement through the post, but if you bank online, you can also access it on the internet, and possibly opt out of receiving paper statements.

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Your statement will show all the money in and out for your account during the set period (monthly or otherwise).

The details will include the date, amount and an identifier for the payment (such as a shop name for purchases). For benefits, the identifier could be the Department for Work and Pensions, Jobcentre Plus or HM Revenue and Customs, or your local council if it's housing benefit.

Here's our handy example of a bank statement showing the kinds of things you'll see. Yours might look a bit different, but the same kind of information will be on there.

### EXAMPLE BANK STATEMENT

**YourDosh Bank**  
16 High Street, Anytown, Anyshire YZ99 1XY

Account name: Mr John Smith  
Sort code: 53-61-33  
Account number: 99988877

Your current account statement:  
1 February to 1 March 2011

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**1** Mr John Smith  
5 Any Road  
Randomford  
Anyshire  
YZ98 5XY

**3** Your account summary

Balance at 1 February: £312.34  
Total money in: £300.00  
Total money out: £343.02  
Balance at 1 March: **£30.68 OD**

Date	Description	Money out	Money in	Balance
	Balance brought forward			312.34
1 February	Card payment – High St Petrol Station	24.50		287.84
	Direct debit – Green Mobile Phone Bill	20.00		267.84
3 February	Cash withdrawal – YourDosh, Anytown High Street, timed 17:30 31 Jan	30.00		237.84
8 February	Cheque 00068	22.95		214.89
11 February	BACS – KleanKars, ref JS5-999		300.00	514.89
	Standing order – Rent to J Jones			
16 February	Cash withdrawal – WadBank, Randomford, timed 09:52 14 Feb	300.00		214.89
17 February	Card Payment – High St Petrol Station	40.00		67.14
	Direct debit – Home Insurance	23.00		44.14
19 February	Online transfer to A/C 1116932, Sort 01-92-10 ref: Mum	34.14		10.00
21 February	Card payment - QuidsGifts	15.00		5.00 OD
24 February	Balance carried forward			5.68 OD
28 February	Card payment - QuidsGifts	25.00		30.68 OD
1 March	Interest 29 Jan A/C 99988877	00.68		30.68 OD
	Charges 29 Jan A/C 99988877	25.00		30.68 OD
	Balance carried forward			30.68 OD

### EXPLANATION OF CONTENTS

#### 1. YOUR PERSONAL INFORMATION

This is your name and permanent home address. Make sure it's right, and that you haven't got someone else's bank statement! It's really important to tell your bank if you move house, so they can safely and securely send any information about your account to you.

#### 2. YOUR ACCOUNT INFORMATION

This will show the name you used to open your account with ('account name'), such as 'Mr John Smith'. It will also show your account number and sort code. Your sort code is a six-digit number with dashes in (for example, 53-61-33) that helps the whole banking system identify which bank and local branch your account's based at.

#### 3. STATEMENT SUMMARY

You'll be shown a basic account summary, which will usually show the total amounts paid in and out during that month (or other period if it's a savings account). You can also see here that there's a closing balance – this means the balance of your account at the time the statement was sent out.

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#### 4. MONTHLY INCOMINGS AND OUTGOINGS

On your statement there will be two columns showing money paid into your account (credits) and one for money paid out (debits). Your statement will be ordered by date, so it'll show the oldest payments at the top, working down to the most recent. Next to each payment is also a description, which shows where you were when you made the payment (a shop or cash machine) or who you paid. There might also be standing orders or direct debits you've arranged. This information should also be available for the 'money in' section – it might say 'bank transfer' for your wages, 'counter credit' for cash or cheques you've paid in at your branch, refunds from shops, or automated payments made by the state to you, such as benefits.

Sometimes payments will show up on your statement a few days after you actually made them. For example, if you buy something with your debit card in a shop (or withdraw cash from a machine), it might not show up on your statement for a few days. This is because it takes time for payments to go through the banking system, especially over a weekend. When this happens, the actual date you made the purchase or cash withdrawal should be shown in the 'description' column.

In the far right column, you can see a running total, the 'balance'. This means the total you have in your account each day, as a result of money in and out of your account.

#### 5. GOING OVERDRAWN

In your balance column, sometimes you'll see the letters OD or a minus sign next to the figure. This means your account's gone overdrawn and you've spent more money than you had in your account. So, if you had R10.00 in your account, but buy something on your debit card for R15.00, you'll go overdrawn by R5 ( $R10 - R15 = -R5$ ). You'll have to pay this back to the bank, along with any interest and charges unless you have an interest-free overdraft. The longer you leave it to pay back your overdraft, the longer you'll be charged interest on it, and the harder you may find it to get out of your overdraft.

That's why it's really important not to become reliant on your overdraft it costs you more money in the long-term to borrow from the bank like this. It's a good idea to do all you can to stay in 'the black' (plus numbers) and get out of 'the red' (minus numbers). It could be a spiral into debt, so make sure you're not always right at the limit of your overdraft

#### 6. BANK CHARGES

If your account's gone overdrawn beyond your agreed limit, or you didn't have an agreed overdraft, the bank will charge you for 'unarranged borrowing'. They can also charge you if you pay in a cheque that bounces (that's when the other person doesn't have enough in their account to cover the amount they wrote the cheque for). Banks have to notify you before they take any money from your account for these charges.

#### APPLY AN ACCOUNTING SYSTEM TO MANAGE A NEW VENTURE.

In all activities (whether business activities or non-business activities) and in all organisations (whether business organisations like a manufacturing entity or trading entity or non-business organisations like schools, colleges, hospitals, libraries, clubs, churches, political parties) which require money and other economic resources, accounting is required to account for these resources. In other words, wherever money is involved, accounting is required to account for it. Accounting is often called the language of business. The basic function of any language is to serve as a means of communication. Accounting also serves this function.

#### DEFINITION OF ACCOUNTING

Accounting, as an information system is the process of identifying, measuring and communicating the economic information of an organisation to its users who need the information for decision making. It identifies transactions

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and events of a specific entity. A transaction is an exchange in which each participant receives or sacrifices value (e.g. purchase of raw material). An event (whether internal or external) is a happening of consequence to an entity (e.g. use of raw material for production). An entity means an economic unit that performs economic activities.

### ACCOUNTING SYSTEM

An accounting system is an organized set of manual and computerized accounting methods, procedures and controls established to gather, record, classify, analyze, summarize, interpret, and present accurate and timely financial data for management decisions.

### COMPONENTS OF THE ACCOUNTING SYSTEM

Think of the accounting system as a wheel whose hub is the general ledger (G/L). Feeding the hub information are the spokes of the wheel. These include;

1. Accounts receivable
2. Accounts payable
3. Order entry
4. Inventory control
5. Cost accounting
6. Payroll
7. Fixed assets accounting

These modules are ledgers themselves. We call them sub ledgers. Each contains the detailed entries of its specific field, such as accounts receivable. The sub ledgers summarize the entries, then send the summary up to the general ledger. For example, each day the receivables sub ledger records all credit sales and payments received. The transactions net together then go up to the G/L to increase or decrease A/R, increase cash and decrease inventory.

We'll always check to be sure that the balance of the sub ledger exactly equals the account balance for that sub ledger account in the G/L. If it doesn't, then there's a problem.

### DIFFERENCES BETWEEN MANUAL AND AUTOMATED LEDGERS

Think of the G/L as a sheet of paper on which transactions from all four categories of accounts-assets, liabilities, income, and expenses-are recorded. Some of them flow up from various sub ledgers, and some are entered directly into the G/L through a general journal entry. An example of such a direct entry would be the payment on a loan.

The same concept of a sheet of paper holds for each sub ledger that feeds the general ledger. A computerized accounting system works the same way, except that the general ledger and sub ledgers are computer files instead of sheets of paper. Entries are posted to each and summarized, then the summary is sent up to the G/L for posting

### SETTING-UP A NEW VENTURE ACCOUNTING SYSTEM

Many small business owners (including myself) tend to focus on the more glamorous aspects of their business like sales and marketing and product/service development. As a result, accounting (poor misunderstood accounting) does not get the attention it deserves. In addition to the perception that an accounting system does not necessarily add value, they can also be a little intimidating. However, setting up an accounting system does not have to be complicated and should be considered essential for any small business or self-employed owner. The following are the steps in setting an accounting system;

#### STEP 1: PICK AN ACCOUNTING METHOD:

The first decision to be made is which type of accounting method to choose, there are 2 choices:

The Cash Method (or Cash Basis) — this means that you count income when you actually receive it (either as cash, credit card charges or check) and your expenses are counted when you actually pay them. This is the most common

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method for small businesses, especially those that take immediate payment for a product or service (credit card, check, cash, etc.)

The Accrual Method (or Accrual Basis) - this means that you count income when a sale is made (regardless if you actually receive the money for it) and expenses are counted when you actually receive the good or service (instead of paying for it immediately). This method is common for larger businesses or small businesses that utilize "invoicing" and frequently deliver a product or service before being paid for it.

**NOTE:** The accrual method is generally considered to give you a more accurate picture of your company's financial situation but requires you to take extra steps like maintaining accounts receivable and accounts payable records. The cash method is generally easier to maintain and is the preferred method for small businesses

**STEP 2: DECIDE WHICH BOOKKEEPING SYSTEM TO USE:**

After you have chosen your accounting method, you will want to decide which bookkeeping system will be right for your new venture. There are two choices.

- I. Single entry bookkeeping - Similar to your check register. You just add the money coming in and subtract the money going out and keep a running balance.
- II. Double entry bookkeeping – Tracks your income and expenses AND your assets and liabilities. Assets and liabilities are captured on the balance sheet.

**STEP 3: CHOOSE A METHOD FOR RECORDING TRANSACTIONS:**

After you've decided on an accounting method, the next step is to decide how you are going to record transactions. You have basically 2 choices:

- ✓ Hand-Recording Transactions — you actually hand-write each transaction in a ledger.
- ✓ Software — you enter transactions in a software program which then automates many routine tasks.

By far the most popular method is software. There are dozens of accounting software packages and most of them will help you maintain your books as well as automate things like payroll and reports.

**STEP 4: CREATE TEMPLATES**

Create your purchase order and invoice templates. Accounting software users will find templates within the software program. Spreadsheet users can download a variety of templates from the software manufacturer. Invoices should include the date, business information, customer information, amount due, payment terms or due date and a description of the services or goods provided. Begin using purchase orders for your purchases and invoices to record customer sales.

**STEP 5: CREATE A FILING SYSTEM**

- ✓ Use file folders and labels to organize financial documents
- ✓ Maintain bank statements, customer invoices, vendor bills, government assessments etc. in separate files
- ✓ Investing in colour coded file folders can greatly facilitate file retrieval
- ✓ File regularly to avoid scrambling at the end of the year
- ✓ Maintain separate folders for outstanding invoices, bills and other documents which require follow up.

**STEP 6: OPEN A BUSINESS BANK ACCOUNT**

Very important: Open a separate bank account for your small business. Do not pay your personal expenses out of this account. If you need money from your business for personal expenses write yourself a check or transfer the money into your personal bank account.

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## STEP 7: ORGANISE THE ACCOUNTING DEPARTMENT

Organize your small-business accounting system by function. Often there's just one person there to do all the transaction entries. From an internal control standpoint, this isn't desirable. Having too few people doing all the accounting opens the door for fraud and embezzlement. Companies with more people assign functions in such a way that those done by the same person don't pose a control threat.

Having the same person draft the checks and reconcile the checking account is a good example of how not to assign accounting duties. We'll talk extensively about internal control later. However, for now, small businesses often can't afford the number of people needed for an adequate separation of duties. The internal control structure that we'll install in your new accounting system helps mitigate that risk through mechanics and procedures rather than expensive people.

**NOTE:** In many cases the same person will do many of these things. However, these are the areas we'll be dealing with in setting up the accounting system. The person you assign to be in overall charge of the system should be the one who is most familiar with accounting. If you are just starting your company, you might want to think about the background of some of your new employees. At least one should have the capacity to run the accounting system.

### MONITORING THE ACCOUNTING SYSTEM

Once you've chosen your accounting system, the next step is learning and maintaining your accounting system. Learning the system will obviously depend on what solution you've adopted, but maintaining the system is accomplished primarily by 2 things:

**You Have to Use the System:** once you've taken the time and energy to setup an accounting system, you have to actually utilize it properly. This means entering every transaction, check, bill, charge or refund.

**Reconcile Your Bank Statement:** the best way to maintain your accounting system is by reconciling your bank statement with your accounting system every month. This means that you compare each transaction from your bank account or accounts with your accounting system and make sure that they balance. This process alone will force you to properly account for the company's money.

### TAXATION REQUIREMENTS

SARS is obligated by law to determine and collect from each taxpayer only the correct amount of tax that is due to the Government. The SARS offices are the representatives of the Commissioner and in that capacity must ensure that the tax laws are administered correctly and fairly so that no one is favoured or prejudiced above the rest.

### REGISTRATION

As soon as you commence your business (whether as a sole proprietor, partner or any other form), you are required to register with your local SARS office in order to obtain an income tax reference number.

### FILING

A company/close corporation on the other hand is permitted to have a tax year ending on a date that coincides with its financial year. If the financial year-end is 30 June, its tax year or year of assessment will run from 1 July to 30 June. Income tax returns must be submitted manually or electronically by a specific date each year.

### FORMS OF TAXES

The following are the main forms of taxation.

### EMPLOYEES' TAX (PAYE)

Employees' tax is a system in terms of which an employer, as an agent of government, deducts income tax from the earnings of employees and pays it over to SARS on a monthly basis. Once registered, the employer will receive a monthly return (EMP 201) that must be completed and submitted together with the deducted employees' tax within seven days of the month following the month for which the tax was withheld.

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## INCOME TAX

A sole proprietor or each partner is subject to income tax on his/her taxable income. Income tax is levied at progressive rates ranging from 18% to 40%. For the 2009 tax year, the maximum marginal rate of 40% applies where the taxable income exceeds R490 000. Unlike individuals, a company or CC pays income tax at a flat rate of 28% (except in the case of SBCs) on its taxable income for the tax year and 2210% secondary tax on companies (STC) on the net amount of dividends declared.

## VALUE-ADDED TAX (VAT)

Value-Added Tax (VAT) is an indirect tax based on consumption of goods and services in the economy. Revenue is raised for the government by requiring certain traders or vendors to register and to charge VAT on taxable supplies of goods or services.

The most important document in such a system is the tax invoice. Without a proper tax invoice, you cannot deduct input tax on purchases for your enterprise, and if you have clients who are vendors or if you sell goods to foreign tourists, they cannot claim back the VAT that you have charged them, or claim a refund of the VAT when taking the goods out of the country.

The following information must be reflected on a tax invoice for it to be considered valid:

<b>FULL TAX INVOICE</b> (CONSIDERATION OF R 3 000 OR MORE) SECTION 20 (4) OF THE VAT ACT	<b>ABRIDGED TAX INVOICE</b> (CONSIDERATION LESS THAN R 3000) SECTION 20 (5) OF THE VAT ACT
The words <b>"TAX INVOICE"</b> in a prominent place	The words <b>"TAX INVOICE"</b> in a prominent place
Name, Address and VAT Registration Number of the Supplier	Name, Address and VAT Registration Number of the Supplier
Name, Address and VAT Registration Number of the Recipient	
Serial Number (Invoice Number) and Date of issue	Serial Number (Invoice Number) and Date of issue
Full and proper description of the goods and or services supplied	A description of the goods and/or
Price and VAT (according to any of the 3 approved methods discussed overleaf)	
NOTE: REQUIRED WITH EFFECT FROM 1 MARCH 2005	

The following important points should also be noted with regard to tax invoices:

- A vendor is required to issue a tax invoice to the recipient within 21 days of the supply having been made where the consideration for the supply exceeds R50 (whether the recipient has requested this or not);
- If the consideration in money for the supply is R50 or less, a tax invoice is not required (however, a document such as a till slip or sales docket will still be required to verify the input tax claimed);
- Where the consideration for a taxable supply exceeds R50 but does not exceed R3 000, an abridged tax invoice may be issued (see example above);
- A tax invoice must be in South African currency, except for a zero-rated supply (e.g. goods exported). In such cases, a full tax invoice must be issued, even if the consideration is less than R3 000;
- A tax invoice is not issued by a debtor (vendor) under an installment credit agreement if the goods are repossessed. This will be done by the person exercising their right of repossession (i.e. the bank or other financier);
- It is a requirement to reflect the VAT registration number of the recipient of the supply on the tax invoice with effect from 1 March 2005 (if that person is a vendor) and the consideration for the supply exceeds R3 000;

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- If a vendor fails to deduct input tax in respect of a particular tax period, it may be deducted in a later tax period, but limited to a period of 5 years from the date that the supply concerned was made.

## **ANALYSE AN INCOME AND EXPENDITURE STATEMENT.**

Understanding financial statements is essential to the success of a small business. Financial statements can be used as a roadmap on your business journey to economic success. Using numbers as navigation aids can steer you in the right direction and help you avoid costly "breakdowns."

### **IMPORTANCE OF FINANCIAL STATEMENTS**

Many business experts and accountants recommend that you prepare financial statements monthly; quarterly at a minimum. Some companies prepare them at least once a week, sometimes daily, to stay abreast of results. The more frequently a company prepares their financial statements, the sooner timely decisions can be made.

### **TYPES OF FINANCIAL STATEMENTS**

There are four types of financial statements; compiled, reviewed, audited, and unaudited:

A compiled statement contains financial data from a company reported in a financial statement format by a certified public accountant (CPA); it does not include any analysis of the statement.

The reviewed statement includes an analysis of the statement by a CPA in which unusual items or trends in the financial statement are explained.

An audited statement (also prepared by a CPA) contains any analysis which includes confirmation with outside parties, physical inspection and observation, and transactions traced to supporting documents. An audited statement offers the highest level of accuracy.

An unaudited statement applies to a financial statement prepared by the company which has not been compiled, reviewed, or audited by an outside CPA.

Small business owners must be aware that they may be required to submit financial statements in nine circumstances:

1. Virtually all suppliers of capital, such as banks, finance companies, and venture capitalists, require these reports with each loan request, regardless of previous successful loan history. Banks may need CPA compiled or reviewed statements and, in some cases, audited statements. They may not accept company or individually prepared financial statements, unless they are backed by personal or corporate income. Typically, as a condition of granting a loan, a creditor may request periodic financial statements in order to monitor the success of the business and spot any possible repayment problems.
2. Information from financial statements is necessary to prepare federal and state income tax returns.
3. Statements themselves need not be filed.
4. Prospective buyers of a business will ask to inspect financial statements and the financial/operational trends they reveal before they will negotiate a sale price and commit to the purchase.
5. In the event that claims for losses are submitted to insurance companies, accounting records (particularly the Balance Sheet) are necessary to substantiate the original value of fixed assets.
6. If business disputes develop, financial statements may be valuable to prove the nature and extent of any loss. Should litigation occur, lack of such statements may hamper preparation of the case.
7. Whenever an audit is required--for example by owners or creditors--four statements must be prepared: a Balance Sheet (or Statement of Financial Position), Reconciliation of Equity (or Statement of Stockholder's Equity for corporations), Income Statement (or Statement of Earnings), and Statement of Cash Flows.
8. A number of states require corporations to furnish shareholders with annual statements. Certain corporations, whose stock is closely held, that is, owned by a small number of shareholders, are exempt.

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9. In instances where the sale of stock or other securities must be approved by a state corporation or securities agency, the agency usually requires financial statements.

### **INCOME AND EXPENDITURE STATEMENT**

An income statement, otherwise known as a profit and loss statement, is a summary of a company's profit or loss during any one given period of time, such as a month, three months, or one year. The income statement records all revenues for a business during this given period, as well as the operating expenses for the business.



### **KEY TERMS IN INCOME AND EXPENDITURE**

#### ***INCOME***

For the purpose of this module, income is defined as money that has been made within the time period of the statement. It is an important accounting concept to correctly account for income within appropriate time period of the financial statement. This means that you should include your income figure in the month where it belongs even if money has not been received.



For example, if you are a trader and sold goods to your customers on credit for R1000 as at 20 September 2010. In addition, as per the credit terms you agreed that the customer shall pay 6 months later.

Since a sales transaction has taken place, the income of R1 000 must be recorded as income in September even if the money will be received in another month.

#### ***EXPENDITURE***

For the purpose of this module, expenditure is defined as the costs that have been incurred within the time period of the statement. As with the concept of income, you should include expenditure in the period in which it was incurred even if no money was paid. This ensures that you have an accurate statement of income and expenditure of real expenditures incurred within the period.



For example, you were doing a household income and expenditure statement for end of September 2010 and you have not received the electricity bill nor paid it for September, you should nonetheless include it (or a reasonable estimate) in the income and expenditure statement for September.

#### ***PROFIT OR LOSS***

At the end of the income and expenditure statement, you should subtract Expenditure from income remaining with a proportion which enterprises call a profit or loss. If the income items are more than the expenditure items we call that profit but if the expenditures are more than the income, then the difference is known as loss.

### **PURPOSE OF INCOME AND EXPENDITURE STATEMENT**

The following are some of the purposes of an income and expenditure statement;

- To clearly show how much money was made and how much was spent within a given time period
- To know how much profit or loss has been earned within a given financial period.
- Helps to pinpoint items that are causing unexpected expenditures.
- If you compare income & expenditure statement for different consecutive periods the enterprise can deduce whether the income is rising or stagnating.

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Legislation requires that when doing financial statements of a company, certain specific requirements regarding the disclosure of information must be met. According to Companies Act 61 of 1973 a company's financial statements have to be drawn up in accordance with Generally Accepted Accounting Practice (GAAP).

**CASE STUDY 1: THE INCOME AND EXPENDITURE STATEMENT OF A PRIVATE INDIVIDUAL**

Thando is a private individual who works in an office as a consultant. She wishes to obtain a loan from FBC Bank to finance the purchase of a new car. Big Sharks has requested that Thando produce an income and expenditure Statement to demonstrate to them that she has income necessary to meet the repayments of loan which amount to R1000 per month.

Thando has drawn up the following statement:

<b>STATEMENT OF INCOME AND EXPENDITURE FOR SUNNY FOR THE PERIOD 1 JAN 2009 TO 31 DEC 2009</b>	
<b>INCOME</b>	
Annual Salary after tax	<b>R 100 000,00</b>
<b>EXPENDITURE</b>	
Bond repayment on house	R 30 000,00
Food	R 20 000,00
Clothing	R 5 000,00
Water and Electricity	R 2 000,00
Telephone	R 5 000,00
Entertainment	R 4 000,00
<b>FUNDS REMAINING</b>	<b>R 26 000,00</b>

From this statement, FBC Bank can easily see that Thando has sufficient money left over after her expenses have been deducted to meet the loan repayments of (12 X R 1000= 12 000 per annum)

Normally an individual is only required to produce a statement like this either for, as in the case study, a bank loan or sometimes when completing a tax return. There is no requirement for an individual to produce the statement on an annual basis as required for companies by Companies Act 1973.

It is, however, a good personal management tool and wise person would compile such a statement and keep a good eye on it on a regular basis.

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## CASE STUDY 2: THE INCOME AND EXPENDITURE STATEMENT OF A COMPANY BLUE EDGE

Blue Edge LTD produces the chemical flavours used to flavour cakes. They have been in operation since 1940 and continue to run as family owned private business. Because they are incorporated as a company, they are required to produce client's Annual financial statements. Interested parties, such as the owners of the company, clients and suppliers who do business, with them and SARS (The receiver of Revenue) may review these financial statements and make decisions on the results accordingly.

INCOME AND EXPENDITURE STATEMENT BLUE EDGE PTY (LTD)	
<b>SALES</b>	<b>R1 500 000,00</b>
Less Loans	R700,00
Gross profit	
<b>LESS: EXPENDITURE</b>	
Accounting fees	R1 200,00
Cleaning material	R5 000,00
Computer expenses	R20 000,00
Motor & travel	R50 000,00
Rental of factory premises	R200 000,00
Stationery	R20 000,00
Staff refreshments	R10 000,00
Salaries	R400 000,00
Staff training	R1 000,00
UIF	R4 000,00
Workman's compensation	R4 000,00
<b>TOTAL EXPENDITURE</b>	<b>R715 200,00</b>
<b>NET PROFIT</b>	<b>R784 100,00</b>

The accountant for Blue Edge LTD is responsible for ensuring that the figures contained in the Statement of Income and Expenditure are accurate and reflect a true position of the finances of the company. The Accountant must also produce these financial statements annually after the year end (which in Blue Edge case is the 31 October).

### SOURCES OF INCOME AND EXPENDITURE

Income and expenditure sources are as varied as the types of industries and business in operation. People too, derive their income and spend their money in all possible ways. The ways of income are many and varied; it is your task to identify these in the financial statements and be able to differentiate between the income and the costs.

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### CASE STUDY 3: KEYS COMPANY

Keys Company has a shop in a shopping mall. They sell toys, educational devices, and children's party tricks. Keys the owner, has had the following statement of income and expenditure prepared for tax purposes.

STATEMENT OF INCOME AND EXPENDITURE KEYS COMPANY FOR THE PERIOD 1 MARCH 2005 TO 28 FEB 2006		
<b>SALES</b>		<b>R150 000,00</b>
Cost of goods sold		
Opening stock	R5 000,00	
Add: purchases	R51 500,00	
	R56 500,00	
Less closing stock	R6 500,00	
Cost of sales		R50 000,00
Gross profit		R100 000,00
<b>LESS EXPENDITURE</b>		
Accounting fees	R1 200,00	
Cleaning materials	R5 000,00	
Computer expenses	R2 000,00	
Motor and travel	R5 000,00	
Rental of retail premises	R20 000,00	
Stationery	R2 000,00	
Salaries	R20 000,00	
UIF	R450,00	
Workman's compensation	R200,00	R55 850,00
<b>NET PROFIT</b>		<b>R44 150,00</b>

In case study above, expenditure incurred in generating sales include the purchases of goods for sale, called purchases. Note that purchases in accounting terms have a specific meaning: *it means the cost incurred in acquiring goods for resale*. It does not include other costs, such as the ones listed in the Expenditure section. These must be disclosed separately.

The cost of sales calculation, which is opening stock plus Purchases less closing stock, is calculated and subtracted from sales to give Gross profit. Gross profit is an indication of the profitability of operations, not including other expenses and overheads.

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## CASE STUDY 4 KELLY'S FAST FOOD

Kelly's Fast foods is a vendor of pies, chicken, cold drinks, fish, chips, coffee and sandwiches. They cater for break fast and lunch time crowd in a nearby office park.

Below is Kelly's Fast Foods Income statement prepared by the accountant for tax purposes. Now, identify the sources of income and expenditure for Kelly Fast Food.

INCOME STATEMENT FOR KELLY'S FAST FOODS FOR THE PERIOD 1 MARCH 2010 TO 28 FEBRUARY 2010		
SALES		R350 000,00
Less: Purchases		R80 000,00
Gross Profit		R270 000,00
Less expenditure		
Accounting Fees	R1 500,00	
Cleaning material	R7 000,00	
Motor & travel	R4 000,00	
Rental of shop	R40 000,00	
Wages (shop assistants)	R80 000,00	
Insurance	R450,00	
Stationery	R200,00	R133 150,00
<b>NET PROFIT</b>		<b>R136 850,00</b>

## ASSESSING FINANCIAL VIABILITY

The concept of going concern is an important accounting concept. Financial statements are usually prepared with the assumption that the enterprise is going concern, without evidence to the contrary. This assumption implies that the business will continue its operations.

Financial viability entails that:

- The concern will continue its operations in the foreseeable future.
- The enterprise is sufficiently profitable (or will be in the future) to continue its operations.
- There is inherent worth in continuing operations. This related to the concept of going profits. It is important to note that sometimes companies do not make a profit every year- especially in first few years of operations.

A businessperson would examine financial statements for their financial viability and also take a view on inherent worth. A full assessment or analysis of a company does not just look at one year in isolation: many years of operational results need to be examined for fundamental analysis.

## PREPARATION OF INCOME AND EXPENDITURE STATEMENTS

The income statement next page is presented step-by-step so we can look at the profit or loss after each expense is deducted.

*Line 1* is the gross revenue or sales figure. This is the total of amount of sales in dollars that the firm has made in 2009.

*Line 2* is a R500,000 entry for cost of goods sold. This is the cost specifically associated with units of your product sold. Cost of goods sold is usually your largest expense. Subtract cost of goods sold from gross sales to get gross

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profit (*Line 3*). After you get gross profit, you then subtract all of your other expenses from this number in order to generate your net profit.

From the R500,000 gross profit, the next expense you subtract is selling and administration expenses (*Line 4*). This R250,000 item represents your office expenses and sales commissions.

An important item that will merit more discussion is depreciation expense (*Line 5*). When you buy a building for your business or equipment, you depreciate it over a period of time. Depreciation is a non-cash expense and serves as a tax shelter so it is shown on the income statement. After subtracting out selling and administrative expenses and depreciation, you arrive at your operating profit (*Line 6*). Operating profit is also called earnings before interest and taxes (EBIT), which in this case is R170,000.

After you calculate EBIT, the next step is to calculate interest expense. Interest is what you pay on any debt your company has. In order to calculate the interest on debt, you have to know the interest rate you are paying and multiply it by the principal amount of your debt. For this example, the interest amount is assumed at R30,000 and is stated on *Line 7*.

After subtracting your interest expense from EBIT, you get earnings before taxes on *Line 8*. Then, you fill in the amount you pay in federal, state, local, and payroll taxes on *Line 9*. The tax rate, in this example, is 40%. After you subtract that expense, you are finally at the earnings available to your common shareholders, which is stated on *Line 10*.

If you have investors in your firm or if you take a salary from your firm, *Line 11* is where you record the draw or the dividends. *Line 12*, then, is the firm's net income or what you have left to plow back, or reinvest, into the firm in the form of retained earnings.

This is an example of a very simple income statement. The income statement of your company may be a little more complex and contain more line items. This statement should serve to give you the general idea of how a profit/loss statement, or income statement, works.

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XYZ COMPANY			
INCOME STATEMENT			
FOR THE YEAR ENDING DEC 2009			
Line 1	Gross Revenue	<b>SALES</b>	<b>R1 000 000,00</b>
Line 2	COGS	Cost of Goods Sold	R500 000,00
Line 3	Gross Profit = Sales - COGS	Gross Profit	R500 000,00
Line 4	Office expenses & sales com	Selling & Administrative Exp	R250 000,00
Line 5	Of building	Depreciation	R80 000,00
Line 6	Total	Operating Profit(EBIT)	R170 000,00
Line 7	On debt (=interest rate x principle amount of debt)	Interest	R30 000,00
Line 8	Total	Earnings Before Taxes	R140 000,00
Line 9	40%	Taxes(.40)	R56 000,00
Line 10	Total	Earnings Available to Common Shareholders	R84 000,00
Line 11	Paid to Owners	Dividends or Owner Draw	R20 000,00
Line 12	What's left after all expenses	<b>NET INCOME</b>	<b>R64 000,00</b>

EXAMPLE INCOME STATEMENT FOR TRUE NORTH BAKERY (PTY) LTD		
	JANUARY 2020	FEBRUARY 2020
<b>REVENUE</b>		
SALES	R10 747,50	R16 500,00
<b>TOTAL REVENUE</b>	<b>R10 747,50</b>	<b>R16 500,00</b>
<b>COST OF SALES</b>		
INGREDIENTS	R -	R3 500,00
PACKAGING	R75,00	R -
<b>TOTAL COST OF SALES</b>	<b>R75,00</b>	<b>R3 500,00</b>
<b>GROSS PROFIT/LOSS</b>	<b>R10 672,50</b>	<b>R13 000,00</b>
<b>VARIABLE EXPENSES</b>		
MATERIALS	R36,00	R-
ELECTRICITY	R750,00	R650,00
DONATIONS	R150,00	R-
<b>TOTAL VARIABLE EXPENSES</b>	<b>R936,00</b>	<b>R650,00</b>
<b>FIXED EXPENSES</b>		
SALARIES AND WAGES	R6 000,00	R6 000,00
RENT	R3 000,00	R3 000,00
<b>TOTAL FIXED EXPENSES</b>	<b>R9 000,00</b>	<b>R9 000,00</b>
<b>TOTAL EXPENSES</b>	<b>R 9 936,00</b>	<b>R9 650,00</b>
<b>NET PROFIT/LOSS BEFORE TAX</b>	<b>R736,50</b>	<b>R3 350,00</b>

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## ANALYSE A BALANCE SHEET

A Balance Sheet is a 'snapshot' of the financial position of the school at a specific point in time, usually the end of an accounting period. This report lists assets and liabilities as current or non-current, as well as the organisation's equity.

### PURPOSE OF A BALANCE SHEET

The purpose of a balance sheet is to reflect the financial position of a company or enterprise at a point in time. It is different from a statement of income & expenditure in that the balance sheet is as at a specific date, whereas the income statement is for a period of time. Usually, the income statement will cover, say, a financial year, and the corresponding balance will reflect the financial position on the last day of the year under review.

### REQUIREMENTS FOR PREPARING BALANCE SHEETS

1. As part of Annual Financial Statements, companies are required to produce Balance Sheets every year.
2. Individuals need not prepare balance sheet unless requested to do so by a bank or Receiver of Revenue.

## ELEMENTS OF BALANCE SHEET

A balance sheet is separated into two distinct parts:

- I. Capital employed section
- II. Employment of capital

Based on the basic accounting equation:

$$\text{TOTAL ASSETS} = \text{TOTAL LIABILITIES} + \text{OWNERS EQUITY}$$

The two sections of the balance sheet reflect the calculation of the equation.

### *I. CAPITAL EMPLOYED SECTION*

This section reflects the *money the owner has put into the business*. This side consists of the share capital of the business (if it is a company: certain forms of trading operations such as sole traders or partnerships, do not have share capital, but reflect the investment of the traders/partners).

#### SHARE CAPITAL

This is the equity of the business. Usually, a company is incorporated with an authorised share capital that is divided amongst the owners of the business. These shares, as in publicly traded companies on the stock exchange, are tradable in certain circumstances and can be bought and sold. They reflect the division of ownership and profit sharing.

If you own shares in a company, you are entitled to a share of profits in relation to the amount of shares that you hold. Often, companies pay these profits to shareholders in the form of dividends. But, a company is not legally forced to pay dividends.

### *II. EMPLOYMENT OF CAPITAL SECTION*

The term "employment of capital" means what has been done with the money that the owners of the business have invested in the operations. This is the calculation of net Asset less Liabilities. A primary feature of a balance sheet, as indicated in the name of the statement, is that it **MUST** balance. If a balance sheet does not balance, it is not a balance sheet.

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## NOTES TO THE BALANCE SHEET

In terms of disclosure as required in the Companies Act 61 of 1973, there are many items that are disclosed in company's Annual Financial Statements. Often, how the figures that appear on the balance sheet are arrived at are shown in Notes to the Balance sheet. An example of common note would be the calculation of depreciation for Fixed Assets.

### **THE ANALYSIS OF A BALANCE SHEET**

Balance sheets are invaluable tools for analysis of companies' net worth. By understanding and interpreting the clues within the balance sheet, the analyst can evaluate the value of the company, and make decisions accordingly.

#### Case study Kenny's Stationery Shop

The company is incorporated as a close corporation and has been trading for 8 years. The accountant has compiled the annual financial statements, which contains the following balance sheet.

#### **QUESTION: HOW MUCH IS THE COMPANY WORTH??**

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KENNY'S STATIONERY SHOP BALANCE SHEET		
<b>Assets</b>		
<b>Current assets:</b>	<b>Previous Year</b>	<b>Current Year</b>
Cash	200,00	200,00
Investments	150,00	50,00
Inventories	1 000,00	1 800,00
Accounts receivable	15 000,00	13 000,00
Pre-paid expenses	2 000,00	2 000,00
Other	150,00	170,00
<b>Total current assets</b>	<b>18500</b>	<b>17220</b>
<b>Fixed assets:</b>	<b>Previous Year</b>	<b>Current Year</b>
Property and equipment	150000	130000
Leasehold improvements	0	0
Equity and other investments	1500	1800
Less accumulated depreciation	0	0
<b>Total fixed assets</b>	<b>151500</b>	<b>131800</b>
<b>Other assets:</b>	<b>Previous Year</b>	<b>Current Year</b>
Goodwill	0	0
<b>Total other assets</b>	<b>0</b>	<b>0</b>
<b>Total assets</b>	<b>170000</b>	<b>149020</b>
<b>Liabilities and owner's equity</b>		
<b>Current liabilities:</b>	<b>Previous Year</b>	<b>Current Year</b>
Accounts payable	5000	8000
Accrued wages	18000	18000
Accrued compensation	0	0
Income taxes payable	800	800
Unearned revenue	0	0
Other	0	0
<b>Total current liabilities</b>	<b>23800</b>	<b>26800</b>
<b>Long-term liabilities:</b>	<b>Previous Year</b>	<b>Current Year</b>
Mortgage payable	80000	70000
<b>Total long-term liabilities</b>	<b>80000</b>	<b>70000</b>
<b>Owner's equity:</b>	<b>Previous Year</b>	<b>Current Year</b>
Investment capital	50000	50000
Accumulated retained earnings	150	150
<b>Total owner's equity</b>	<b>50150</b>	<b>50150</b>
<b>Total liabilities and owner's equity</b>	<b>153950</b>	<b>146950</b>
<b>Balance</b>	<b>16050</b>	<b>2070</b>

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## CONCEPT OF AN ASSET

Assets are things that the business owns. The types include;

### **FIXED ASSETS**

Fixed Assets, which are things, used in the production of income and they last longer than 3 months in the business, like office furniture, motor vehicles, Land, buildings, machinery and tools. Fixed Assets can either be physical assets or nonphysical and they are subject to depreciation (wear and tear). That is, things like patents, copy rights, goodwill are also regarded as assets. More so, fixed assets include both movable.



**FIXED ASSETS DOES NOT MEAN THE ASSET DOES NOT MOVE!!**

### **CURRENT ASSETS**

The other type being Current Assets which are assets (things owned) that can be converted into cash quickly within a period of say 3 months. Examples include Debtors, cash at bank, trading stock, and Bank balance. Current Assets last less than 3 months meaning they can change forms in that time period. For instance, a Debtor can change to Cash when the debtor pays.



**REMEMBER CURRENT ASSETS ARE NOT SUBJECT TO DEPRECIATION**

## THE CONCEPT OF LIABILITY

Liabilities are amounts that the company owes to other people or companies. These take two forms.

### **CURRENT LIABILITIES**

These are amounts owing to others that must be repaid in a period of three months. Examples include bank overdraft, creditors, and short-term loans.



### **LONG-TERM LIABILITIES**

These are debts that the company has incurred and they are expected to be paid off in a time period more than even a year. If you check the balance sheet section, they are included under the Capital employed section. Examples include bonds, debentures.

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## PREPARATION OF THE BALANCE SHEET

The process of preparing a Balance Sheet hinges on the ability to classify Trial Balance items into Assets, Liabilities and Capital. Let's look at the following worked example:

<b>KK INVESTMENTS – BALANCE SHEET AS AT 31 DECEMBER 2011</b>			
-		Dr (R)	Cr (R)
<b>Income</b>			
Sales	Current asset	-	R6 000,00
Debtors	Current asset		R970,00
<b>Assets</b>			
Machinery	Fixed asset		R2 100,00
Cash in hand	Current asset		R80,00
Capital	Current asset		R3 000,00
Discounts received	Current asset		R130,00
Bank	Current asset		R2 000,00
<b>Liabilities</b>			
Purchases	Current Liability	R 4 000,00	-
Insurance	Current Liability	R 650,00	-
Lighting & heating	Current Liability	R 450,00	-
General expenses	Current Liability	R 120,00	-
Creditors	Current Liability	R 2 100,00	
Discounts allowed	Current Liability	R 100,00	-
Drawings	Liability	R 760,00	
Loan	Long term liability	R 6 100,00	
		<b>R 14 280,00</b>	<b>R 14 280,00</b>

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## MAKE A FINANCIAL DECISION BASED ON FINANCIAL STATEMENTS

All of us have to make decisions every day. Some decisions are relatively straightforward and simple: Is this report ready to send to my boss now? Others are quite complex: Which of these candidates should I select for the job? Simple decisions usually need a simple decision-making process.

### **ISSUES IN DECISION MAKING**

Difficult decisions typically involve issues like these:

**Uncertainty** - Many facts may not be known.

**Complexity** - You have to consider many interrelated factors.

**High-risk consequences** - The impact of the decision may be significant.

**Alternatives** - Each has its own set of uncertainties and consequences.

**Interpersonal issues** - It can be difficult to predict how other people will react.

With these difficulties in mind, the best way to make a complex decision is to use an effective process. Clear processes usually lead to consistent, high-quality results, and they can improve the quality of almost everything we do. In this module, we outline a process that will help improve the quality of your decisions.

### A SYSTEMATIC APPROACH TO DECISION MAKING

A logical and systematic decision-making process helps you address the critical elements that result in a good decision. By taking an organized approach, you're less likely to miss important factors, and you can build on the approach to make your decisions better and better.

There are six steps to making an effective decision:

1. Create a constructive environment.
2. Generate good alternatives.
3. Explore these alternatives.
4. Choose the best alternative.
5. Check your decision.
6. Communicate your decision, and take action.

### **HERE ARE THE STEPS IN DETAIL:**

#### *STEP 1: CREATE A CONSTRUCTIVE ENVIRONMENT*

To create a constructive environment for successful decision making, make sure you do the following:

**Establish the objective** - Define what you want to achieve.

**Agree on the process** - Know how the final decision will be made, including whether it will be an individual or a team-based decision.

**Involve the right people** - Stakeholder Analysis is important in making an effective decision, and you'll want to ensure that you've consulted stakeholders appropriately even if you're making an individual decision. Where a group

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process is appropriate, the decision-making group - typically a team of five to seven people - should have a good representation of stakeholders.

**Allow opinions to be heard** - Encourage participants to contribute to the discussions, debates, and analysis without any fear of rejection from the group. This is one of the best ways to avoid groupthink. The Stepladder Technique is a useful method for gradually introducing more and more people to the group discussion, and making sure everyone is heard. Also, recognize that the objective is to make the best decision under the circumstances: it's not a game in which people are competing to have their own preferred alternatives adopted.

**Make sure you're asking the right question** - Ask yourself whether this is really the true issue. The 5 Whys technique is a classic tool that helps you identify the real underlying problem that you face.

**Use creativity tools from the start** - The basis of creativity is thinking from a different perspective. Do this when you first set out the problem, and then continue it while generating alternatives.

### STEP 2: GENERATE GOOD ALTERNATIVES

This step is still critical to making an effective decision. The better options you consider, the more comprehensive your final decision will be. When you generate alternatives, you force yourself to dig deeper, and look at the problem from different angles. If you use the mind-set 'there must be other solutions out there,' you're more likely to make the best decision possible. If you don't have reasonable alternatives, then there's really not much of a decision to make!

### STEP 3: EXPLORE THE ALTERNATIVES

When you're satisfied that you have a good selection of realistic alternatives, then you'll need to evaluate the feasibility, risks, and implications of each choice. Here, we discuss some of the most popular and effective analytical tools.

- Risk: In decision making, there's usually some degree of uncertainty, which inevitably leads to risk. By evaluating the risk involved with various options, you can determine whether the risk is manageable.
- Impact Analysis is a useful technique for brainstorming the 'unexpected' consequences that may arise from a decision.
- Cost-Benefit Analysis looks at the financial feasibility of an alternative.

### STEP 5: CHECK YOUR DECISION

With all of the effort and hard work that goes into evaluating alternatives, and deciding the best way forward, it's easy to forget to 'sense check' your decisions. This is where you look at the decision you're about to make dispassionately, to make sure that your process has been thorough, and to ensure that common errors haven't crept into the decision-making process. After all, we can all now see the catastrophic consequences that over-confidence, groupthink, and other decision-making errors have wrought on the world economy.

### STEP 6: COMMUNICATE YOUR DECISION, AND MOVE TO ACTION!

Once you've made your decision, it's important to explain it to those affected by it, and involved in implementing it. Talk about why you chose the alternative you did. The more information you provide about risks and projected benefits; the more likely people are to support the decision.

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## FINANCIAL RATIOS

A financial ratio is a relationship that indicates something about a company's activities, such as the ratio between the company's current assets and its current liabilities or between its debtors and its turnover.

The basic source of these ratios is the company's profit & loss account and balance sheet that contain all kinds of important information about that company. The ratios really help to bring those details to light and identify the financial strengths and weaknesses of the company.

When assessing ratios, it is important that the results are compared with other companies in the same industry and not to be taken in isolation. What may seem like a poor ratio at first glance may well be normal for that industry and, of course, the reverse applies, in that what may seem a good ratio on its own, could be below average for that industry.

### **PROFITABILITY RATIOS**

These ratios tell us whether a business is making profits - and if so whether at an acceptable rate. The key ratios are:

RATIO	CALCULATION	COMMENTS
Gross Profit Margin	Gross Profit Margin = [Gross Profit / Revenue] x 100 (expressed as a percentage)	This ratio tells us something about the business's ability consistently to control its production costs or to manage the margins it makes on products it buys and sells. Whilst sales value and volumes may move up and down significantly, the gross profit margin is usually quite stable (in percentage terms). However, a small increase (or decrease) in profit margin, however caused can produce a substantial change in overall profits.
Operating Profit Margin	Operating Profit Margin = [Operating Profit / Revenue] x 100 (expressed as a percentage)	Assuming a constant gross profit margin, the operating profit margin tells us something about a company's ability to control its other operating costs or overheads.

### **LIQUIDITY RATIOS**

Liquidity ratios indicate how capable a business is of meeting its short-term obligations as they fall due:

RATIO	CALCULATION	COMMENTS
<b>Current Ratio</b>	Current Ratio = Current Assets / Current Liabilities	A simple measure that estimates whether the business can pay debts due within one year from assets that it expects to turn into cash within that year. A ratio of less than one is often a cause for concern, particularly if it persists for any length of time.
<b>Quick Ratio or "Acid Test"</b>	Quick Ratio = $\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	Not all assets can be turned into cash quickly or easily. Some - notably raw materials and other stocks - must first be turned into final product, then sold and the cash collected from debtors. The Quick Ratio therefore adjusts the Current Ratio to eliminate all assets that are not already in cash (or "near-cash") form. Once again, a ratio of less than one would start to send out danger signals.

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## STABILITY RATIOS

These ratios concentrate on the long-term health of a business - particularly the effect of the capital/finance structure on the business:

RATIO	CALCULATION	COMMENTS
<b>Gearing</b>	Gearing = [Borrowing: all long-term debts + normal overdraft] / Net Assets (or Capital Employed)	Gearing (otherwise known as "leverage") measures the proportion of assets invested in a business that are financed by borrowing. In theory, the higher the level of borrowing (gearing) the higher are the risks to a business, since the payment of interest and repayment of debts are not "optional" in the same way as dividends. However, gearing can be a financially sound part of a business's capital structure particularly if the business has strong, predictable cash flows.
<b>Interest cover</b>	Interest Cover = Operating Income / Interest	This measures the ability of the business to "service" its debt. Are profits sufficient to be able to pay interest and other finance costs?

## COST INCOME RATIO

The cost to income ratio is an important indicator of the value of the company. It is used a lot in investment analysis to ascertain how easily the company can increase profits. The cost-to-income ratio shows the efficiency of a firm in minimizing costs while increasing profits. The lower the cost-to-income ratio, the more efficient the firm is running. The higher the ratio, the less efficient management is at reducing costs. Cost-to-income ratio equals a company's operating costs divided by its operating income.

### CASE STUDY

1. Determine a firm's operating costs. Operating costs are those which are directly related to running the firm, such as salaries and administrative expenses. For example, Firm A has R500,000 of operating expenses each month.
2. Determine the firm's operating income. Firms disclose operating incomes on their income statements. Operating incomes are cash inflows from the firm's operation. In the example, a firm has operating income of R900,000 each month.
3. Divide the firm's operating expenses by the firm's operating income. In the example, R500,000 divided by R900,000 equals Firm A's cost to income ratio of 0.555.

### Example

Vermin PLC has an annual income of R200 000, derived from sales at a cost of R100 000.

Then their cost to income ratio is;

$$\frac{100\,000}{200\,000}$$

$$= 1:2$$

To interpret this: for every R100 worth of sales, Vermin PLC makes a profit of 50c.

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## MODULE 3: CREATING AND OPERATING WITHIN A BUDGET

### MODULE 3: LEARNING OUTCOMES

Manage Expenditure against a budget
Explain the concept of budgeting pertinent to an area of responsibility.
The concept of a budget is explained with reference to expenditure in an area of responsibility.
The budgeting technique employed is explained by means of worked examples.
Determine the elements of a budget in an area of responsibility.
The elements of the budget are identified for the resources required to meet the objectives.
Internal and external constraints on a budget are identified in terms of an own organisational context.
Monitor and control actual expenses against budget.
Actual expenses are monitored according to Standard Operating Procedures.
Variances are identified and corrective measures are proposed and/or taken according to Standard Operating Procedures.

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**MODULE 3: CREATING AND OPERATING WITHIN A BUDGET**

UNIT STANDARDS IN THIS MODULE	242810	MANAGE EXPENDITURE AGAINST A BUDGET	
	EXPLAIN THE CONCEPT OF BUDGETING PERTINENT TO AN AREA OF RESPONSIBILITY.	SO 1	
	DETERMINE THE ELEMENTS OF A BUDGET IN AN AREA OF RESPONSIBILITY.	SO 2	
	MONITOR AND CONTROL ACTUAL EXPENSES AGAINST BUDGET.	SO 3	
	The concept of a budget is explained with reference to expenditure in an area of responsibility.	SO 1 AC 1	
	The budgeting technique employed is explained by means of worked examples.	SO 1 AC 2	
	The elements of the budget are identified for the resources required to meet the objectives.	SO 2 AC 1	
	Internal and external constraints on a budget are identified in terms of an own organisational context.	SO 2 AC 2	
	Actual expenses are monitored according to Standard Operating Procedures.	SO 3 AC 1	
	Variances are identified and corrective measures are proposed and/or taken according to Standard Operating Procedures.	SO 3 AC 2	

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## MANAGE EXPENDITURE AGAINST A BUDGET

Budgeting is an art as well as a science. Often, one does not have enough money to do everything one wants. Therefore one has to prioritise those activities and expenses in order of importance. The art of budgeting is in squeezing the most out of available funds, so that as many objectives are attended to as possible.

A good budget realistically assesses expected incomes and expenses and is a tool that you can use to reach certain financial targets.

### **Personal Budget**

The majority of people complain about being broke most of the time. This situation can be ascribed to lack of or poor personal financial management. This situation can be corrected by the drawing up of a personal budget and spending your income according to it.

<b>PERSONAL BUDGET</b>	
	<b>MONTHLY SPEND</b>
<b>HOUSEHOLD</b>	
RENT/BOND	R
TAXES	R
INSURANCE	R
WATER AND LIGHTS	R
FOOD	R
TELEPHONE BILLS AND INTERNET	R
<b>SUBTOTAL</b>	<b>R</b>
FINANCIAL	R
CREDIT CARD	R
PERSONAL LOAN	R
<b>SUBTOTAL</b>	<b>R</b>
TRAVEL EXPENSES	R
CAR PAYMENT	R
INSURANCE	R
PETROL	R
SERVICES	R
<b>SUBTOTAL</b>	<b>R</b>
PERSONAL	R
CLOTHES	R
TOILETRIES	R
<b>SUBTOTAL</b>	<b>R</b>
<b>TOTAL</b>	<b>R</b>

### **Corporate Budget**

Budgeting is a time-consuming process which may, depending on the company, involve all levels of the corporate hierarchy: from hourly wage earners, through supervisors and middle-level managers, to vice presidents, presidents and CEOs. Budgeting is only one aspect of corporate planning. Only after a discussion of corporate planning can budget be discussed in its proper place.

Corporate budgets have a wide variety of uses, all of which serve one main purpose: to save money and increase profitability. Money saved by a company can be used for a variety of purposes. For example, a corporate budget can help predict the money gained through sales which will then be useful in the determining the availability of funding for research and development during the same time period.

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## Chicken Ferries cc Budget for the year ended 28 February 201X

<b>Income</b>	<b>R 1 064 000</b>
Accounting Fees	R 1 500
Boat Lease	R 60 000
Food Costs	R 266 000
Fuel Costs	R 60 000
Insurance	R 10 000
Rental of Ticket Booth	R 50 000
Salaries & Wages	R 200 000
Stationery & Printing	R 20 000
<b>Net Income before Taxation</b>	<b>R 396 500</b>

### **Advantages of Budgeting**

Corporate (as well as non-profit and government) budgeting:

- coordinates activities of the various departments or divisions within an organisation.
- allows evaluation of performance based on prior guidelines.
- allows control of the working environment.
- allocates resources based on prior corporate planning.
- forces all levels of management to devise a cogent plan of operations.

The planning and budgeting processes are highly dynamic. Review of plans at ever higher management levels allows a stream of input and revisions to adequately reflect the needs of the various departments or divisions within the organisation.

### **Budget Variance and Performance Reports**

Budget variance is the difference in the projected budget and the achieved budget, and is usually expressed as a percentage. Analysis of budget variance allows such discrepancies to be identified and serves as the basis for corrective actions.

A comparison of projected and achieved budgets is stated in a performance report. Performance reports are usually compiled and released on a quarterly basis but may be done so more often.

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Example:

### Sales Department Performance Report of Controllable Expenses

(for Current Quarter):

	<u>Achieved (Actual)</u>	<u>Projected (Budget)</u>	<u>Variance</u>	<u>% Variance</u>
Employee Salaries	R 955 055	R 980 350	R 25 295	2.6%
Employee Benefits	R 220 600	R 235 450	R 14 850	6.3%
Supplies	R 41 722	R 43 500	R 1 778	4.1%
Phone Services	R 22 963	R 23 750	R 787	3.3%
Contracted Services	R 176 974	R 155 500	(R 21 474)	-13.8%
Maintenance	R 26 548	R 30 200	R 3 652	12.1%
Travel	R 82 683	R 75 500	(R 7 183)	-9.5%
Entertainment	R 27 496	R 25 500	(R 1 996)	-7.8%
Miscellaneous	R 17 738	R 20 000	R 2 262	11.3%
<b>Totals</b>	<b>R 1 571 779</b>	<b>R 1 589 750</b>	<b>R 17 971</b>	<b>1.1%</b>

Notice the Projected Budget for each category of expense. These represent the target amounts after extensive budget planning.

There were three areas over budget where losses were incurred:

- contract services (- 13.8 %).
- travel (- 9.5 %).
- entertainment (-7.8 %).

It is the function of the department manager to investigate these variances with an eye toward correcting them. The overall budget, however, did produce a surplus (R 17,971 or 1.1 % of the projected budget).

When we use mathematics to plan and control budgets, we must ensure that:

- Plans describe projected income and expenditure realistically.
- Calculations are carried out using computational tools efficiently and correctly and solutions obtained are verified in terms of the context.
- Budgets are presented in a manner that makes for easy monitoring and control.
- Actual income and expenditure is recorded accurately and in relation to planned income and expenditure. Variances are identified and explained and methods are provided for control.

### Explain the concept of budgeting

After completing this section, the learner will be able to explain the concept of budgeting pertinent to an area of responsibility, by successfully completing the following:

- The concept of a budget is explained with reference to expenditure in an area of responsibility
- The budgeting technique employed is explained by means of worked examples

Budgeting is the process of planning financial activities for an upcoming accounting period, usually a year. It requires analysing how a business is currently performing and setting objectives for improving its future financial health. Specific revenue and expense expectations are identified with the intention of increasing a business's profits while keeping expenses in check.

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In some organisations the preference is for ‘top-down’ budgeting: Budgets are imposed by top managers with little or no consultation with lower-level managers. Most companies however prefer the process of “bottom-up” budgeting: Budgets are prepared by those who must implement them. The budgets are then sent for approval to higher level managers.

Supervisors have a more intimate view of their needs than do managers at the top, and they can provide realistic breakdowns to support their proposals.

The company procedures and roles for budgeting are as follows:

- Senior Management is responsible for setting goals and developing the strategic intent of the business. This may result in the design of a financial budget to provide for assets required for the long term development and the master budget.
- Operational Management must follow these goals set out in the annual business plan to develop the operational budget.
- Divisional/Departmental Management must follow the business plan to compile the divisional or departmental budget.

### **IMPORTANCE OF BUDGETING**

In order to strengthen a business’s financial health, budgeting is necessary. Since the financial activities of a business can become quite complex, a budget is needed to outline a plan that managers and employees can follow. Budgeting provides the structure that is required in order to implement effective pricing and spending efforts.

Budgeting offers five main benefits:

#### **1. Budgeting facilitates planning**

Planning is the main key to budgeting. A business that plans its future financial activities is one that will have a vision for success. Budget planning requires a business to articulate its vision for the future and how it will accomplish it. Strategies are developed, and deadlines are identified to accomplish the established budget.

The planning aspect of budgeting also helps a business establish benchmarks that it can use to measure its progress toward achieving its financial objectives.

#### **2. Budgeting enhances communication**

Budgets communicate the spending and sales expectations of the managers and employees within an organisation. Communication is enhanced when the individuals responsible for enforcing and meeting financial expectations can find these guidelines in a budget. Managers and employees know what their boundaries are for the upcoming accounting period and can adjust their spending and sales activities accordingly.

#### **3. Budgeting reinforces accountability**

Since budgets are communicated to those individuals responsible for implementing them, accountability is reinforced. The responsible managers and employees can be consulted if any deviations from the budget occur. Budgets enable accountable individuals to make wise financial decisions by giving them the information they need.

#### **4. Budgeting identifies problems**

Budget planning requires a business to identify any financial problems that are developing. Since a budgeted financial statement is broken into months or quarters, deviations from the budget can alert members of management to potential problems. Assigning specific numbers to financial expectations helps draw attention to situations the business needs to investigate.

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## 5. Budgeting motivates employees

The clear guidelines that are outlined in a budget provide a method by which managers and employees can be rewarded for their efforts. It is easy to evaluate managers' and employees' performance by identifying whether the financial objectives articulated in the budget are met. The compensation that individuals will receive if they meet the financial expectations in the budget will motivate them to adhere to it.

### THE BUDGETING APPROACH

There are two basic approaches to budgeting:

1. The **centralised** approach utilises the business acumen of an organisation's top managers and officers to set the budgetary parameters. This approach promotes consistency, but allows little, if any, input from lower echelons of the organisation.

The centralised approach seems to work best in smaller companies where management is completely versed in all aspects of the business.

2. The **decentralised** approach allows participation of all management and employee levels. Information and ideas flow upward, but this approach is rather time-consuming and costly, usually involving numerous revisions.

One major advantage of the decentralised approach is that employees who have some input in determining the overall direction of the organisation are more likely to have a greater stake in its success. In addition, those employers closer to customers or suppliers may be more aware problems or concerns that need to be addressed.

Many organisations use a combination of the centralised and decentralised approaches. In effect, this method begins from the centralised, top-down approach and allows detailed input from various levels of the organisation.

Yearly budgets are normally finalised within 30 to 60 days of the end of the fiscal, or calendar, year for the next year (the planning process is described in more detail in Module 2).

Budgets, however, can be prepared by a continuous budgeting approach on a monthly, or more usually, a quarterly basis. With this approach, a budget is revised and extended for another quarter. A company will have a budget nine months ahead at the end of the quarter. The importance of quarterly reappraisal of budgetary aims is that it allows corporate or market changes to be incorporated into the budget four times a year rather than just once a year.

The managers of most units are directly responsible for certain financial aspects of the unit's budgetary activities:

- **Cost** responsibility - only responsible for costs incurred.
- **Revenue** responsibility - primarily responsible for producing revenue.
- **Profit** responsibility - primarily responsible for both cost and revenue and to generate a profit.

A budget is a translation of your business plan into "numbers." In its simplest form a budget is a detailed plan of future income and expenditures - a projected profit and loss statement.

Right from the beginning you can use your budget to validate the activities you have planned for the coming year:

- Will you be able to afford additional staff?
- Do you need to expand your facilities or equipment?
- When will be the best time to start your new sales campaign?
- Do you have a period where sales are slow and making ends meet is a challenge?

Knowing what all your business activities will cost and when such expenses will occur will help prevent any unexpected surprises that could lead to financial problems.

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Once the period for which you have budgeted is completed, you can then compare actual results with anticipated goals. Get into the habit of making this a regular part of your business routine. You don't have to do anything elaborate-- just a simple comparison of your budgeted figures to your actual results. Then begin by asking yourself "why" are the figures different.

- If some of your expenses, for example, are higher than you expected, do you need to look for ways to cut them or has business increased?
- If your sales aren't on track, what has happened to cause the difference?

Don't fall into the trap of "blaming it on a bad budget." Use the information constructively and improve your budget the next time around.

A manager would prepare a budget to determine whether he/she can achieve their profit goals. To do this, you must project your fixed costs and your variable costs. From these three figures -- targeted profit, fixed expenses, and variable expenses -- you can determine your required level of income.

- Many businesses start with a forecast of profits and work up to a forecast of sales.
- Even large corporations can determine the required return on investment that shareholders require, then work back to planned revenue goals.
- Alternatively, you can start with a sales forecast, but don't forget the bottom line must still give you the required return.

### EXPLAIN THE CONCEPT OF A BUDGET

A budget may be defined as a business's *financial plan* that tells how resources will be acquired and apportioned in operations during a specific period of time (usually a one-year period).

A budget includes detailed financial statements and supporting schedules that project expected dollar amounts (usually by monthly or quarterly periods).

Budgeting allows a company to be *cost effective* by carefully monitoring operating expenses.

Weekly, monthly, or quarterly monitoring of budget projections through *performance reports* allows a company to take corrective measures on short notice where and when necessary.

### Income and Expenditure

Every business will have money coming in and money going out. These transactions must be recorded and controlled. Before we consider the methods of control, let's first have a look at some of the transactions that are classified as Income:

- Sales
- Rentals from property
- Interest received from Investments
- Money received from Debtors
- Discounts received

A business will receive most of its income from the sale of its products. Other sources of income may vary according to the type of business and the amount of capital/money available for investment etc.

**Income** - For the purposes of this module, income is defined as **money that has been made** within the time period of the statement. It is an important accounting concept to correctly account for income within the time period of the financial statement. This means that you should include in your income calculation money that you have made but not yet received. For example, if you were a trader and sold goods but had not yet received the money (because you

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had given your customer some credit terms) you should nonetheless include the sale as income for the period, even if the customer only pays you after the end of the period.

**Expenditure** - For the purposes of this module, expenditure is defined as **the costs that have been incurred** within the time period of the statement. As with the concept of income, you should accrue for expenditures incurred within the time-period even if you have not paid for them. If, for example, you were doing a household income and expenditure statement for the end of September and you had not received your water and lights account, nor paid it for September, you should nonetheless include it (or a reasonable estimate) in the income and expenditure statement for September. This ensures that you have an accurate statement of the real expenditures incurred within the period. Now, let's have a look at a few transactions that would be classified as Expenditure:

- Payment of Rentals
- Payments to Suppliers
- Tax
- Salaries and Wages
- Vehicle expenses
- Telephone and Postages
- Licences

Obviously there may be many more payments, but they would also vary according to the type of business.

There are a number of different types of expenditure that need to be considered for a budget:

**Ongoing Specific Costs** - On-going specific costs are costs that are driven by particular products and services, e.g. raw material and component parts, bought-in services, goods for resale, labour and wages, after-sales support and service.

**Ongoing Shared Costs** - On-going shared costs are those that are shared by the whole organisation and are incurred by most organisations all the time on a routine basis. They can be easily estimated and controlled, e.g. rent, rates, utilities, insurance, repairs, infrastructure, finance charges, postage, stationery, advertising, telephone, transport, and professional fees.

**Once Off Start-Up Costs** - Start-up costs are those that are incurred when starting or growing a new operation - these costs will vary each time, e.g. drawings, pre-trading items, set-up costs, specifications, production lines, sales and marketing literature and employment and re-training costs.

**Once Off Capital Non-Revenue Costs** - Capital or non-revenue costs are one-off items. They are usually harder to estimate because they do not happen often - when they do, they are likely to be different each time, e.g. tangible assets such as buildings, plant and equipment, office machinery, fixtures and fittings, motor vehicles and intangible assets such as goodwill, brands and intellectual property.

**EXPLAIN THE BUDGETING TECHNIQUE EMPLOYED**

Budgeting or setting a budget is the process of setting financial standards and targets for an organisation's activities and agreeing them with individual managers who are responsible for the various budgets.

A budget is a bit like a road map: it sets out what direction we are going in and what route we are taking. It also tells us how many miles we will have to travel to get to our destination; we can also see when and how far, we have gone off the track.

So, the budget is a way of measuring the progress towards the achievement of the company's overall objectives/goal and mission. For this reason, all departments within the organisation will be asked to participate in the preparation of the budget.

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For a company's budget to succeed there must be the approval and support of senior management. This is the point at which the budget becomes the guiding principle for the business. Senior management should make their support for the budget as visible as possible in order that those with the task of putting the budget into action know that their successes will gain the approval of their bosses. Their failures will also gain the bosses attention. Both of these are motivational in their own way.

The objectives of any budgeting system are as follows:

- To set the goals and objectives of the business and to write them in terms so that management and budget holders are clearly aware of their responsibilities and limits of authority.
- To calculate and draw up an agreed set of standards by which each department agrees to be measured
- To agree the process that will measure the efficiency and effectiveness of the company
- To show any variances; this will be the basis for deciding what action to take when the business is seen to be off the track.

There are different budgets and budgeting techniques used in most organisations. There are various types of budgeting techniques (e.g. forecasting based on historic data, and zero-based budgeting) that are available to a leader / manager to create a budget. Some of these techniques are often combined and customised to suit the needs of the organisation:

**The Fixed Budget**

As the name suggests, a fixed budget is for a fixed period and for a fixed amount of income and expenditure. Normally given for a year at a time, the fixed budget sets out the allowed total expenditure by month, quarter or whatever. This is then compared in detail to the actual expenditure. Monthly variances and cumulative variances are listed. A somewhat rigid system, it normally doesn't take into account changes in activity or other factors affecting the financial results of the business.

**The Flexible Budget**

Using this system recognises the relationship between activity, fixed costs and variable costs. Accordingly, the budget, or at least certain items within the budget, are increased or decreased to take into account the increase or decrease in activity. For example: If a company's sales increase by 8%, then the knock-on effect on distribution – transport, warehousing and packaging – is calculated pro-rata or to an agreed formula so that the departmental budgets are increased to finance the extra workload.

The advantage of a flexible budget is that the manager can explore more accurately the underlying reasons for the variations from original budgeted expectations.

**Rolling Budget**

This is not really a budgetary system in that it is more a method of updating the current budget on a continuous basis. The current budget may be for a 12 month period. It is considered active. Each month or quarter the budget is projected for a further twelve or maybe even an eighteen month period, depending on what management feel is appropriate. So, if the budget is split into quarters, then as quarter one is finished for that first year, so quarter one will be calculated for the following year. There is an advantage to rolling budgets and that is that they get away from the fixed budget type of thinking. This means that management do not and cannot take their eyes off the ball.

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## Static Budget

This variation on the traditional budget addresses the problem of budget rigidity in a somewhat different manner. The traditional model, a static budget, presents one set of forecasted numbers for a given time period and is not changed during the life of the budget.

## Historical-Base Budgeting technique

Historical-base budgeting is the process of basing your objectives for the upcoming accounting period on the previous one's actual performance. Some individuals automatically use the previous accounting period's performance as the budgeted amount for the upcoming period.

The problem with this budgeting method is that consideration is often not given to whether the previous accounting period's performance was good or poor. If the financial activities from the previous accounting period were inadequate, using these figures as a guideline for the upcoming accounting period will simply prolong poor performance.

Historical budgeting assumes:

- that all current expenditures are necessary and
- that only the amount of budget increase needs to be substantiated.

## Zero-base budgeting technique

Zero-Base Budgeting (also known as priority based budgeting) re-evaluates all items of the budget each time a budget is created. This differs from historical (or incremental) budgeting which is based on increasing the current budget by a percentage amount (usually one that takes inflation into account). The historical budgeting process may be flawed because certain of the current budget's expenses may not be justified. Zero based budgeting eliminates the 'add-on' assumed characteristics of historical budgeting.

With zero based budgeting, all expenditures are re-evaluated for each budget created. This method requires that each budget justifies a programme or expense or department's existence each time a budget is prepared. Should the programme or expense or department's existence not be justified then it could be eliminated or downscaled to budgetary constraints.

Zero-based budgeting involves four steps:

1. Describe each separate organisational activity in a budget
2. Evaluate and rank these activities in terms of a cost-benefit analysis
3. Allocate funds as appropriate
4. Monitor and Evaluate

## Activity Based budgeting technique

Activity-based budgeting is a new way of approaching the budgeting process. Under traditional cost allocation, overhead costs are allocated to products using cost drivers such as direct labour hours and machine hours". However, "activity-based budgeting (ABB) concentrates on the cost of *resources* required for producing and selling products and services.

- The main advantage of activity-based budgeting is that costs are more accurately associated with activities, making the budgeting process more accurate and effective.

The main disadvantage of activity-based budgeting is that it can be costly and complex to establish.

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Note: Most organisations combine Zero-base and Activity-based budgeting techniques to create their budgets

### **Top-Down Budgeting**

In some organisations the preference is for ‘top-down’ budgeting: Budgets are imposed by top managers with little or no consultation with lower-level managers.

In this method senior management set the budget goals and inflicts these goals on the company. Senior management may have set rigid and specific objectives for budgeted items. This is a very simple method that works out what was spent the previous year and then a percentage is added or subtracted for the current year.

The problem with this is that the figures from last year may be incorrect and it is very unlikely to give the best possible resource allocations. It may also miss hidden gradual cost changes and can be responsible for inefficient practices. However, top-down budgeting is still the most common way to produce budgeted figures. Often a manager will have had the budget forms in the in-tray for several weeks, and yet, by using this approach, can still produce a budget in one day without any reference to any other part of the business.

In certain cases senior management may set ‘stretch’ or ‘challenge’ profit goals that seem almost impossible to achieve, leaving the lower level management to figure out how to attain them.

Companies use these ambitious budget goals as motivational tools; however, the results may vary, either an energetic management team will discover creative new solutions or a very discouraged management team may simply give up. The midpoint is the preferred target, revenue or profit goals that would allow enough flexibility for both positive and negative possibilities.

<b>EXPENDITURE BUDGET</b>			
	<b>Last Year</b>	<b>Change</b>	<b>This Year</b>
Salaries	10 000	6%	10 600
Pensions	1 200	6%	1 272
Motor & Travel	500	10%	550
Equipment Hire	100	5%	105
Telecom	600	-10%	540
Print, post & stationery	240	-2%	235
Marketing	300	8%	324
Storage	60	3%	62
Maintenance	120	10%	132
Electricity & Water	480	-5%	456

### **Bottom-Up Budgeting**

Most companies however prefer the process of “bottom-up” budgeting: Budgets are prepared by those who must implement them. The budgets are then sent for approval to higher level managers. Supervisors have a more intimate view of their needs than do managers at the top, and they can provide realistic breakdowns to support their proposals.

In companies that do bottom-up budgeting, managers do not receive specific targets as with the Top-down method. Instead they begin by putting together budgets that they feel will best meet the needs and goals of their departments. These budgets are then ‘rolled up’ to create an overall company budget, which is then adjusted, with requests for changes being sent back down to the individual departments.

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This system means that you have to justify all expenditure, from the group up. Bottom-up budgeting is best suited for discretionary and support costs, such as marketing costs, rather than tangible costs (easily measurable costs) such as production costs.

Bottom-up budgeting is very time consuming. The process can go through many interactions. Often it means working closely with other departments that may be in competition with yours for limited resources. It is best to be as co-operative as you can with these departments during this process, but that doesn't mean you shouldn't lobby aggressively for your own department's needs.

Let's now have a look at a comparison between Top-down and Bottom-up Budgeting:

	<b>Top-Down</b>	<b>Bottom-Up</b>
Starting point	Last year's budget or actual	Zero: assume no spending
Basis for Budget	Last plus or minus a sum	Activity-based building blocks
Amount Budgeted	Normally a single sum	Range of amounts
Needs Awareness of	Individual function/department	Whole of the business
People Involved	Manager and owner only	Cross-functional groups
Time and Effort	Can be significant	Often very substantial
Frequency	Usually annual	Periodically over years
Alternatives	Only mentioned briefly	Subjected to detailed reviews
Priorities	Often not stated	Wants and must-haves discussed

### **THE MASTER BUDGET**

There is only one master budget. All smaller budgets within the business are only part of that budget which is the financial model of the organisation. There is no limit to the number of smaller budgets that a company may draw up, but usually budgets are drawn up by function and/or organisational requirements. Let's have a look at what the Master budget is made up of:

- **Sales Budget:** will include product budgets
- **Production Budget:** will include Materials, Labour, Expenses and Plant Utilisation budgets
- **Marketing Budget:** will include budgets for Advertising, Marketing and Promotion
- **Distribution Budget:** will include budgets for Transport, Warehouse and Packaging
- **Administration Budget:** will include budgets for Personnel, Accountancy, Occupancy and Office.

Let's now go into a bit more detail for two of the budgets mentioned:

#### **The Sales Budget**

It is well known that a Sales budget is the most important budget within a business, but it is difficult to accurately project unless you are playing Monopoly. This may be true, but all companies still have to estimate what number of products or services will be sold. The person responsible for the Sales Budget would be the Sales Director. The Sales Director would, in turn consult with the area managers and both directly and indirectly with the Sales team or teams.

It is not enough to take last year's budget and add on, say 10% to cover inflation. If budgeting is to be professional, then we need to take into account some or all of the following information:

- The sales objectives of the organisation, including the possibilities for growth, new markets and areas and new product introductions
- Financial analysis of past performance, split into product groups and/or sales representatives and/or customers

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- Current information regarding the ability of the organisation to fulfil its objectives.
- External information, such as environmental issues, trading patterns and market research etc.

### **The Cash Budget**

One of the more important budgets is the cash budget. This would be drawn up by the Financial Controller or Accountant within the business. A company’s ability to survive in the short term is its ability to have sufficient cash resources to meet all its debts – such as loan repayments. The shortfall of funds may have to be financed by overdraft or other borrowings; surplus funds will need investing so that the money is working for the company. The cash budget therefore is an action plan for management which warns when there are periods of shortfalls or surpluses of funds which will enable management to take further action.

So far we have looked at the different types of Budget and the methods of budgeting. Let’s now look at how they fit together.

The company may have specific budgetary needs in relation to the business plan. If a highly accurate and detailed budget is required, such as at a company start-up, the activity-based format will be required; in other cases an incremental budget may be sufficient.

### **DETERMINE THE ELEMENTS OF A BUDGET**

After completing this section, the learner will be able to determine the elements of a budget in an area of responsibility, by successfully completing the following:

- The elements of the budget are identified for the resources required to meet the objectives
- Internal and external constraints on a budget are identified in terms of an own organisational context

So far we have looked at the different types of Budget and the methods of budgeting. Let’s now look at how they fit together.

The company may have specific budgetary needs in relation to the business plan. If a highly accurate and detailed budget is required, such as at a company start-up, the activity-based format will be required; in other cases an incremental budget may be sufficient.

### **Budgeting and the Business Plan**

Each business will have a Business plan – this is the vision of where the organisation would like to be in say, three to four years’ time. This plan would include the setting of overall objectives so that the business can determine what it hopes to achieve.

So the business needs to analyse the environment in which it operates and the resources that it has, using the SWOT Analysis – an assessment of the business strengths, weaknesses, opportunities and threats.

The budget is the planned carrying out of the business plan. It is incorporated in both the business planning and control processes. The senior management of the business choose the considered options that will have the greatest chance of achieving the objectives of the business and create long-term plans to implement those options.

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The planning and control process involves:

Stage	Actions to be taken
<b>Short-term Planning</b>	<ul style="list-style-type: none"> <li>▪ Prepare operating plans and programmes</li> <li>▪ Set down annual financial budgets</li> <li>▪ React to changes in the Marketplace</li> <li>▪ Continually reassess the validity of plans.</li> </ul>
<b>Long-term Planning</b>	<ul style="list-style-type: none"> <li>▪ Find out the business objectives</li> <li>▪ Consider strategic, market and product options</li> <li>▪ Analyse the organisation's strengths and weaknesses.</li> <li>▪ Identify financial, physical and human resource needs</li> </ul>
<b>Control</b>	<ul style="list-style-type: none"> <li>▪ Prepare Management reports</li> <li>▪ Evaluate differences between actual and plan</li> <li>▪ Decide on how to remedy discrepancies</li> <li>▪ Take effective corrective action.</li> </ul>

A business must be able to do the following:

- Tell the money where to go and not worry about where it went
- Make sure the business has clearly thought out long-term plans and strategies
- Consider the market trends of their products (Will it sell and how many will sell, at what price)
- Use budgets to judge performance and as an authority to spend.

### **Business Plan**

The business plan is a written summary of what a business hopes to accomplish by being in business and how it will accomplish its objectives. It contains clear goals and objectives with an explanation of the business intends to manage all of its resources i.e. premises, equipment and staff, as well as finances, in order to achieve those goals and objectives.

The business plan should be seen as part of the planning process. It can never be complete because a number of factors can make it immediately out of date. These factors may include late payment by customers, or increased or unforeseen costs. The list may be endless.

The formal business plan should be seen as an important management tool by all businesses irrespective of size. It serves four critical functions:

- It helps clarify, focus and research the development of the business
- It provides a framework for the business strategy to be undertaken in order for the business to develop
- The document can be used as a basis for discussion with third parties who have either a potential or an existing interest in the business such as shareholders, banks or other investors
- It sets goals and objectives against which actual performance can be measured and reviewed.

The budget is a way of measuring the progress towards the achievement of the goals within the business plan. It is therefore important that you review your departmental business to compare actual results with ideal results and then prepare a budget plan to close that gap.

The objectives set out in the Business Plan are broad based to give the business direction; they are not specific enough for department use. Your department objectives need to be activity based, taking into account the resources needed such as time, people, equipment and finances etc. Remember that the strategic plan sets out the major long-term business and financial plans for the organisation and is the basis on which you will set your department's objectives.

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## Budgets

Budgets should be flexible and tailored to suit the departmental circumstances. You should double check that your budget is well-matched to others and that there is a degree of consistency throughout the organisation. This can be done by making sure that everyone involved in the process keeps to the same principles of budget preparation. Keep following a list of rules (8 golden rules for effective budgets) for the whole budgeting process to make sure the budget is consistent and realises its full potential.

Golden Rules	Putting theory into practice
<b>BUDGET CONTINUOUSLY</b> Budgeting and planning are not just one-off events.	Consider budgeting as more than an annual activity. Remember that the future is uncertain, so revise budgets regularly to reflect changes in the business environment
<b>TAKE YOUR TIME</b> Budgets are the key part of planning and require careful thinking.	Do not underestimate the time needed to gather the relevant information, formulate plans, make a budget a realistic planning proposal.
<b>INVOLVE EVERYONE</b> Include all those that should be involved in the budgeting process	Make your budgeting more than just a high-level activity. Involve all of the relevant people with the appropriate knowledge and skills and encourage them to commit to the process.
<b>BE REALISTIC</b> Focus on what your department actually needs in a particular budget.	Be aware that if resources are scarce there will be competing demands for items within the organisation, which can often lead to deliberate overestimation.
<b>LOOK AHEAD</b> Look to the future, not to the past when deciding budgeting amounts.	Keep focused on future targets. Do not rely on historic figures to guide next year's budget, which, although approximately right, might be completely wrong.
<b>BE AWARE OF POLITICS</b> The size of budget does not equal its importance in the organisation.	Understand that the size of a budget should not be confused with importance and avoid all traditional budgetary game-playing around this.
<b>MONITOR EVENTS</b> Priorities and amounts may need to be changed in line with events	Be prepared to amend your budget while still challenging all expenditures and trying to resolve unforeseen problems in other areas.
<b>ALLOW FLEXIBILITY</b> Budgets do not have to be slavishly followed.	Avoid the temptation to spend all that you were authorised to and do not guard an under-spend in your budget when others could well use the resource.

### Identify the elements of the budget for the resources required

It is important that you understand costs fully so that you can turn out a clear-cut budget that contains accurate forecasts and provides a better basis for analysis and decisions. A cost can be defined as the amount of money which has been spent or will be spent in the normal course of business in bringing a product or a service to the customer.

You should understand what drives costs to be clear on cause-and-effect; (have you spent more because you are busier, or just less efficient?) as well as to gain more accurate expenditure estimates and more useful analysis.

Think about this: If an organisation doubles its sales will, all, some or none of its costs also double? Will bought-in Raw Materials double? Probably they will, but will head office costs double? Almost certainly, they will not. Why are certain costs incurred: is it for one, or for many purposes? How should the cost then be allocated between the goods, services, and departments use the cost?

Let's now have a look at some of the terms use when referring to costs:

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**Cost Centre:** A cost centre can be a location, such as a factory, office, department or an item of equipment e.g. a Scanner or an entity such as a film production unit; or a person such as a rock star, where costs may be collected and related to cost units.

**Cost Unit:** A cost unit is a quantity produced (e.g. a motor car) or a service undertaken (e.g. a dental treatment) or a time spent (e.g. an hour with your solicitor), in relation to which the costs of the operation may be conveniently collected.

Costs should be looked at from two standpoints; fixed or variable and direct or indirect. Let's have a look at these costs:

**Fixed Costs** - Fixed costs are those costs that tend to remain unchanged in total for the short term, even if activity increases. Examples of fixed costs are rent, rates, salaries and some insurance costs.

Let's say that each person in the department is paid a salary of R5000.00 per month. This amount will not change in the next 12 months. The budget has been set for those twelve months – this would then be considered a Fixed Cost.

Another example of a fixed cost would be: The rent that is paid for the building in which the business is housed. This rent will not increase in the short term, say 12 months and is not set according to the amount of activity that takes place within the building.

**Variable Costs** - Variable costs are those costs which change directly in relation to changes in activity and volumes. Examples of variable costs are electricity, water and raw materials.

These costs are easier to understand. If we live in a house or a flat we have to pay for our electricity and water and so does a business. The accounts that we receive every month are never for the same amount. Therefore these are variable costs.

**Direct Costs** - Direct costs are those which can be charged to or allocated to cost centres or cost units specifically concerned with production of goods or services. Examples would be: raw materials, labour, production equipment.

**Indirect Costs (also known as shared costs)** - All the other costs brought about in supporting the production and sale of the product or service. Examples would be: administration costs, distribution, marketing and sales effort.

### Management Costs/Expenses

Various costs can also be found in the Profit and Loss Account and are deducted to determine operating profit. These costs are called Selling, General and Administration Costs or Operating Expenses. They cover any expenses not listed under Cost of Sales. They include: marketing and advertising which are listed under selling expenses. General and administration costs would cover head office and administration costs.

Once you have completed your budget, it will need to be sent to top management. It is important that you are well prepared so that you can put forward the best possible case for your department.

In summary: A direct cost is incurred for the benefit of just one product or service, whereas an indirect cost is incurred for the benefit of many. It is important to know how to allocate costs back to products and services. For example, you will need to decide how much of the head office cost each item will bear. This will affect each product's profitability and can be used by senior management to assess its viability.

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## Applying Zero Based Budgeting

The Zero-based budget is normally used in times of financial crisis or after a company has been taken over or merged with another company. All existing budgets would be suspended and all budget holders would be asked to question and justify any expenditure not directly related to the core activities of the business. The idea is to reduce the expenditure for the master budget so that senior management can establish the minimum requirements to run the business. This system deliberately ignores all history that could contain some false assumptions and starts from fresh.

To prepare a Zero based Budget, you need to follow four steps:

### **1. Describe each activity separately**

If you want accuracy in your budget, then you need information about the activities that will take place and the resources needed to support those activities and finally, and most important, the costs. The information on these activities is important for without it you may find you have omitted a cost for a small but really important item.

So, let's say we have been asked to install a drinking vending machine in the office. We need to draw up a budget – this budget would not be based on historical data.

Our list of activities may look something like this:

- Supply Machine
- Select location
- Provide Electrical power
- Provide potable water
- Provide waste water drainage
- Provide storage facility for consumables
- Provide solid waste facilities (cups etc)

### **2. Conduct a Cost-benefit analysis for these activities – then rank them in order of the results**

You may have a rough estimate of how much this is going to cost you, say in the region of R5000. Remember, this is a rough estimate, so it could be more or it could be less.

We now have to find out from the suppliers of such machines the actual cost of the machine itself.

We then have to analyse how this will benefit the staff that will be using it.

We must analyse how installing such a machine will benefit the company; say in terms of productivity. For example time may be wasted by staff disappearing from their workstations to walk down to the shop to buy cool drinks.

We must then work out how much cups and other accessories are going to cost the company on an on-going basis.

- How is the machine going to affect our water account, if at all?
- What are the possible maintenance costs involved?
- How much is it going to cost for work such as: drainage system, storage facilities and waste disposal facilities?

Once we have calculated the costs of obtaining and installing the machine, plus the amount of time wasted by staff having to leave the office, we will be able to establish the cost vs. benefit to the company.

It may be that the time spent by staff leaving the office costs the company far more than it will for the machine to be installed.

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### 3. Allocate funds appropriately

The funds for the installation of the machine are then allocated to each activity. Remember each activity will have a cost. You may need a plumber and an electrician, as well as a handyman for the installation work. You need to know how much time and money is to be spent on each. You also may have to provide equipment for these people to do their work.

### 4. Monitor and Evaluate

It is important that you monitor each step taken in the installation of the machine. There may be discrepancies between what you budgeted for and the actual performance results.

Although this is a very small project used as an example, it points out the important steps in Zero-based Budgeting.

#### **PREPARING A BUDGET BREAKDOWN**

There are various ways of compiling a Budget Breakdown. One way of completing this exercise is to use a spreadsheet format to list items that are to be included in the Budget. This is known as a Budget Form.

A budget form is the standardised actual layout that is used to collect and display all the information that goes into the budget. While most companies should insist on standard forms, some do allow a degree of flexibility appropriate to the specific individual circumstances. Keep the following five principles in mind to make sure that the forms look good and is easy to read and understand.

Keep the form simple and straightforward, with only the necessary details.

- Avoid amateur and over-enthusiastic artwork.
- All forms should be consistent, with similar layout, typeface and design
- The form should be logically presented, well-organised and be understandable without instructions.
- Wherever possible, use spreadsheets or tables to ensure easy capture of information and ease of subsequent processing.

When filling in the form, ensure you have inserted figures accurately and that they have been added or subtracted correctly. Check that the information is correctly arranged in columns and rows and that decimal points and commas are in the right places. Try to make the form as intelligible as possible. Correct all grammar, spelling, and punctuation and avoid using any jargon, slang, technical or vague language. Keep the words and phrases short.

Once you have completed the form, give it to someone else, such as a Manager to check that they can understand what you have written.

Remember that time spent on a well created form is never wasted. Not only will it portray a well-presented and professional image, it can be understood easily by others and importantly, can be easily referred to during later budget discussions.

A Departmental Budget will only require the expected expenses and revenue of that Department. This budget will then be consolidated into the Master Budget.

Let's now look at an example of a Budget Form – Next page

In this example you will notice that the figures every month for each line remain unchanged until November and December. This assumes that during these two months, bonuses will be paid, for example, to the staff. Training costs will come down due to people going on holiday during this period, but travelling expenses will increase due to extra travel required to customers – to complete their requirements for the year.

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The amounts shown for each commodity or expense is the maximum amount allocated to the Department for expenditure. Careful monitoring of spending within the department should be done to make sure that the department stays within the budget.

Form: TR1/05												
<b>SOSO ENTERPRISES</b>												
Expenses:	Year Dates											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
	R'000											
Salaries	120	120	120	120	120	120	120	120	120	120	150	120
Motor & Travel	75	90	90	90	90	90	90	90	90	90	100	100
Equipment Hire	75	75	75	75	75	75	75	75	75	75	75	75
Telecom	5	5	5	5	5	5	5	5	5	5	5	5
Printing & Postage	2	2	2	2	2	2	2	2	2	2	2	2
Marketing	6	6	6	6	6	6	6	6	6	6	6	6
Storage	15	15	15	15	15	15	15	15	15	15	15	15
Maintenance	10	10	10	10	10	10	10	10	10	10	10	10
Electricity & Water	4	4	4	4	4	4	4	4	4	4	4	4
Insurance	8	8	8	8	8	8	8	8	8	8	8	8
Rentals and Rates	12	12	12	12	12	12	12	12	12	12	12	12
Legal Fees	3	3	3	3	3	3	3	3	3	3	3	3
Sundries	3	3	3	3	3	3	3	3	3	3	3	3
Cleaning Materials	2	2	2	2	2	2	2	2	2	2	2	2
Training	13	13	13	13	13	13	13	13	13	13	5	5
Personal Protective Equipment	6	6	6	6	6	6	6	6	6	6	4	4
Stationery	4	4	4	4	4	4	4	4	4	4	4	4
<b>TOTAL</b>	<b>363</b>	<b>408</b>	<b>378</b>									

### **Substantiating Estimated Amounts**

Actual expenditure is usually greater than that budgeted for. Businesses need, therefore to ensure an accurate forecast is made. They need to focus on the types of expenditure, the amounts and the timing – in other words when the expenditure will take place.

Expenditure must be estimated in terms of both quantities used and prices paid. There is no doubt that a list of possible activities and costs may appear to be endless. Ask every relevant department and colleague about the

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probable quantities needed, prices payable, and total amounts for all the different possible costs. Remember to allow for the impact of inflation on these estimated costs. Although all the estimates will largely be based on past budgets, your imagination will play a significant part.

Type	Examples
<b>On-going Specific Costs</b>	Raw material and component parts, bought in services, goods for resale, labour and wages, after-sales support and service
<b>On-going Shared Costs</b>	Rent, rates, utilities, insurance, repairs, infrastructure, finance charges, postage, stationery, advertising, telephone, transport and professional fees.
<b>Once-off Start-up Costs</b>	Drawings, pre-trading items, set-up costs, specifications, production lines, sales and marketing literature and employment and retraining costs.
<b>Once-off Capital Non-Revenue Costs</b>	Tangible assets such as buildings, plant and equipment, office machinery, fixtures, fittings, motor cars, and intangible assets such as goodwill, brands and intellectual property.

Remember to check the previous year's expenditure to prevent omitting costs from this year's budget. It is also important to remind yourself that not everything in a budget has to be spent.

### **Identify internal and external constraints on a budget**

In order to write a budget you must gather information, estimate figures for expenditure and income and bring everything together in one agreed overall document.

By gathering information on all the possible internal and external influences on your budget, you will be able to determine what can and what cannot be achieved and what limiting factors may constrain your department/organisation's activities.

It is important that you are aware of the changing business laws and requirements.

External influences can have a greater effect on the success of a business than internal influences, so pay them close attention. Many companies fail because they simply do not take the time to understand what is happening and what is about to happen around them. The main external influences that can affect your budget can be grouped into three areas: economic, population and labour matters; governments and statutory bodies; and the business relationship between customers and suppliers.

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Possible external influences on a budget:

Area of Influence	Factors to Consider
<b>Economic, Population and Labour</b>	ECONOMY: Structure, cycle, inflation rates, interest rates, taxation levels, world influence, stock markets.
	POPULATION: Types, number, location, mobility, births, deaths, future trends
	COMMUNITY: Neighbours, pressure groups, environmental issues, local differences, social trends, cultural trends.
	LABOUR: Types, number, availability, response to training, demands, expectations, skills.
<b>Governments and Statutory Bodies</b>	LEGISLATION: Employment law, consumer protection, health and safety, competition laws
	GOVERNMENT: Types, fiscal and monetary policy, industrial and competition policy, incentives and initiatives.
	INTERNATIONAL TRADE AGREEMENTS: Exports, Imports, trade tariffs, tax, trade quotas and exchange rates.
	ORGANISATIONS: Receiver of Revenue, Customs and Excise, creditors, lenders, stakeholders, management, regulatory bodies.
<b>Business relationship between Customers and Suppliers</b>	CUSTOMERS: Types and numbers, demand levels, financial viability, likely growth, wants and needs.
	COMPETITORS: Location, products, activities, strengths and weaknesses, attrition rate, aggression, growth rates.
	SUPPLIERS: Types and numbers, cost and levels of supply, partnership, reliance, financial viability, location.

Assessing the influence that internal factors will have on a budget may seem simple enough but, because the focus is now looking inwards, sometimes obvious matters can be overlooked. There are three main areas of influence: business influences such as products and services; higher level factors such as directors or shareholders; and resource availability. Since the checklists cannot be too long, always consider what other factors may apply, from the volatility of the business, through restructuring or change initiatives, to quality of management. Remember, internal factors may change and should be assessed continuously. Internal discussions can be the best source of information and significant events should be anticipated.

Possible internal influences on a budget:

Area of Influence	Factors to consider
<b>Business Influences</b>	PRODUCTS AND SERVICES: Types, number, production methods, prices, pricing methods, stock levels.
	BUSINESS UNITS: Sales, Production, Purchasing, Marketing, Finance, Administration and Human Resources.
<b>High-Level Factors</b>	PEOPLE: Directors, Shareholders, Unions, Employees.
	BUSINESS OBJECTIVES: Short Term, Medium Term, Long Term.
<b>Resource Availability</b>	AVAILABLE RESOURCES: Capital, Profits, Land, Buildings, Plant and equipment, Machinery.
	DEPARTMENTAL BUDGETS: Sales, Production, Purchasing, Marketing, Finance, Administration and Human Resources.

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There is another influence that has a restricting effect on your department and organisation. This is known as a Limiting Factor. Identify limiting factors early in the budgeting process because they will determine the order in which you prepare individual budgets. If you fail to recognise a limiting factor you may set yourself targets that are just not achievable. There will probably be only one limiting factor; usually it is sales or the capacity to produce, though sometimes the marketplace may be the limit, especially if it is stagnant or not competitive.

Other limiting factors include shortages in raw materials, labour investment and machinery or there may be physical constraints on property and premises.

It is therefore important that you read all the internal business communications available to you so that you are aware of activities.

The budgeting constraints can be summarised as:

**Losing sight of your objectives** - Sometimes the process of budgeting becomes overwhelming resulting in the focus becoming more on the process of budgeting than the objectives of the budget. It is therefore important that you focus every decision toward the achievement of your objectives.

**Failing to keep objectives realistic** - Often people overstate income and or expense projections and then become disappointed when the numbers on the budget do not match actual performance. Therefore, it is crucial that you compare all objectives for the upcoming accounting period with actual performances from previous periods. Also, carefully examine all assumptions made about the organisation and the economic environment for the upcoming accounting period.

**Using an incorrect approach** - Historical-base budgeting is the process of basing your objectives for the upcoming accounting period on the previous period's actual performance. Some persons automatically use the previous accounting period's performance as the budgeted amount for the upcoming period, adding an inflationary increase.

The problem with this budgeting approach is that consideration is often not given to whether the previous accounting period's performance was good or poor. If the financial activities from the previous accounting period were inadequate, using these figures as a guideline for the upcoming accounting period will simply prolong poor performance.

**Accepting arbitrary changes** - Objectives are set for a reason: to guide the financial activities for an upcoming accounting period. Therefore, any deviations from the plan for achieving a budget objective should be investigated and, if found to be inappropriate, stopped.

**Believing that sales have to increase** - It is often believed that sales have to increase with each new accounting period. In fact, some individuals think that if sales do not significantly increase each accounting period, the company's efforts have been a failure. However, this is not always true.

**Inflexible budgets** - Another difficulty with budgets is that they are often inflexible. Sometimes situations change beyond the control of those responsible for the budget. For example, an operating budget based on annual sales of R10,000,000 may be completely unrealistic if sales are reforecast to R15,000,000 by the time half the accounting period has passed. Since the cost of operations generally increases when more items are produced to meet increased demand, it would be unreasonable to expect those responsible for the operating budgets to keep to the original budget.

To overcome this potential problem, organisations use variable budgeting. Variable budgets show how each item should vary as the level of activity or output varies.

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## **JUSTIFYING THE BUDGETED AMOUNTS**

Before departmental budgets are brought together you must review your own budget and ensure the following steps were taken:

- Limiting factors were correctly identified
- Relevant background information was gathered
- Both external and internal influences were recognised and considered
- Other material sources of information and advice were taken into account
- Types, amounts, and timing of income, expenditure and significant one-off items were conservatively predicted.

Only when you are satisfied that you have extensively reviewed your budget, tested the figures and made any necessary amendments should you submit it to the budgeting committee.

Once your budget has been confirmed, the budget committee will be ready to finalise the master budget. Be well prepared for dealing with the committee so that you are in a position to put forward the best possible case for your department or team.

The budgeting committee should comprise senior managers from the major business segments, the management accountant and the heads of all departments involved in the budget preparations. The committee is set up to review departmental budgets by studying budget forecasts at meetings, create a master budget, be a general budgeting trouble-shooter and ensure that the whole process is completed effectively and on time.

The budget committee's role is to review the figures and assess their viability. You must be prepared to answer questions. For example: What if the sales rise or fall more than you anticipated? Or How will costs for Human Resources, Purchasing, Production, Marketing, Finance and Administration affect the budget?

You will need to decide which factors could affect your budget, in what ways and whether there are any other circumstances that may be relevant to your department and to the whole organisation.

As your individual department budgets are brought into the negotiation process, they are examined in relation to each other. You may simply not be aware of other plans, conditions and constraints that could affect what your department has budgeted for. Remember that high level executives will be present at any budget meetings, representing the major parts of the organisation as well as the chairperson and accountant. The chairperson advises and liaises with departmental heads and coordinates the final agreements. Accountants are there to help you with your budget preparation rather than to determine the actual content of all the various budgets.

## **MONITOR AND CONTROL ACTUAL EXPENSES AGAINST BUDGET**

After completing this section, the learner will be able to monitor and control actual expenses against budget, by successfully completing the following:

- Actual expenses are monitored according to Standard Operating Procedures
- Variances are identified and corrective measures are proposed and/or taken according to Standard Operating Procedures

To co-ordinate budgets within any organisation, managers should use a standard budgeting format. This will help with teamwork over budget content and enable budgets to be compared and linked throughout the organisation. When an organisation uses a standardised format for their budgeting, past budgets for the department may be used to ensure correct completion.

The preparation of identical reports in the same format from one time to the next helps the reader to identify important facts or information. Standardising the report format also helps the reader to compare the information contained in one report with related information contained in others.

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If you are new to the budgeting task, it is always a good idea to pull copies of previous budgets and accounting reports and compare the budgeted numbers to actual numbers. If no historical information is available, find other sources of information that can help guide the development of figures for your budget.

Check over your draft budget and see whether it makes sense to you. Are you missing any anticipated sources of revenue or expenses? Are the numbers realistic? Do they make sense when you compare them to any historical budgets that you have sourced? Most importantly, will you be able to support your figures when you present your budget to senior management?

### **Monitor actual expenses**

You need to use your Standard Operating Procedures to monitor the actual expenses against the budgeted expenses.

To monitor your organisation's actual performance against the budgeted performance it is necessary that you keep every record and document from every activity every month. The actual performance compared with the budgeted performance will give you both positive and negative variances as we have described. We now need to use the information that we have so that we can project the on-going effects of these variances or how things will change if we take corrective action.

The projected Income Statement is the most useful and the most common method of presenting a projection. This may be a single projection for the business as a whole or it could be split into various areas of responsibility.

Let's take a look at how this is done:

The preparation requires seven steps; four of which would usually be carried out by the Finance Department. You would then be given a form and a blank template to complete for the balance of the document.

1. List all the budget items
2. Now enter the Rand value of the historical performance
3. Enter the historical value as a percentage of the sales volume
4. Enter the new amounts for the new accounting period.
5. Create data for the column for the actual performance. This may be per month or quarter: You will need all your information of your department's financial performance for the period (month/quarter). This will be the results of your activities during that period and is recorded in your financial reports. Record these figures in Rand values and percentages.
6. Create data for the Year to Date column: These figures would be the totals for the activities for the Year. These will be compared with the annual budget.
7. Calculate the variances and enter them into the Variance Column: Now you need to subtract the actual from the budgeted performance. If you have a positive variance it means that the figure is higher than it should be. This is not necessarily good. If you have a negative variance the figure is lower than it should be which is not necessarily bad.

It could be that you are using a manual system. If so, the negative variance should be shown in brackets, for instance: (R3000.00). Should you be using a computerised version, the software would show the variance either in black with a minus sign in front of it or in red with a minus sign in front of it.

It is important to investigate a variance to find the cause and take the necessary corrective action.

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Projected Income Statement: January to December 20XX								
Item	Jan 20XX R	% of sales	Budget Jan 20XX R	% of sales	Actual Jan 20XX R	% of sales	YTD R	Variance R
Sales	500 000	100	400 000	100	500 000	100	500 000	100 000
COS	100 000	33	67 000	33	98 000	33	98 000	32 000
GP	300 000	66	233 000	66	302 000	66	302 000	9 000
Selling Expenses	500 000	10	40 000	10	50 000	10	50 000	10 000
Operating Profit	2400 000	56	183 000	56	242 000	56	242 000	49 000

**Identify variances and propose/take corrective measures**

There will always be discrepancies between your budget and actual performance results. To make constructive adjustments for the future, provide for a framework with which to understand and analyse all such discrepancies.

It is important to understand why there are discrepancies, no matter how small, between your budget and actual performance. What might seem an insignificant discrepancy to you and your department could be crucial to the whole organisation, especially if other departments are also not meeting their budgets. By assessing why discrepancies have occurred, you will be able to ensure that the chances of them happening again are reduced and that future discrepancies are more efficiently anticipated.

Comparing actual performance with budget is the traditional tool used by senior management to measure managerial and business performance. A good business management system asks questions such as “Do I have the correct plans in place?” and “How is each part of the business contributing?” A budget managed properly and taken seriously becomes a more forward-looking document that can assist senior management to identify trends, predict year end results and avoid any unpleasant financial surprises.

DEPARTMENTAL VARIANCE REPORT: MARCH 201X							
Item	Actual R	Budget R	Variance		Last Year	Variance	
			R	%		R	%
Electricity	1200	1300	100	8	1100	-100	-9%
Telephone	500	550	50	9	525	25	5%
Stationery	660	700	40	6	650	-10	-2%
Books	200	180	-20	-11%	110	10	9%
Insurance	240	240	0	0%	220	-20	-9%

Cost Item is described in sufficient detail to help subsequent analysis

Difference between actual results and budget is expressed in currency units.

Difference between actual results and last year's results is expressed as a percentage.

The report has a heading showing the month of the year of the variance report.

You will see from the example that the actual results are compared to the budget and expressed as a variance. The results from the current year are then compared to the previous year and the variance is shown as a percentage.

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It is important to continually monitor the discrepancies and understand how they have arisen. Variances are generally categorised as either budget errors or unexpected variances. Constant monitoring helps to promote a greater overall understanding of cost behaviour, which will help you produce a more accurate budget next time around. However, to do this well you must establish suitable monitoring procedures. Experience shows that to be truly effective, your procedure must be regular, easy to administer and sufficiently detailed.

Let's look at how this is done:

Identify significant variances so that you can make sure that your budget is adhered to as closely as possible. To select which variances to look at further, consider the likelihood of the variance being controllable, the probable cost of investigating the variance and the chance that it might arise again in the future.

Once you have identified the variances there may be a lot that you can do about them. A controllable cost is one that can be influenced by the budget holder. If a cost is controllable then senior management will expect you to exercise your influence and adjust your expenditure where appropriate. Consider the situation where the cost price of a raw material has increased significantly during the budget period. Although you cannot change the price of the raw material, perhaps you could use a cheaper alternative. If skilled labour shortages drive up rates, consider using other grades or even lowering the skills needed for the job to avoid this constraint. Using alternative is not the only type of control you can exercise. You could for example, consider reducing your discretionary costs by choosing not to spend money on advertising, staff parties and bonuses.

### **Providing Feedback**

When presenting feedback on the budget of your department, it is important to follow these guidelines:

- Make certain that you understand the business budgeting process.
- Read through the guidelines that you need to follow and make sure you understand them
- In your report make sure you show how the budget is used in the company in terms of timing and duration of the budget.
- Communication is important: while compiling the report it is essential that you keep in close contact with the financial person within your department or the Finance Department. Remember to ask questions about anything that you do not understand. Ask advice about any assumptions you may be making.
- To report back successfully you need to make sure that you know the real concerns driving the people making the decisions about the budget and address them.
- It is also important that you substantiate budget items in terms of the cost to benefit returns.
- Buy in from the decision makers in the company is vital. Spend as much time as you find necessary to inform these people about your department. This will form the ground work for making any changes at a later stage.
- Know the lines in the budget that you are working on. If you are unsure then make certain you find out. It is important that you what something means and where any particular number comes from.
- Involve your team. Consult with them continuously throughout the budget process. Remember, the more you plan the better you will be able to respond to questions and unplanned variances.
- Whenever possible compare actual to budget amounts. If there is a major or unexpected variance, it is important you find out why. Notify the finance person as soon as possible.

### **Proposing Control Systems**

After the budget has been prepared and approved, budgetary control becomes important. While the preparation process takes place one during the financial year, budgetary control is a continual process.

The budget report is used frequently as a mechanism to coordinate, assess and control various operations. The detail needed in the budget report of the office function for instance will be determined by the report's intended use.

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Because department reports are frequently consolidated to make a larger budget report, less detail will perhaps be needed than if such a consolidation does not take place.

A fundamental purpose of budgeting is the enhancement of the organisation's profitability. In many instances, the organisation's profit is improved because of the use of skilfully written, carefully prepared budget reports.

Budget errors happen as a result of poor preparation of the original budget. Sales will be lower than expected while costs will be out of control. It is vital that you understand where you went wrong so that you do not make the same mistakes again.

Actual budget errors may be due to insufficient research into budgeted amounts, lack of understanding of what drives the business financially or insufficient questioning of the figures. The obvious solution to low income and high costs would be for you to reverse the situation and increase sales and reduce costs.

You need to analyse why things went wrong and ask the following questions:

- What are the commonest variances encountered when monitoring costs, their cause and effects and possible remedies?
- In particular, what are the main variances in sales revenue, likely causes and effects and possible remedy?
- It can help to understand where errors have crept in by categorising revenue and expenditure variances into price, volume and timing.

Once these questions have been answered you are ready to report on the Budget, its variances and the measures that can be taken to control them.

A meaningful way of looking at unexpected variances is by considering the variance as a planning variance or as an operational one. A typical budget contains information that was thought to be correct at the time of the preparation. A post budget is written after the period to which it relates. It is used to produce, with hindsight achievable budget. A planning variance is a variance generated by the original budget that is changed to a post budget. An example of this may be the variance that happens when an original budget does not take into account a significant increase in raw material prices due to a world shortage. The post budget builds in this factor for the original time period. An operation variance is where a post budget is compared with actual performance in the current time period. It shows how the department might be currently performing in line with hindsight which is all that might be reasonably expected.

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## MODULE 4: CONDUCT A FINANCIAL ANALYSIS OF A COMPANY

### MODULE 4: LEARNING OUTCOMES

Apply mathematical analysis to economic and financial information
Use mathematical techniques to collect and organise data.
Appropriate methods are selected for collecting, recording and organising financial and/economic data.
Financial and demographic relevant to the unit are collected.
Financial and demographic relevant to the unit are recorded in a usable format.
Apply mathematical techniques to calculate and represent financial and economic data.
Averages and standard deviations are calculated using the data collected.
The lines of best fit are calculated using the data collected.
Calculations relating to the time value of money are performed for different transactions.
Data collected and calculations are represented in a graphical format.
Apply mathematical analysis to indicate economic relationships.
Economic relationships are indicated through graphical representation techniques.
Graphical representations and numerical summaries are consistent with the data, are clear and appropriate to the situation.
Projections are made on the basis of mathematical analysis.

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**MODULE 4: CONDUCT A FINANCIAL ANALYSIS OF A COMPANY**

UNIT STANDARDS IN THIS MODULE	252036	APPLY MATHEMATICAL ANALYSIS TO ECONOMIC AND FINANCIAL INFORMATION
	Use mathematical techniques to collect and organise data.	SO 1
	Apply mathematical techniques to calculate and represent financial and economic data.	SO 2
	Apply mathematical analysis to indicate economic relationships.	SO 3
	Appropriate methods are selected for collecting, recording and organising financial and/economic data.	SO 1 AC 1
	Financial and demographic relevant to the unit are collected.	SO 1 AC 2
	Financial and demographic relevant to the unit are recorded in a usable format.	SO 1 AC 3
	Averages and standard deviations are calculated using the data collected.	SO 2 AC 1
	The lines of best fit are calculated using the data collected.	SO 2 AC 2
	Calculations relating to the time value of money are performed for different transactions.	SO 2 AC 3
	Data collected and calculations are represented in a graphical format.	SO 2 AC 4
	Economic relationships are indicated through graphical representation techniques.	SO 3 AC 1
	Graphical representations and numerical summaries are consistent with the data, are clear and appropriate to the situation.	SO 3 AC 2
Projections are made on the basis of mathematical analysis.	SO 3 AC 3	

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## USING MATHEMATICAL TECHNIQUES TO COLLECT AND ORGANISE DATA

The Concise Oxford Dictionary defines *statistics* as “**Numerical facts systematically collected**” and *statistic* as “**Statistical fact or item**”.

Statistics entails all aspects of information: collecting, organising, comprehending, communicating, and interpreting.

Definition: Data (singular is *datum*): things known or assumed as the basis for inference (drawing conclusions) or calculation

The word “Statistics” originally referred to collections of facts (not necessarily numerical) about the State. According to modern usage, however, it refers to collections of numerical facts or estimates and is not restricted to the State.

The word “statistics”, when used in the plural, refers to the figures themselves, suitably classified and tabulated together with any secondary statistics derived from them, such as percentages or averages.

“Statistics”, when used in the singular, refers to the study which deals with the collection, analysis and interpretation of figures. This is also called Statistical Method.

Statistical Method can be broadly divided into two categories, namely descriptive and mathematical statistics:

- **Descriptive Statistics.** Compiles and presents data exactly as recorded. Descriptive statistics is the most basic form of statistics and lays the foundation for all statistical knowledge
- **Mathematical Statistics.** Based on the theory of probability, it attempts to draw precise general conclusions from the data

We are going to be focusing on mathematical statistics in the course of this module.

### **Purpose of statistics**

Statistics are all around us. In fact, it would be difficult to go through a full week without using statistics. Imagine watching a football game where no one kept score. The action itself might provide enough excitement to hold your attention for a while, but think of all the drama that would be lost if winning and losing weren't at issue.

Without statistics we couldn't plan our budgets, pay our taxes, enjoy games to their fullest, or evaluate performance...

Anyone who manages anything, whether it's the family budget, a large corporation's finances or a soccer team, the largest of manufacturing or retail companies, or the smallest of spaza shops, needs statistical information and method for both routine and special purposes, such as the day-to-day running of the business or club, or making new investments.

Both the manager in a large company and the sole proprietor of the corner café require sales statistics in order to detect changes in the pattern of sales, so that they can identify a problem when it occurs and rectify it before it becomes an even bigger problem.

Therefore, the purpose of statistics is not simply to prove a point or satisfy curiosity, but to enable correct decisions to be taken; decisions which are usually based either on comparisons or on estimates.

*For example, if we tell our manager that our team has produced 500 tons of a certain product this week, she must have some standard of comparison to tell her if that is satisfactory.*

*She may know that our team normally produces 600 tons a week, or that our team's capacity is actually 650 tons a week, or she may be told that another team, with half as many workers, has produced 350 tons this week.*

Such comparisons provide information on which action can be taken.

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Estimates based on present knowledge are also essential to government and industry alike when formulating plans for the future.

*For example, a local authority planning to build a new school must estimate the numbers of children likely to require admission during the next few years.*

*A manufacturing company deciding whether to build a new plant requires estimates of future demand, as well as knowledge of current trade and production statistics.*

*Such estimates will be based partly on statistics of population, incomes, regional employment, etc. and partly on a mathematical analysis of past records, while projecting into the future.*

The essential function of statistics is control. The team leader does not need statistics to tell him/her what is going on in the workplace- s/he knows the workers, the work going through, when a machine breaks down, etc. However, the manager cannot know it all and depends on the statistics which are supplied to him/her to exercise control and make decisions.

### **Limitations of statistics**

Remember, statistics deal only with the measurable aspects of things and can, therefore, seldom give the complete solution to a problem. They provide a basis for judgment, but not the whole judgment.

More often than not, statistics are used (consciously or subconsciously) to justify decisions that have been reached on other grounds.

Forecasts can sometimes be proved incorrect or invalid by political events, economic crises, new inventions and other unforeseen circumstances.

It is therefore important that the limitations of statistics are understood by both those who compile them and those who use them.

### **SELECT METHODS FOR WORKING WITH FINANCIAL AND ECONOMIC DATA**

**Financial data** are defined as follows: “a full fiscal year’s data on a company’s performance in terms of profits, revenues, operating income, etc. when accompanied by discussion of significant events that have affected performance”.

Financial data include, but are not limited to, the documentation of the charges for services, costs of providing services, revenues generated from services and revenues from other sources.

The primary goal of financial data analysis is to maximise the wealth of the shareholders and the overall profitability of the company. Financial managers maximise the wealth of the shareholders by applying such concepts as credit and inventory management.

**Economic data** are usually numerical time-series, i.e., sets of data (covering periods of time) for part or all of a single economy or the international economy. When they are time-series the data sets are usually monthly but can be quarterly and annual. The data may be adjusted in various ways (for ease of further analysis), most commonly adjusted or unadjusted for seasonal fluctuations.

Economic data may also describe functions or inter-relationships between variables [where the inter-relationships may be theoretical (e.g. a production function) rather than factual], and they may describe a static as opposed to a dynamic relationship (e.g., an input-output matrix as opposed to a series showing changes of automobile output over time).

Thousands of data sets are available. At the level of an economy, these are compiled by use of national accounts. Such data include the major components of Gross National Product, Gross National Expenditure, Gross National

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Income, and a whole range of series including output, orders, trade, confidence, prices and financial series (e.g., money and interest rates). At the international level there are many series including international trade, international financial flows, direct investment flows (between countries) and exchange rates.

Within a country the data series are usually produced by one or more statistical organisations, e.g., a government or quasi-government organisation and/or the central bank. International statistics are produced by several international bodies and firms, including the International Monetary Fund and the Bank for International Settlements.

### Demographic Data<sup>1</sup>

Demographic data are the characteristics of a human population as used in government, marketing or opinion research, or the demographic profiles used in such research. Commonly used demographics include sex, race, age, income, disabilities, mobility (in terms of travel time to work or number of vehicles available), educational attainment, home ownership, employment status, and even location. Distributions of values within a demographic variable, and across households, are both of interest, as well as trends over time. Demographics are frequently used in economic and marketing research.

Demographic trends describe the changes in demographics in a population over time. For example, the average age of a population may increase over time. It may decrease as well. Certain restrictions may be set in place changing those numbers, e.g. in China with the one child policy.

### Methods for Collecting Data

There are two types of data:

- Primary data
- Secondary data

When obtaining mathematical information, the investigator must take care to use science and technology effectively and critically, showing responsibility to the environment and health of others.

**Primary data** are data collected directly by the investigator or by the organisation employing the investigator.

Primary data are collected by a variety of methods:

- Observation
- Personal interview
- Check sheets
- Electronic data capture
- Experiments simulated on a computer
- Controlled laboratory or field experiments.

**Secondary data** are collected by someone else and are available in published sources; for example, quarterly profits published in the Finance Week are secondary data.

**Literature study** - This is a source of secondary data from which information may be gleaned. To access this form of secondary data we need to read published books, articles and other literature by experts on our subject.

**Example of secondary data:**

### **Economic and financial indicators**

From *The Economist* print edition

<sup>1</sup> Source: [http://www.jenacommunications.com/marketing\\_market\\_research\\_demographics.asp](http://www.jenacommunications.com/marketing_market_research_demographics.asp)

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Inflation in **America** fell by a fifth of a percentage point to 2% in May. On a seasonally adjusted basis, prices fell by 0.2% from a month earlier. On June 23rd the Federal Reserve voted to keep interest rates unchanged, remarking that underlying inflation had trended lower in recent months.

The number of new houses sold in **America** during the month of May fell by nearly a third from a month earlier, to an annual pace of 300,000, 18.3% lower than the corresponding rate a year earlier.

**America's** current-account deficit for the 12 months to the end of the first quarter widened to \$391.9 billion from \$378.4 billion for the year to the previous quarter.

Inflation in **Canada** eased to 1.4% in May from 1.8% in April. Excluding energy prices, inflation slowed by a tenth of a percentage point to 1.0% last month.

The **euro area's** current-account deficit shrank to \$48.9 billion in the 12 months to the end of April from \$52.6 billion in the year to the previous month.

Industrial output in **Taiwan** surged by 30.7% in the year to the end of May.

Inflation in **Malaysia** edged up by a tenth of a percentage point to 1.6% in May. Prices rose by 0.3% from the month earlier, the first month-on-month increase since January.

**Hong Kong's** inflation rate rose by 0.1 percentage points to 2.5% in May.

From: <http://www.economist.com/markets/indicators/>

### Check sheets

A check sheet / checklist is structured and the questions are closed.

**Advantages** of checklists are that:

- They are easy and convenient to answer;
- The responses are easy to measure;
- The data can be processed in a uniform way.

The respondents can only choose which answer best describes them and because the respondent is offered little choice the researcher only needs to count up how many respondents agreed with a specific response.

**Disadvantages** of checklists are that:

- The respondent may be irritated by not being able to find his or her preferred answer among the given alternatives.
- The checklist may produce results that lack accuracy because the questions are answered at a very superficial level. The respondents may want to qualify or explain their responses but not have the opportunity to do so.

This problem may especially be faced by a respondent presented with a situation (or, incident) who is then asked to check which attitude he most identifies with, with regard to the incident. The checklist is not always the most practical method of gauging the opinions and beliefs of the respondent.

An example of a checklist:

Which mode of transport do you take to work? [Check which]		
1	Car	
2	Bus	
3	Train	
4	Taxi	

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If a researcher has made provision for all possible alternative answers to each question, and if the respondent need merely tick the answer that applies, the questionnaire is called a checklist.

### Observation

To find out how much of a thing exists, or to find out what the result is of combining one ingredient with another, the best thing to do is to look. Often, looking at the condition of the subject or at the results of an experiment can yield a satisfactory answer. This is called observation.

Observation is the most obvious form of primary data collection. If you want to know the product yield in a chemical reaction, observe the reaction and measure the results. This is a very effective method of data collection.

### **Example**

How many cars enter the Canal Walk parking garage at entrance 5 on an average weekday morning between 5am and 7 am?

	Monday	Tuesday	Wednesday	Thursday	Friday
5:00 - 5:59			/		
6:00 - 6:59	/	/		/	/

This table is an example of a tally sheet. A tally sheet is useful if we want to know how much of a certain thing exists or is present.

### Questionnaires

Market researchers and others use questionnaires to aid them in their research. A questionnaire is a sheet containing questions. A respondent needs to answer the questions.

First, the mode of data collection must be decided upon (*e.g., mail, telephone, or in person*). Once this has been determined a questionnaire can then be developed and pre-tested.

Planning the questionnaire is one of the most critical stages in the survey development process. Social and behavioural scientists have given a great deal of thought to the design issues involved.

Questionnaire construction has elements that often appear to be just plain common sense, but, when they are implemented, may involve some subtlety. It is common sense to require that the concepts be clearly defined and questions unambiguously phrased; otherwise, the resulting data are apt to be seriously misleading.

Consider how we might apply this strategy in a survey to estimate the incidence of robbery victimisation. One might start out by simply asking, "Were you robbed during the last six months?" Although apparently straightforward and clear-cut, the question does present an ambiguous stimulus. Many respondents are unaware of the legal distinction between *robbery* (involving personal confrontation of the victim by the offender) and *burglary* (involving breaking and entering but no confrontation).

Therefore, in such a survey, the questions on robbery victimisation would not mention "robbery." Instead, there are several questions used; when taken together, they seek to capture the desired responses by using more universally understood phrases.

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### Example from the national crime victim survey questionnaire:

I'm going to read some examples that will give you an idea of the kinds of crimes this study covers.

As I go through them, tell me if any of these happened to you in the last 6 months, that is since \_\_\_\_\_, 201\_.

Was something belonging to YOU stolen, such as-

- a. Things that you carry, like luggage, a wallet, purse, briefcase, book-
- b. Clothing, jewellery, or calculator-
- c. Bicycle or sports equipment-
- d. Things in your home-like a TV, stereo, or tools-
- e. Things from a vehicle, such as a package, groceries, camera, cassette tapes- OR
- f. Did anyone ATTEMPT to steal anything belonging to you?

Briefly describe incident(s)

Designing a suitable questionnaire entails more than well-defined concepts and distinct phraseology. Attention must also be given to its length. Long questionnaires are apt to induce **respondent fatigue and errors arising from inattention, refusals, and incomplete answers**. They may also contribute to higher non-response rates in subsequent surveys involving the same respondents.

There are other factors to take into account when planning a questionnaire. These include such diverse considerations as: the order in which the questions are asked. their appearance, even such things as the questionnaire's physical size and format.

Respondents are more likely to cooperate if the **questions are simple, clear, easy to answer, and personally relevant** to them. It is recommended that questionnaires be written at the **9th-grade (standard 7)** reading level.

When you think you've finished the individual questions, step back and look at the questionnaire as a whole. Remember, the questionnaire is a total package and needs to be considered as such:

- It needs a strong introduction conveying to the respondent what the survey is about
- It should indicate why the questions are being asked
- It needs interesting and readily answerable questions at the beginning to gain respondent attention and build rapport
- The conclusion should be gentle and friendly, expressing gratitude for the respondent's time and effort

The questions need to flow well from one to the next, and designers should be aware that earlier questions provide information and context to the respondents that they may use in later answers. Often the answer to one question may influence the answer to a later question. *For instance*, suppose respondents are asked first, "How do you feel about your job?" and later on "How do you feel about life in general?"

Answers to the second question may be tempered by the first question. Because respondents have already reported their feelings about their job, including those feelings in the second answer may be redundant.

On the other hand, if their job is very important to them, then the answer to the first question may be used when constructing the second answer. These so-called "order effects" are difficult to predict and often become apparent only through pre-tests of the questionnaire, in which different orderings of the questions are compared.

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## Interviews

In the interview, the researcher talks to the respondent and obtains information directly. This can be **advantageous** because it is flexible and in-depth. When a respondent speaks, the interviewer is able to redirect the questioning to deal with the unexpected. The researcher can ascertain why the respondent answers a certain way. People will more readily answer questions in an interview than they will in a questionnaire.

Interviewing is sometimes difficult because it costs a great deal in time and money. It can reach out to far fewer respondents than the questionnaire. It takes a great deal of experience and expertise on the part of the interviewer to prepare an interview schedule (the list of questions to be asked) and to ask questions in a way that allows valid conclusions to be drawn from the responses.

## Surveys

These are very simple questionnaires which require very little from the respondent. An example in the arena of workplace training may require the respondent to tick the appropriate box in answering the following questions:

### Example

1. In which department do you work?		
2. Are you currently studying?	[yes]	[no]
3. If not, how recently have you completed a study program?	[within the past 12 months]	[more than 12 months ago]
4. What is the highest qualification you have?		

### Shortcuts to avoid when conducting a survey

Conducting a credible survey entails scores of activities, each of which must be carefully planned and controlled. Taking shortcuts can invalidate the results and badly mislead the users of the information gathered.

Here are three shortcuts to avoid:

- Not pre-testing procedures
- Not sufficiently following up on non-respondents
- Sloppy work and inadequate quality controls

A pre-test of the questionnaire and procedures is the only way of finding out if everything "*works*"- especially if a survey employs new techniques or a new set of questions. Because it is rarely possible to foresee all the potential misunderstandings or biasing effects of different questions and procedures, it is vital for a well-designed survey operation to include provision for a pre-test. There should usually be a series of small-scale pilot studies to test the feasibility of the individual techniques (if new) or to perfect the questionnaire concepts and wording.

This should be followed by a full-scale "*dress rehearsal*" to find out if everything connects together as intended.

Failure to follow up non-respondents can ruin an otherwise well-designed survey. It is not uncommon for the initial response rate in many surveys to be under 50 percent.

Sloppy execution of a survey can seriously damage results. Without proper checking, errors may go undetected. With good procedures, on the other hand, they might even have been prevented.

Difficulties may arise at any point during these basic steps of the survey process:

**Organisation** - The survey taker determines who is to be sampled and what is to be learned about the sample

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**Questionnaire design** - Based on the goal of the survey, questions for survey respondents are prepared and arranged in a logical order to create the survey questionnaire

**Sampling** - A repeatable plan is developed to randomly choose a sample capable of meeting the survey's goals. Then a sample is selected

**Data collection** - A plan for contacting the sample and collecting information from participants is developed and carried out

**Data processing** - Collected data are entered into the computer and checked for accuracy

**Analysis** - The results of the survey are compiled and disseminated

A final problem that can be encountered during surveys is “Interviewer bias” , which can easily arise in highly-charged emotive or political inquiries, for example, when the interviewer misunderstands a reply, marks a wrong code on the answer sheet, or even interprets an answer incorrectly as a result of his/her own view on the topic.

Replies can also be biased through forgetfulness on the part of the people interviewed, by the desire to make a good impression on the interviewer, or by the fear that a truthful answer may result in something to their disadvantage. In such cases, it may be better to leave a form or questionnaire to be filled in and collected later.

### Collecting demographic data<sup>2</sup>

Collection of demographic data can be broadly categorised into two methods:

- Direct
- Indirect

Direct demographic data collection is the process of collecting data straight from statistics registries which are responsible for tracking all birth and death records and also records pertaining to marital status and migration.

Perhaps the most common and popular methods of direct collection of demographic data is the census. The census is commonly performed by a government agency and the methodology used is the individual or household enumeration.

The interval between two census surveys may vary depending on the government conducting. In some countries, a census survey is conducted once a year or once every two years and still others take a census once every 10 years. Once all the data collected are in place, information can be derived from individuals and households.

The indirect method of demographic data collection may involve only certain people or informants in trying to get data for the entire population. For instance, one of the indirect demographic data methods is the sister method. In this method, a researcher only asks all the women about the number of their sisters who have died or have had children who have died and at what age they died.

From the collected data, the researchers will draw their analysis and conclusions based on indirect estimates on birth and death rates and then apply some mathematical formula so they can estimate trends representing the whole population. Other indirect methods of demographic data collection may be to collect existing data from various organisations that have done a research survey and collate these data sources in order to determine trends and patterns.

<sup>2</sup> Adapted from: <http://www.slideshare.net/Jijoallsaints/demography-13868340>

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### Methods for recording data

Once the researcher has collected all the relevant figures, s/he has to sort them into a reasonably compact statement.

Both the final report, as well as the intermediate stages will consist largely of statistical tables, as they are a convenient way of summarising the data in an orderly manner and of presenting the results concisely and intelligibly. To record data, you could use:

**Worksheets** are generally kept as a permanent record of the calculations performed on the data, both as a guide for future investigations and for reference in case figures are queried or further detail is required

The great advantage of **charts** is that the important features stand out immediately, for example comparisons and trends, which would normally only be revealed by careful checking of figures.

It is important to remember that charts must not depict too many items and the colours must also be clearly distinguishable, as confusion could arise.

Most of the charts occurring in statistics are graphs or similar to graphs in that they represent relations between two variables, for example we have time-series charts, which show how one variable, such as output, sales, population or prices, varies with time.

The most common types of charts are:

- Pie charts
- Line graphs
- Bar charts
- Stack bar charts
- Histograms

We will discuss them in more detail in Module 6.

### Methods for organising data

Data that have been collected are not very useful in their raw form. They have to be processed or worked with so that we may draw helpful conclusions from them. This means the data must be organised or arranged in a way that makes sense, e.g.:

A very simple way of organising data is to **arrange them in ascending order**; that is, write all the numbers down arranged in order from smallest to largest

Another important aspect of organising data is to **work out or calculate various features of the sets of data** you have obtained.

This means working out the **averages** of the data (we use the mean, median and mode). These averages are called “measures of central tendency”, and they give us an indication of how close the data points are to one another.

Another important feature of data is something called “measures of dispersion”. This tells us how the data points are spread, how far apart they are from each other, or how scattered they are. Here we calculate the **range**, the **standard deviation** and the **variance**.

### Methods for analysing data

Data collected should be organised before it can be compared. This makes it easy to use and make meaningful analysis.

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When analysing data (whether from questionnaires, interviews, focus groups, etc.), always start by reviewing your research goals, i.e. the reason you undertook the research in the first place. This will help you organise your data and focus your analysis.

**Example:**

If you wanted to improve a program by identifying its strengths and weaknesses, you can organise data into program strengths, weaknesses and suggestions to improve the program. If you wanted to fully understand how your program works, you could organise data in the chronological order in which customers or clients go through your program. If you are conducting a performance improvement study, you can categorise data according to each measure associated with each overall performance result, e.g., employee learning, productivity and results.

**Graphical analysis**

Graphical analysis means displaying the data in a variety of visual formats that make it easy to see patterns and identify differences among the results set. There are many different graphing options available to display data, the most common are Bar, Pie, and Line charts.

**Frequency distributions**

A frequency distribution is a table, which summarises data into intervals or classes each with corresponding frequencies. Frequency means the number of times an item occurs.

**Example:**

The following are the masses of 20 soccer players:

75kg, 81kg, 70kg, 63kg, 75kg, 67kg, 65kg, 75kg, 70kg, 82kg, 70kg, 75kg, 65kg, 59kg, 72kg, 59kg, 72kg, 82kg, 64kg, 68kg.

In order to get a clear picture of the data, we should reorganise this data in a manner that it will be easy to read, use and analyse.

The following are considerations in constructing frequency distributions:

- Determine the data range i.e. the difference between the largest and smallest data values. For instance, the range of the above data is 82kg – 59kg = 23kg
- Decide on the width and number of intervals or classes. If you decide on the intervals 50kg - 59kg, 60kg – 69kg, 70kg – 79kg, 80kg – 89kg, then the number of classes will be 4 and the class width will be 10kg.
- However, if you decide on the intervals 55kg – 59kg, 60kg – 64kg, 65kg – 69kg, 70kg – 74kg, 75kg – 79kg and 80kg – 84kg, then the number of classes will be 6, with class width being 5kg. The numbers 50kg – 59kg, 60kg – 69kg etc. are called class limits.
- Determine the class boundaries. Some books do not differentiate between class boundaries and class limits. Class boundaries are the averages of limits of consecutive classes or intervals. For instance, the intervals 60kg – 64kg and 65kg – 69kg are consecutive. The class boundaries of the two will be

$$\frac{64kg + 65kg}{2} = 64.5kg$$

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The class marks will be the midpoints of the resulting class boundaries. Doing this for the 6 classes will give the following table:

Class limits	Class boundaries	Class marks
55kg – 59kg	54.5 – 59.5	$\frac{59.5 + 54.5}{2}$ 57 i.e.
60kg – 64kg	59.5 – 64.5	62
65kg – 69kg	64.5 – 69.5	67
70kg – 74kg	69.5 – 74.5	72
75kg – 79kg	74.5 – 79.5	77
80kg – 84kg	79.5 – 84.5	82

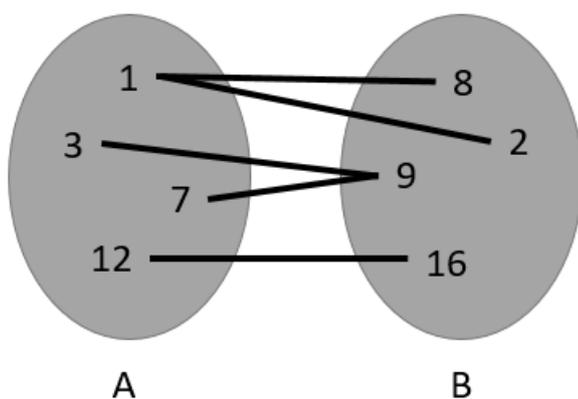
Frequency tables are another form of basic analysis. These tables show the possible responses, the total number of respondents for each part, and the percentages of respondents who selected each answer. Frequency tables are useful when a large number of response options are available, or the differences between the percentages of each option are small. In most cases, pie or bar charts are easier to work with than frequency tables.

Response	Count	Percent
Market Analysis	76	13.7%
Quantitative Analysis	150	27.0%
Strategic Planning	56	10.1%
Product Planning	33	5.9%
Promotional Communication	243	43.8%
Creating sales tools	152	27.4%
Providing channel support	157	28.3%

### Cross tabulation

Cross tabulations, or cross tabs, are a good way to compare two subgroups of information. Cross tabs allow you to compare data from two questions to determine if there is a relation between them.

Relation is a set of ordered pairs, e.g.



Like frequency tables, cross tabs appear as a table of data showing answers to one question as a series of rows and answers to another question as a series of columns.

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Base Question	Female	Male
Product Manager	57.2%	53.4%
Director	12.6%	14.2%
Product Marketing Manager	24.7%	23.1%
Program Manager	2.8%	1.5%
Technical Product Manager	2.8%	7.7%
Total Counts	215	337

Cross tabs are used most frequently to look at answers to a question among various demographic groups. The intersections of the various columns and rows, commonly called cells, are the percentages of people who answered each of the responses. In the example above, females and males had relatively similar distribution among various job titles, with the exception of the tile of "Technical Product Manager", where 2.5 times as many males had the title as compared to females. For analysis purposes, cross tabs are a great way to do comparisons.

### **Trend analysis**

Depending on what type of information you are trying to know about your audience, you will have to decide what analysis makes sense. It can be as simple as reviewing the graphs, or conducting in-depth comparisons between questions sets to identify trends or relationships. For most surveyors, a basic analysis using charts, cross tabulations, and filters is sufficient.

Often, trends and patterns are more obvious and recommendations more effective when presented visually. Ideally, when making comparisons between one or more groups of respondents, it is best to show a chart of each group's responses side-by-side. This side-by-side comparison allows your audience to quickly see the differences you are highlighting and will lead to more support for your conclusions.

### **COLLECT FINANCIAL AND DEMOGRAPHIC DATA**

#### **Financial data relevant to the unit**

Whether you are selling vuvuzelas in Nigel or cuddly toys in Somerset West, as a manager, having the skills and means to manage the day-to-day numbers and financial data is vital.

By efficiently tracking your financial data you will be able to save money and avoid legal and financial problems.

#### ***What data is important?***

Any data that will prevent your business unit from operating at a loss or acting inappropriately needs to be collected and analysed.

Running a business unit is like running a small business- it is all about making informed decisions quickly, based on real and up-to-date data.

If your sales data are wrong, then you will not be able to project your cash flow very accurately. The old adage of 'rubbish in, rubbish out' is just as applicable today as it has ever been.

A business normally tracks:

- Profitability
- Value of sales made
- Value of outstanding debts
- How much the business has spent
- How much the business owes to its suppliers

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- How much the business is borrowing
- How much is in the bank (and in each account if you use current and high interest accounts)
- Major cash commitments; for example, you might need to service or renew equipment which will result in a large, unavoidable invoice some time in the future

### **Financial data and your business unit**

You are in the best position to decide which key numbers you need to track to understand how your business unit is performing – financial data for your business unit<sup>3</sup>:

- Typically, a ‘people’ business (one that earns money from charging for people’s time) will want to monitor the value of work in progress (often abbreviated as WIP) in addition to the basics. WIP is the value of work done that you haven’t invoiced yet. Often the first thing you know about a problem with a customer or client is when there’s a problem getting an invoice paid. If you are building a large amount of WIP you might be in difficulty without knowing it. Good cash flow management means keeping WIP to a minimum.
- Typically, a sales and distribution business (one that buys products and sells them on - possibly in a repackaged form - for a profit) will want to monitor the following in addition to the basics:

**Stock value.** The value of stock held by the business that hasn’t been sold yet. High stock levels might be necessary in order to respond quickly to customer needs (especially if you stock a wide range of products that need to be provided to customers quickly or they will go somewhere else). However, high stock levels can also represent a major investment in cash with an impact on cash flow and profitability (if you cannot sell it for a decent profit). Monitoring stock levels for different products can also reveal overstocking of that product that might lead you to conduct a promotion while there is still a market for it.

**Ratio of price to cost.** The amount you charge for a product divided by the cost of its components. This is a rough and ready indicator of profitability. This figure might also show up an error in pricing.

**Value of returns.** A high level might indicate a flaw in the products or that you are mis-selling in some way.

**Credit limits.** If you deal with a large number of customers it can be difficult to keep track of how much each one owes you. Most companies therefore assign credit limits for each customer and investigate any new sale that breaches the credit limit to decide whether or not to accept the order

- Typically, a manufacturing business will track the same numbers as a sales and distribution business with the added complication of tracking:
  - ✓ Manufacturing costs
  - ✓ Sub-contract costs
  - ✓ Manufacturing consumable costs

### **Demographic data relevant to the unit**

As the business unit manager, the types of data you would be interested in would primarily relate to the following groups of people:

- Customers
- Employees

<sup>3</sup> Adapted from: <http://www.microsoft.com/uk/smallbusiness/technology-in-business/managing-finance/tracking-financial-data.aspx>

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**Customers** - Any business exists to serve its customers and therefore needs to know who its target market is. For the purposes of this example<sup>4</sup>, three different businesses will be used to demonstrate what demographic customer information looks like. First the business type will be named, and then the sample demographic information:

- An upscale bakery in a trendy neighbourhood: Married, 30- to 50-year olds, R50 000 to R100 000 income that either work in the area or own homes in the area.
- Cell phone dating service: Single, 18- to 25-year-olds, R36 000 to R140 000 a year that rent or share rent with roommates.
- In-home medical care service: Single women, 65- to 86-year olds, higher-than-normal health needs but still living independently in their own home.

**Employees** - Demographic data you may be required to collect could relate to affirmative action and employment equity requirements; for example, race, gender and disability statistics.

You could also be looking at the data regarding age when planning your unit’s staffing needs, especially if many of your experienced, key personnel are nearing retirement age.

In addition, you could be assessing training needs and gather data related to schooling and qualifications.

### **RECORD FINANCIAL AND DEMOGRAPHIC DATA**

#### **Record financial data relevant to the unit**

Spreadsheets are probably one of the most important tools available to you to help manage your business unit’s finances. When drawing up a spreadsheet, remember that the simpler the spreadsheet the fewer chances there will be for errors to creep in and the easier it will be to maintain.

#### **Example<sup>5</sup>:**

To track sales and billing you could create a spreadsheet with the following column names:

- Column 1 = Reference. This refers to your invoice number
- Column 2 = Paid? This can have a simple red/green colour code to indicate if an invoice has been paid. When an invoice is paid you simply turn the cell green and enter the date of payment
- Column 3 = Date. This is the date the invoice was raised
- Column 4 = Customer name
- Column 5 = Item sold. A brief description of the product or service supplied
- Column 6 = Goods. This is the total value of the goods including VAT
- Column 7 = Goods VAT. This is the VAT you are charging (if applicable). To calculate the VAT amount from a gross value divide by 114 and then multiply by 14
- Column 8 = Goods ex-VAT

To track expenses or purchases you could create a spreadsheet with the following columns:

- Column 1 = Date. The date of the purchase
- Column 2 = Supplier details
- Column 3 = Notes. These explains in more detail, where needed, about the purchase
- Column 4 = Cheque number if paying by cheque
- Column 5 onwards = Listing of typical expenditure items such as heating, lighting, general expenses, travel, marketing

<sup>4</sup> Adapted from: [http://entrepreneurs.suite101.com/article.cfm/what\\_are\\_demographics\\_and\\_psychographics](http://entrepreneurs.suite101.com/article.cfm/what_are_demographics_and_psychographics)

<sup>5</sup> Adapted from: <http://www.microsoft.com/uk/smallbusiness/technology-in-business/managing-finance/tracking-financial-data.msp>

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To track cash flow the spreadsheet will probably have the following columns:

- Column 1 = a list of the following: income, cash sales, capital or loans, other income. These would then be totalled going across the page in monthly columns. It will then list the expenditure such as materials, wages, insurances, postage, rent and rates. These would then be totalled in a similar monthly way to the income finance data
- Column 2 onwards = Monthly forecast and actual cash status. Each month will have a forecast and actual cash amount with the end of month actual being carried across to the next month. This way you can track the status of your cash flow month by month

Profit and loss accounts can be created from these two spreadsheets that will give you a month by month picture of the performance of your business unit and, hopefully, a final monthly profit number for you to sit back and enjoy.

### **Record demographic data relevant to the unit**

Demographic data relating to your unit can usually be obtained from the Human Resources department.

The data is usually recorded in a codified format similar to the following:

Facility where qualifications were achieved:

01 = State / local institutions for persons with disabilities

02 = Primary school

03 = Secondary school

04 = College / technical college

05 = University

Career aspirations:

01 = Obtain full or part time paid employment

02 = Upgrade skills to enable retention of current job

04 = Obtain grade 12 or equivalent

05 = Obtain a degree

06 = Enter post-matric education

07 = Improve academic / literacy skills

### **APPLYING MATHEMATICAL TECHNIQUES TO CALCULATE AND REPRESENT DATA**

Before a large number of observations can be analysed, they must be sorted into a convenient number of groups, or classes.

The data must be sorted according to the numerical value of some characteristic, called a variable.

Variables are things that we measure, control, or manipulate in research. They differ in many respects, most notably in the role they are given in our research and in the type of measures that can be applied to them.

Thus a number of people might be sorted according to their height, age, weight, or any other characteristic capable of being measured.

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Variables differ in "how well" they can be measured, i.e. in how much measurable information their measurement scale can provide. There is obviously some measurement error involved in every measurement, which determines the "amount of information" that we can obtain. Another factor that determines the amount of information that can be provided by a variable is its "type of measurement scale." Specifically variables are classified as: (a) nominal, (b) ordinal, (c) interval or (d) ratio.

**Nominal variables** allow for only qualitative classification. That is, they can be measured only in terms of whether the individual items belong to some distinctively different **categories**, but we cannot quantify or even rank order those categories. For example, all we can say is that two individuals are different in terms of variable A (e.g. they are of different races), but we cannot say which one "has more" of the quality represented by the variable. Typical examples of nominal variables are gender and race.

**Ordinal variables** allow us to rank order the items we measure in terms of which has less and which has more of the quality represented by the variable, but still they do not allow us to say "how much more." A typical example of an ordinal variable is the socio-economic status of families. For example, we know that upper-middle is higher than middle, but we cannot say that it is, for example, 18% higher.

**Interval variables** allow us not only to rank order the items that are measured, but also to quantify and compare the sizes of differences between them. For example, temperature, as measured in degrees Celsius, constitutes an interval scale. We can say that a temperature of 40 degrees is higher than a temperature of 30 degrees, and that an increase from 20 to 40 degrees is twice as much as an increase from 30 to 40 degrees.

**Ratio variables** are very similar to interval variables; in addition to all the properties of interval variables, they feature an identifiable absolute zero point, thus they allow for statements such as x is two times more than y. Typical examples of ratio scales are measures of time or space. For example, as the Kelvin temperature scale is a ratio scale, not only can we say that a temperature of 200 degrees is higher than one of 100 degrees, but we can also correctly state that it is twice as high. Interval scales do not have the ratio property. Most statistical data analysis procedures do not distinguish between the interval and ratio properties of the measurement scales.

The number of items in any group is called the frequency of that group, and the resulting distribution is called the frequency distribution.

Here is a simple example of a frequency distribution showing 500 families classified according to the number of children in the family.

#### Frequency distribution of 500 families

No of children in family	No of families
0	179
1	205
2	78
3	26
4	7
5	3
6	1
7	0
8	1
Total	500

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## Continuous and discrete variables

A variable that can take only discrete (whole) values, is called discrete or discontinuous- a man cannot have 6.3 children, there cannot be 5.2 houses in the street, or 3.5 rooms in a house.

A continuous variable, on the other hand, can take any value within a range- temperature need not be an exact number of degrees, but may be measured to several decimal places, e.g. 37.5°C and every object whose temperature is rising or falling will, during the process, take every possible temperature between the final and initial values. Similar examples are the speed of a vehicle and the height of a growing plant. In other words, a continuous variable can take an infinite number of values.

Statisticians use summary measures to describe patterns of data. Measures of central tendency refer to the summary measures used to describe the most "typical" value in a set of values. The two most common measures of central tendency are the mean and the median.

### CALCULATE AVERAGES AND STANDARD DEVIATIONS

**Mean** is the average value within an entire or partial series. It is commonly referred to as the **"average"** and calculated by adding up all the totals and dividing by the number of items:  $1+2+3+4+5=15 \div 5 = 3$

#### **For example:**

Let's say you are writing about Best Meat Co. and the salaries of its nine employees.

The CEO makes R700 000 per year

Two managers each make R350 000 per year

Four factory workers each make R105 000 per year

Two apprentices make R63 000 per year.

So you add  $R700\,000 + R350\,000 + R350\,000 + R105\,000 + R105\,000 + R105\,000 + R105\,000 + R63\,000 + R63\,000$  (all the values in the set of data), which gives you R1 946 000. Then divide that total by 9 (the number of values in the set of data).

That gives you the mean (average), which is R216 222.

Not a bad average salary. But be careful when using this number. After all, only three of the nine workers at ABC make that much money. And the other six workers don't even make half the average salary.

So what statistic should you use when you want to give some idea of what the average worker at ABC is earning? This is where the median comes in.

#### **Median**

The median of a sequence of items is the middle item after the entire sequence has been arranged in either ascending or descending order. This is often used to measure the location for a frequency or probability distribution.

#### **For example:**

If 37 items are arrayed in order of magnitude, the median is the value of the middle one, i.e. of the 19<sup>th</sup>. If there are 38 items, there are two that have an equal claim to be central, namely the 19<sup>th</sup> and the 20<sup>th</sup>, so the median is taken as the average of these two.

Therefore, if five men shoot and score 48,55,59,67 and 70, the median score is 59, but if a 6<sup>th</sup> man scores 62, the median is  $\frac{1}{2}(59+62)$ , which is 60,5.

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Whenever you find yourself referring to "the average worker" this, or "the average household" that, you don't want to use the mean to describe those situations. You want a statistic that tells you something about the worker or the household in the middle. That's the median.

Again, this statistic is easy to determine because the median literally is the value in the middle. Just line up the values in your set of data, from largest to smallest, or in descending order the one in the dead-centre is the median.

For the Best Meat Co., here are the workers' salaries again, written in descending order:

- R700 000
- R350 000
- R350 000
- R105 000
- R105 000
- R105 000
- R105 000
- R63 000
- R63 000

That's a total of 9 employees. So the one halfway down the list, the fifth value, is R105 000. That's the median. (If halfway lies between two numbers, divide them by two, e.g. R105 000 and R90 000 would give you a median of R97 500)

Comparing the mean to the median for a set of data can give you an idea how widely the values in your dataset are spread apart. In this case, there's a somewhat substantial gap between the CEO at Best Meat Co. and the workers. (Of course, in the real world, a set of just nine numbers won't be enough to tell you very much about anything. But we're using a small dataset here to help keep these concepts clear.)

Here's another illustration of this: Ten people are riding on a bus in Kraaifontein. The mean income of these passengers is R90 000 a year. The median income of those riders is also R90 000 a year. Joe Soap gets off the bus. Patrice Motsepe gets on. The median income of the passengers remains R90 000 a year. But the mean income is now somewhere in the neighbourhood of R20 million or so. You now could say that the average income of the passengers is R20 million, but those other nine passengers didn't become millionaires just because Patrice Motsepe got on their bus.

As measures of central tendency, the mean and the median each have advantages and disadvantages. The pros and cons of each measure are summarised below:

The median may be a better indicator of the most typical value if a set of scores has an outlier. An **outlier** is an extreme value that differs greatly from other values; for example, Patrice Motsepe's income in the example above.

However, when the sample size is large and does not include outliers, the mean score usually provides a better measure of central tendency.

The **max** (maximum) is the largest value in a series of numbers

**Min** (minimum) is the smallest value in your dataset

**Mode** is the value or values that appear most frequently within your data set

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**Range** is the difference between the Max and Min in a series of numbers. The formula for range is: Range = Max – Min; for example, consider the following numbers: 1, 3, 4, 5, 5, 6, 7, 11. For this set of numbers, the range would be 11 - 1 or 10

### Calculate the standard deviation

The standard deviation is the average of all the averages of several sets of data. Statisticians use the standard deviation to calculate how close the various sets of data are to the mean of all the data sets.

#### Standard Deviation

$$s = \sqrt{\frac{\sum(X-M)^2}{n-1}}$$

Where

$\Sigma$  = Sum of

X = Individual score

M = Mean of all scores

N = Sample size (Number of scores)

First, you need to determine the mean. The mean of a list of numbers is the sum of those numbers divided by the quantity of items in the list (add all the numbers up and divide by how many there are).

Then, subtract the mean from every number to get the list of deviations. Create a list of these numbers. It's OK to get negative numbers here. Next, square the resulting list of numbers (multiply them with themselves).

Add up all of the resulting squares to get their total sum. Divide your result by one less than the number of items in the list.

To get the standard deviation, just take the square root of the resulting number

#### Example:

List of numbers: 1, 3, 4, 6, 9, 19

Mean:  $(1+3+4+6+9+19) / 6 = 42 / 6 = 7$

List of deviations: -6, -4, -3, -1, 2, 12

Squares of deviations: 36, 16, 9, 1, 4, 144

Sum of deviations:  $36+16+9+1+4+144 = 210$

Divided by one less than the number of items in the list:  $210 / 5 = 42$

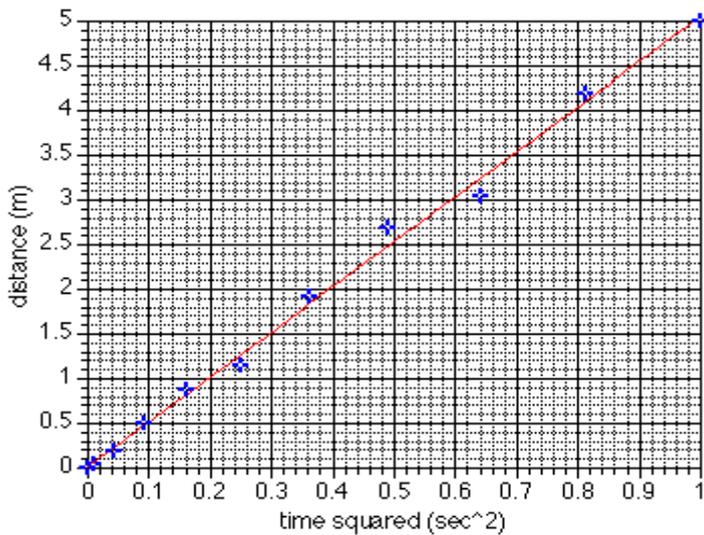
Square root of this number: square root (42) = The standard deviation is about 6.48

### CALCULATE THE LINES OF BEST FIT

At times trends are difficult to determine by just looking at tables. Then it is useful to draw a line of "best fit". A line of best fit (or "trend" line) is a straight line that best represents the data on a scatter plot (see 2.3 for information on

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scatter plots). This line may pass through some of the points, none of the points, or all of the points, but it gives you a good idea of the trend displayed by the data.

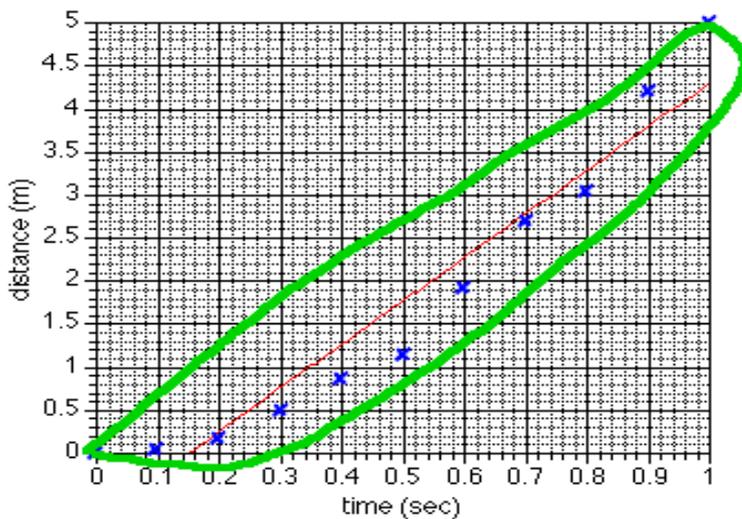


Retrieved from: <http://honolulu.hawaii.edu/distance/sci122/SciLab/L6/bestfit.html#Howto>

### How to draw the "Best Fit Line"

The easiest way to draw the best fit line is to enter the data into the computer and let the software do the work. If you don't have the software or don't know how to use it you can still **estimate** the regression line.

Imagine that the points enclose an area, then cut that area in half. If you use a ruler to draw the line you can move it around until you find a place where approximately half the points are on each side of the line, as in the example below:



Regression Coefficient **R = 0.964**  
 Intercept **B = -0.749**  
 Slope **M = 5.06**

Retrieved from: <http://honolulu.hawaii.edu/distance/sci122/SciLab/L6/bestfit.html#Howto>

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## PERFORM CALCULATIONS RELATING TO THE TIME VALUE OF MONEY

The **time value of money** is a fundamental idea in finance that money that one has now is worth more than money one will receive in the future. Because money can earn interest or be invested, it is worth more to an economic actor if it is available immediately. This concept applies to many contracts; for example, a trade in which payment is delayed will often require compensation for the time value of money. This concept may be thought of as a financial application of the saying, "A bird in the hand is worth two in the bush."

Time value of money is also to as **present discounted value**.

Example:

Everyone knows that money deposited in a savings account will earn interest. Because of this, the sooner it starts earning interest, the better. For example, assuming a 5% interest rate, a R100 investment today will be worth R105 in one year (R100 multiplied by 1.05). Conversely, R100 received one year from now is worth only R95.24 today (R100 divided by 1.05), assuming a 5% interest rate<sup>6</sup>.

Even though there are many useful methods for calculating the time value of money, we will look at the following methods in this section:

- Present value (PV) of an annuity stream
- The Rule of 72

### **How to calculate the present value of an annuity stream<sup>7</sup>**

Say you want to live on R500 000 per year from your investments once you retire. Let's say you are going to retire at age 60 and expect to need the money for 25 years. We will also say that you expect to get a 5% return on your money. Now, how much money do you need at age 60 to be able to meet your goal?

Well, if you were to put all your money under your mattress where it got zero return, you would need R11 250 000 (R500 000 X 25 years = R11 250 000). You would stick R11 250 000 under your mattress and each year take out R500 000 to spend. At the end of 20 years, you would have nothing left.

However, if you are like most people, you probably want to get some sort of return on your money. To do this calculation, we have to use the following formula:

$$(1/i) - [1/(i \times (1 + i)^n)]$$

The "i" stands for expected interest rate, which is 5% (.05). The "n" stands for the number of periods, which is 25 years. The "X" is the multiplication sign. So, using real numbers, the equation would look like this:

$$(1/.05) - [1/ (.05 \times (1 + .05)^{25})]$$

$$20 - [1/ (.05 \times 3.3863549)]$$

$$20 - [1/.1693177]$$

$$20 - 5.9060554$$

$$14.0939446$$

**14.0939446** is our "factor." To get the amount of money we need at age 60 to fund this income stream, you multiply R500 000 by the factor (14.0939446). So, for this example, we need R7 046 972 in the bank at age 60 in order to fund an annual income of R500 000 for 25 years.

<sup>6</sup> <http://financial-dictionary.thefreedictionary.com/Time+Value+of+Money>

<sup>7</sup> Adapted from: <http://allfinancialmatters.com/category/financial-planning/basics/>

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Remember: At the end of 25 years, the money will be gone- so if you plan on living till age 90, you will need to make a plan!

### The rule of 72

In finance, the **rule of 72**<sup>8</sup>, the **rule of 70** and the **rule of 69** are methods for estimating an investment's doubling time. The number in the title is divided by the interest percentage per period to obtain the approximate number of periods (usually years) required for doubling. Although scientific calculators and spreadsheet programs have functions to find the accurate doubling time, the rules are useful for mental calculations and when only a basic calculator is available.

These rules apply to exponential growth and are therefore used for compound interest as opposed to simple interest calculations. They can also be used for decay to obtain a halving time. The choice of number is mostly a matter of preference: 69 is more accurate for continuous compounding, while 72 works well in common interest situations and is more easily divisible.

To estimate the number of periods required to double an original investment, divide the most convenient "rule-quantity" by the expected growth rate, expressed as a percentage.

- For instance, if you were to invest R100 with compounding interest at a rate of 9% per annum, the rule of 72 gives  $72/9 = 8$  years required for the investment to be worth R200; an exact calculation gives 8.0432 years.
- Similarly, to determine the time it takes for the value of money to halve at a given rate, divide the rule quantity by that rate.
- To determine the time for money's buying power to halve, financiers simply divide the rule-quantity by the inflation rate. Thus at 3.5% inflation using the **rule of 70**, it should take approximately  $70/3.5 = 20$  years for the value of a unit of currency to halve.
- To estimate the impact of additional fees on financial policies (e.g., unit trust/ participatory interests fees and expenses), divide 72 by the fee. For example, if the policy charges a 3% fee over and above the cost of the underlying investment fund, then the total account value will be cut to 1/2 in  $72 / 3 = 24$  years, and then to just 1/4 the value in 48 years, compared to holding the exact same investment outside the time.
- The value 72 is a convenient choice of numerator, since it has many small divisors: 1, 2, 3, 4, 6, 8, 9, and 12. It provides a good approximation for annual compounding, and for compounding at typical rates (from 6% to 10%). The approximations are less accurate at higher interest rates.

### REPRESENT DATA COLLECTED AND CALCULATIONS IN A GRAPHICAL FORMAT

It is essential to take the data that you have collected, recorded and organised and represent it in a table, chart, plot or graph that can easily be interpreted.

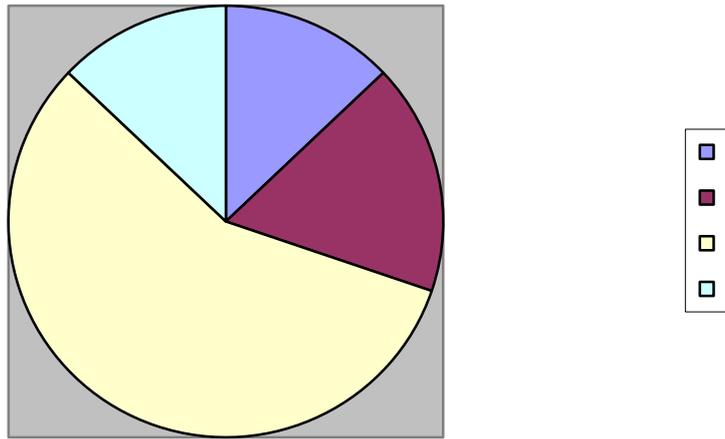
The method used to represent the data depends on the nature of the data gathered. There are several ways of representing data. Let us look at a few of them.

#### Pie charts

This type of chart depicts how an aggregate is divided into its principal components. The various items are proportional to the areas representing them in the circle, or to the angles of the various sectors. They can be converted into percentages by dividing the angles at the centre by 360 and multiplying by 100, i.e. if the angle is 45°, we can divide 45 by 360 X 100, which equals 12.5%. Alternatively, we can determine the angle by multiplying 360° with the percentage and dividing by 100:

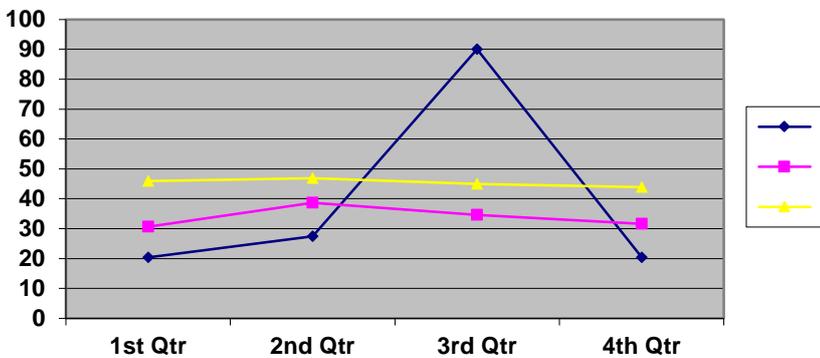
<sup>8</sup> Adapted from: <http://en.wikipedia.org>

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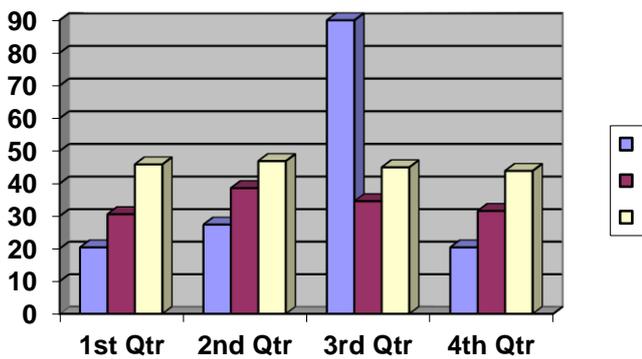
**Line graphs**

The most common type of chart in economic and commercial statistics is that of the time series, showing the progress of one or more quantities at successive times, usually at regular intervals.



**Bar charts**

In the simplest form of bar chart, several items are shown graphically by horizontal or vertical bars of uniform width, with lengths proportional to the values they represent:



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**To represent data using a bar chart:**

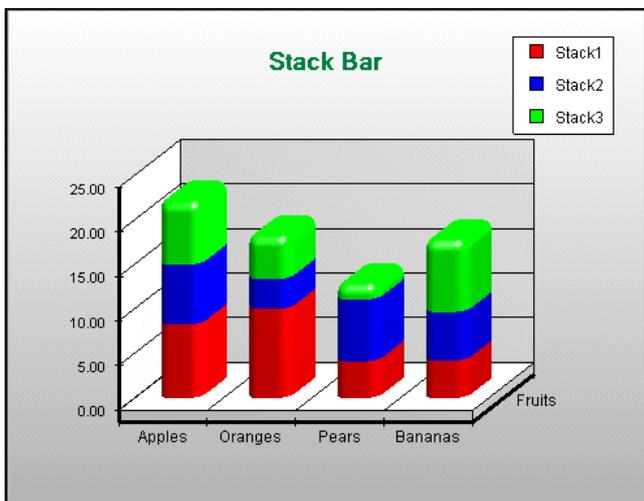
Step 1: Determine which variable is dependent and which is independent. Place the independent variable on the x-axis and the dependent variable on the y-axis. The independent variable is often “time”. The dependent variable may be something like “production output”. Think about it: No-one has any control over the march of time. So time marches on whether we like it or not. The march of time is independent, or happens regardless of, any human activity. (The dependent variable is usually something that humans have accomplished or are trying to accomplish.)

Step 2: Set the range of the data points gathered for the dependent variable along the y-axis.

Step 3: Make sure that the categories for the x-axis and the measurements along the y-axis are evenly spaced. The vertical and horizontal axes must always be labelled properly, as in our example.

**Stack bar charts**

Another way to represent data is through stacking. In this way, a single bar on the chart can show data for more than one category of data. For example, a single bar can represent the amount of sales for CD-ROM drives in one year on top of a bar representing sales for other years. You can stack the bar charts vertically or horizontally.



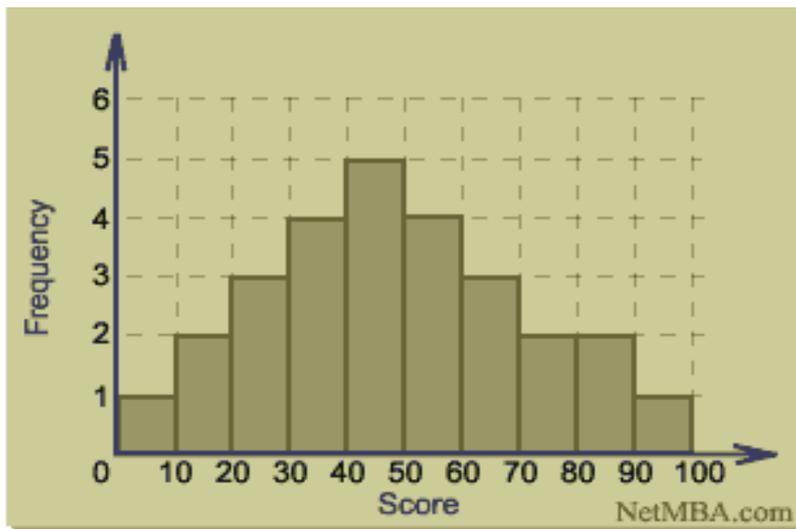
Retrieved from: [http://www2.nevron.com/ChartActiveXHelp/3dchartStack\\_Bar\\_Chart.htm](http://www2.nevron.com/ChartActiveXHelp/3dchartStack_Bar_Chart.htm)

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## Histograms

The difference between a bar chart and a histogram is that a **histogram is used exclusively to represent frequency**.

The graph below is an example of the way a histogram might be used to show the test results of a group of students.



Retrieved from: <http://www.netmba.com/statistics/histogram/>

The number of students who achieved between 40-50% for the exam is 5. Only 1 student achieved between 90 and 100%.

### **To represent data using a histogram:**

- First, make sure that you are trying to represent the frequency of a certain occurrence.
- The independent variable will always be represented along the x-axis. In the case of a histogram this would always be a measure of time or period.
- Along the y-axis would be the frequency, that is, the number of occurrences of a particular event. This is the dependent variable.

**Note:** What is the meaning of the term “independent variable”? What is the meaning of the term “dependent variable”?

No matter what you are trying to investigate, you will find that one thing depends on another. Let’s think: What is the state of your physical fitness? That would depend on how you live. If you are too lazy to exercise, if you eat mostly junk foods, if you smoke, if you drink alcohol to excess, you will in all likelihood be very unfit indeed. In this simple example your lifestyle choices are the independent variable. Your state of physical fitness **depends on** your lifestyle choices, and is therefore the dependent variable.

In mathematics, we often write equations like this:  $y = 2x + 3$ . We say that  $y$  is a function of  $x$ . That is, the value of  $y$  depends on the value we assign to  $x$ . We call  $x$  the independent variable, and  $y$  the dependent variable. The independent variable is always placed on the horizontal axis, and the dependent variable on the vertical axis.

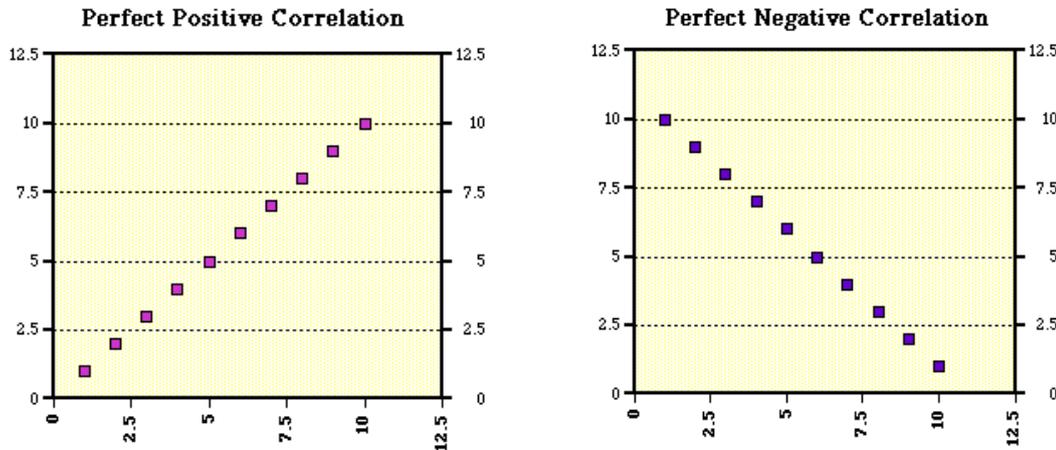
## Scatter diagram/plot

Scatter plots are similar to line graphs in that they use horizontal and vertical axes to plot data points. However, they have a very specific purpose. Scatter plots show how much one variable is affected by another. The relationship between two variables is called their **correlation**.

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Scatter plots usually consist of a large body of data. The closer the data points come when plotted to making a straight line, the higher the correlation between the two variables, or the stronger the relationship.

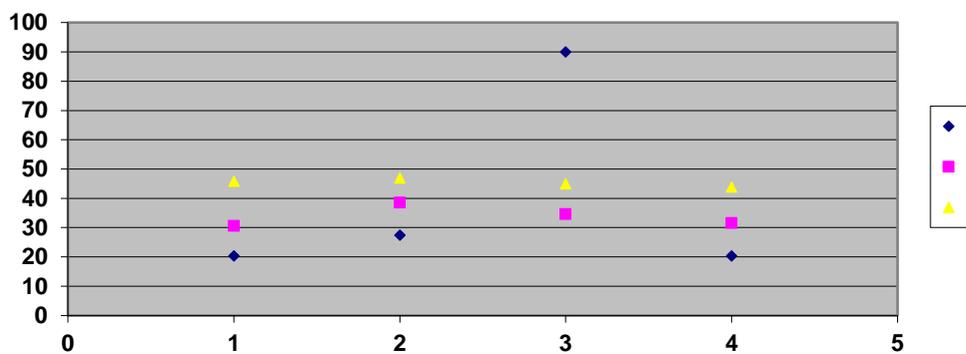
If the data points make a straight line going from the origin out to high x- and y-values, then the variables are said to have a **positive correlation**. If the line goes from a high-value on the y-axis down to a high-value on the x-axis, the variables have a **negative correlation**.



Retrieved from: <http://mste.illinois.edu/courses/ci330ms/youtsey/scatterinfo.html>

An example of a situation where you might find a perfect positive correlation, as we have in the graph on the left, would be when you compare the total amount of money spent on tickets at the movie theatre with the number of people who go. This means that every time that "x" number of people go, "y" amount of money is spent on tickets without variation.

An example of a situation where you might find a perfect negative correlation, as in the graph on the right, would be if you were comparing the speed at which a car is going to the amount of time it takes to reach a destination. As the speed increases, the amount of time decreases.



### Tips for Creating Effective Graphics

The key to creating effective data graphics is the combination of good graphic design and appreciation of statistics that Edward Tufte (in his seminal books *The Visual Display of Quantitative Information* and *Envisioning Information*) defined as graphical integrity.

Apply the following principles to ensure graphical integrity and graphical excellence:

- It is essential to focus on the substance (contents) of the graph - not on the design, methodology or technology.

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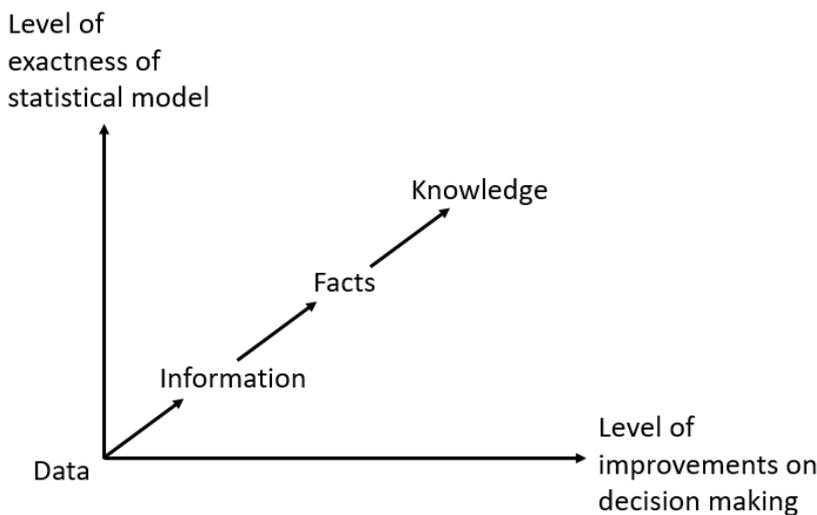
- It is essential to avoid distortion induced by the format of the graph.
- It is desirable to aim for what he termed high data density, whereby the graph is used to present - as no other method can - large amounts of data in a coherent manner.
- It is worthwhile constructing graphs that not only present data in a 'static' form, but that encourage comparisons between variables, location, or time periods.
- It is desirable to allow the viewer to discover levels of detail within the graph.
- It is necessary to make the graph serve a single, clear purpose, such as data description, tabulation, exploration or decoration.
- It is important to integrate the graph with statistical and textual descriptions.
- Above all, it is vital that the graph should show the data, not the technical skills of its creator.

**APPLYING MATHEMATICAL ANALYSIS TO INDICATE ECONOMIC RELATIONSHIPS**

The sequence from data to knowledge is: from Data to Information, from Information to Facts, and finally, from Facts to Knowledge. Data becomes information, when it becomes relevant to your decision making. Information becomes fact, when the data can support it. Facts are what the data reveals. However, the decisive instrumental (i.e., applied) knowledge is expressed together with some statistical degree of confidence.

Fact becomes knowledge, when it is used in the successful completion of a decision process.

The following figure illustrates the statistical thinking process based on data in constructing statistical models for decision making under uncertainties.



The above figure depicts the fact that as the exactness of a statistical model increases, the level of improvements in decision-making increases. That's why we need Business and Economic Statistics. Statistics arose from the need to place knowledge on a systematic evidence base. This required a study of the rules of computational probability, the development of measures of data properties and relationships, and so on.

To reason statistically - which is essential to be an informed citizen, employee, and consumer – we all need to learn about data analysis and related aspects of probability.

The amount of statistical information available to help make decisions in business, politics, research, and everyday life is staggering. Consumer surveys guide the development and marketing of products. Experiments evaluate the safety and efficacy of new medical treatments. Statistics sway public opinion on issues and represent - or misrepresent - the quality and effectiveness of commercial products. Through experiences with the collection and analysis of data, we learn how to interpret such information.

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## INDICATE ECONOMIC RELATIONSHIPS THROUGH GRAPHICAL REPRESENTATION

In economics, graphs and charts are used to simplify complex data.

Economists employ different types of graphs and charts, depending upon the range of data and multiplicity of variables. Some of these are:

- Flowcharts
- Scatter diagrams
- Time-series graphs
- Box plots

### Flowchart

Flowcharts are used most commonly in business, to represent the internal logical organisation of a system. However, they can be used in any situation where we wish to represent connected structures where there may be alternative pathways through the system. We can also indicate quantitative aspects of the flow of information or materials through the structure by annotating the diagram, or varying the line style or thickness to indicate quantity.

In economics, the flowchart helps to explain how different components of economics interact under particular market situations

Most flow charts are made up of three main types of symbols:

Elongated circles, which signify the start or end of a process;



Rectangles, which show instructions or actions; and



Diamonds, which show decisions that must be made



Within each symbol, write down what the symbol represents. This could be the start or finish of the process, the action to be taken, or the decision to be made.

However, remember that there are many different flowchart symbols that can be used. Therefore, remember that an important use of flow charts is in communication: If you use obscure symbols that only part of your audience understands, there's a good chance that your communication will fail. Always keep things simple!

Symbols are connected one to the other by arrows, showing the flow of the process.

To draw the flow chart, brainstorm process tasks, and list them in the order they occur. Ask questions such as "What really happens next in the process?" and "Does a decision need to be made before the next step?" or "What approvals are required before moving on to the next task?"

Start the flow chart by drawing the elongated circle shape, and labelling it "Start".

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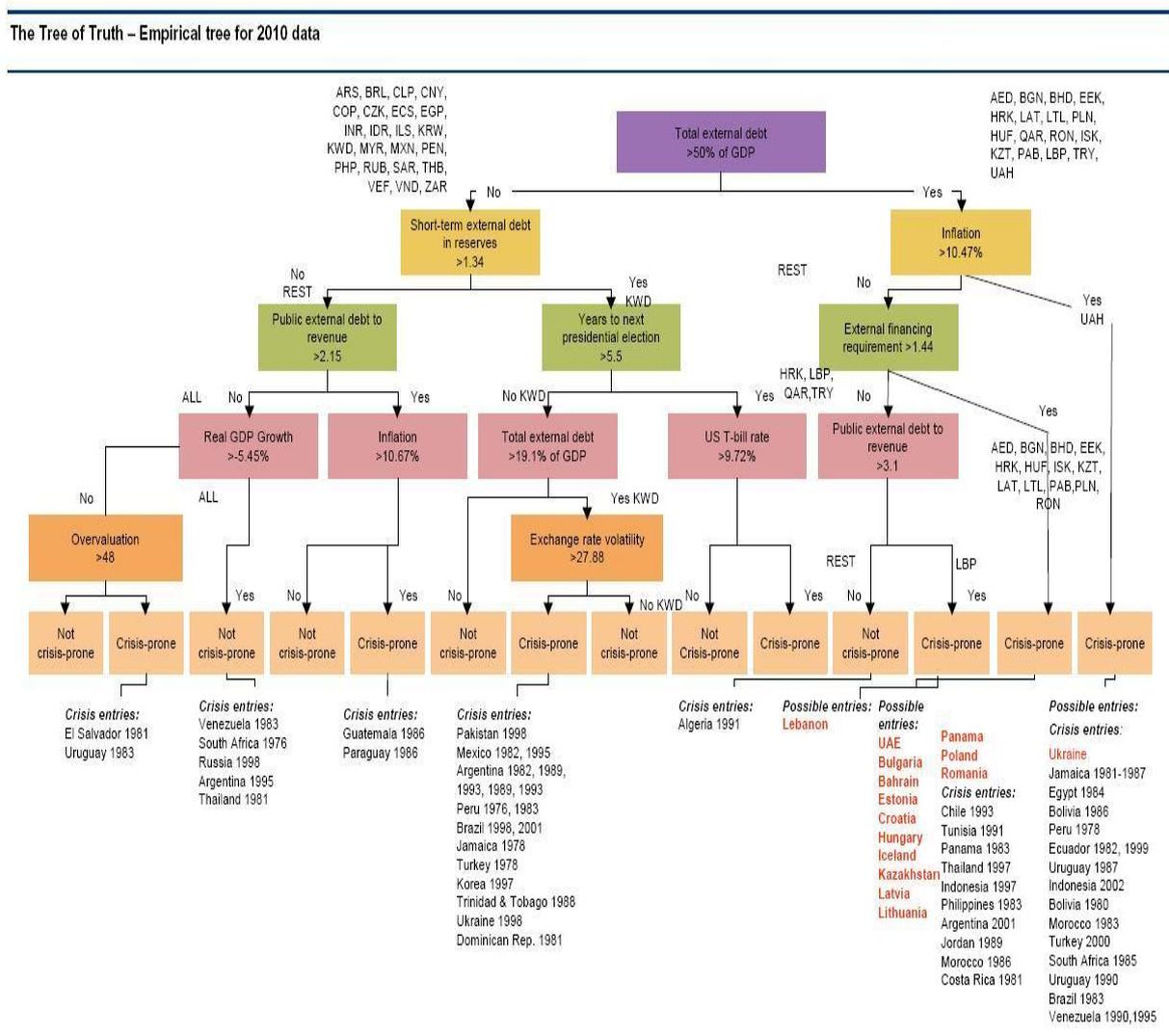
Then move to the first action or question, and draw a rectangle or diamond appropriately. Write the action or question down, and draw an arrow from the start symbol to this shape.

Work through your whole process, showing actions and decisions appropriately in the order they occur, and linking these together using arrows to show the flow of the process. Where a decision needs to be made, draw arrows leaving the decision diamond for each possible outcome, and label them with the outcome. And remember to show the end of the process using an elongated circle labelled "Finish".

### Example: The "Tree of Truth"

According to the Royal Bank of Scotland, the flowchart below is aimed at selecting explanatory variables and critical threshold levels that best discriminate between sovereign debt crisis and non-sovereign debt crisis states.

In basic terms it's a flowchart, showing which countries in Central Eastern Europe, the Middle East and Africa, the bank thinks are potentially vulnerable to a sovereign debt crisis.



The Royal Bank of Scotland

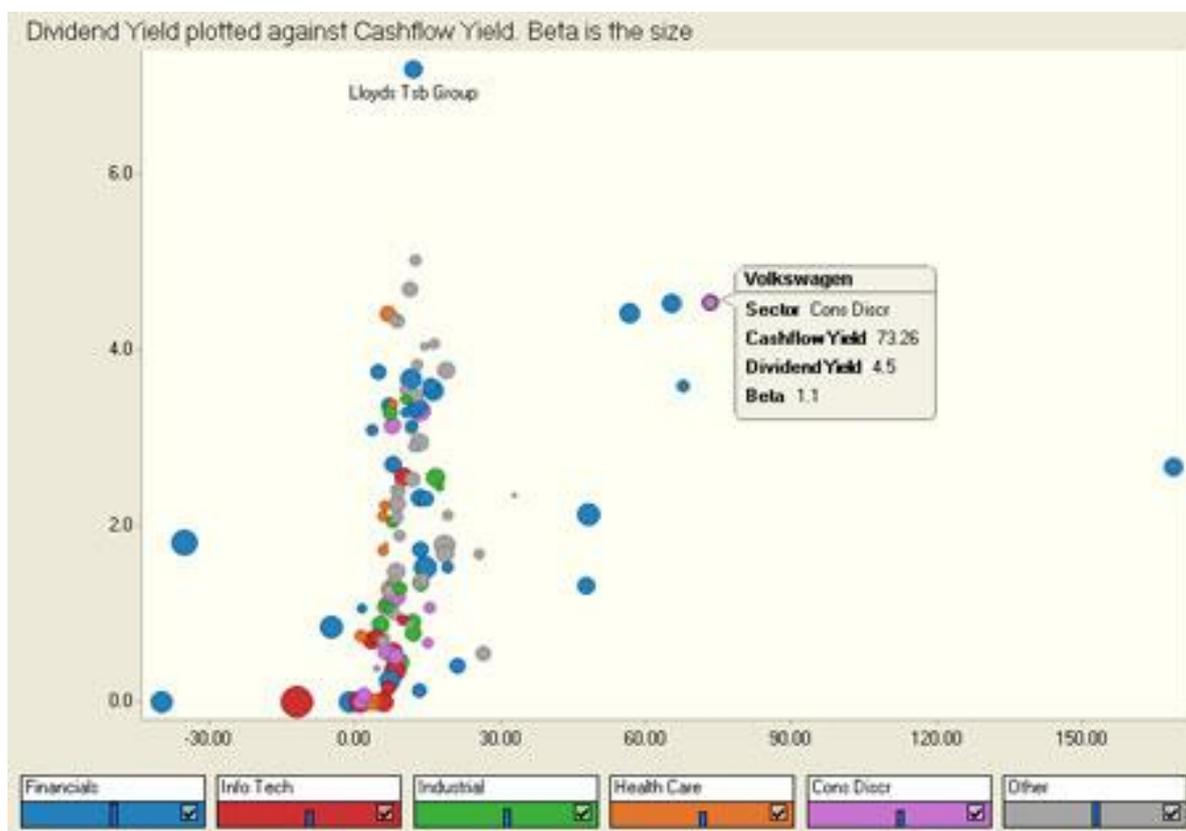
Retrieved from: <http://ftalphaville.ft.com/blog/2010/01/04/119336/sovereign-debt-crises-2010-an-rbs-sapling/>

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## Scatter diagram

Scatter Plots are incredibly useful graphs for examining large data sets. Reports and standard table displays are hard and time-consuming to interpret, and aggregations of the data — which can make reports and tables easier to understand — can mask outliers, correlations and trends and make them difficult or impossible to see.

Scatter Plots are an excellent information visualisation to select when you are looking for positive and negative correlations, trends and outliers in large statistical databases. They are particularly useful in financial services applications.



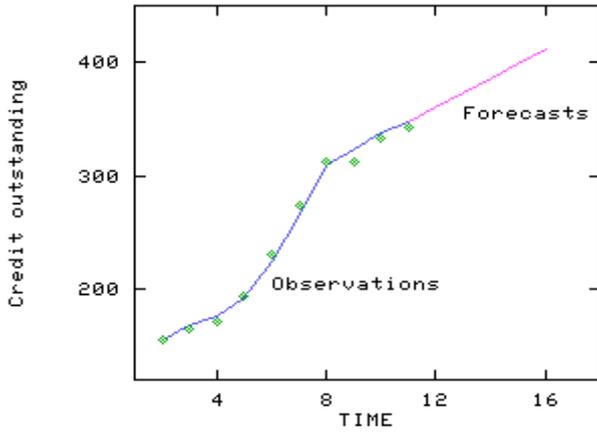
Retrieved from: [http://www.panopticon.com/products/scatter\\_plot\\_data\\_visualization\\_software.htm](http://www.panopticon.com/products/scatter_plot_data_visualization_software.htm)

*This Scatter Plot maps Dividend Yield on the Y axis and Cash flow Yield on the X axis. Colour is used to differentiate companies by sector. Each point represents a single company, and the size of each circle corresponds to the market cap for that company compared to all other companies in the dataset. This Scatter Plot makes it easy to see that Volkswagen is performing very well in terms of Cash flow and Dividends, and that Lloyds TSB is the leader by far in terms of Yield.*

## Time-series graphs

They are good at showing specific values of data, meaning that given one variable the other can easily be determined. Trends in data are also shown clearly, meaning that they visibly show how one variable is affected by the other as it increases or decreases. Time series graphs enable the viewer to make predictions about the results of data not yet recorded.

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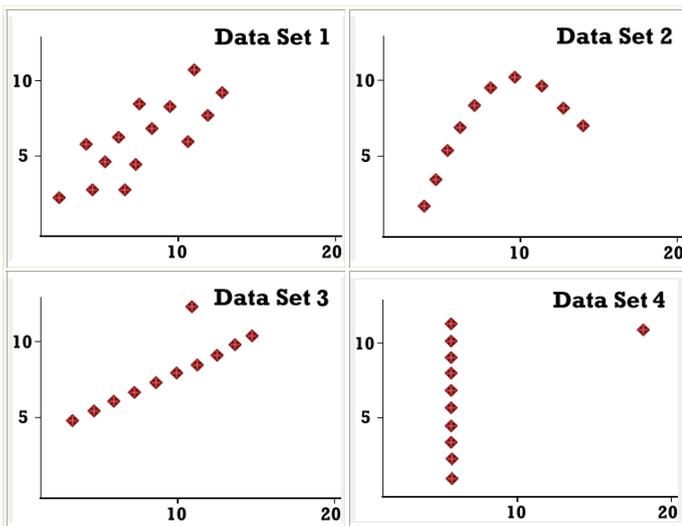


Retrieved from: <http://home.ubalt.edu/ntsbarsh/stat-data/Forecast.htm#rintroductionf>

The most graphic way of seeing just how useful graphical data presentation can be is by trying to 'picture' the structure of any of the four data sets shown below purely by looking at the columns of figures:

DATA SET								
	1		2		3		4	
X	Y	X	Y	X	Y	X	Y	
10.0	8.04	10.0	9.14	10.0	7.46	8.0	6.58	
8.0	6.95	8.0	8.14	8.0	6.77	8.0	5.76	
13.0	7.58	13.0	8.74	13.0	12.74	8.0	7.71	
9.0	8.81	9.0	8.77	9.0	7.11	8.0	8.84	
11.0	8.33	11.0	9.26	11.0	7.81	8.0	8.47	
14.0	9.96	14.0	8.10	14.0	8.84	8.0	7.04	
6.0	7.24	6.0	6.13	6.0	6.08	8.0	5.25	
4.0	4.26	4.0	3.10	4.0	5.39	19.0	12.50	
12.0	10.84	12.0	9.13	12.0	8.15	8.0	5.56	
7.0	4.82	7.0	7.26	7.0	6.42	8.0	7.91	
5.0	5.68	5.0	4.74	5.0	5.73	8.0	6.89	

It is only when we come to graph these data sets, as the series of scatter graphs, that we really appreciate how deceptive the numbers alone can be, and how valuable the graphical format can be.



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## ACCURATE GRAPHICAL REPRESENTATIONS AND NUMERICAL SUMMARIES

We have seen how to represent information graphically. In this section we will look at a simple method to represent and analyse numerical data, namely the **Stem and Leaf Plot**:

A stem-and-leaf plot is a display that organises data to show its shape and distribution. In a stem-and-leaf plot each data value is split into a "stem" and a "leaf". The "leaf" is usually the last digit of the number and the other digits to the left of the "leaf" form the "stem". The number 123 would be split as:

stem      12

leaf        3

### Example:

Math test scores out of 50 points:

35, 36, 38, 40, 42, 42, 44, 45, 45, 47, 48, 49, 50, 50, 50

Separate each number into a stem and a leaf. Since these are two digit numbers, the tens digit is the stem and the units digit is the leaf.	The number 38 would be represented as  <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Stem</th> <th style="text-align: center;">Leaf</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">8</td> </tr> </tbody> </table>	Stem	Leaf	3	8						
Stem	Leaf										
3	8										
Group the numbers with the same stems. List the stems in numerical order. (If your leaf values are not in increasing order, order them now.) Title the graph.	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">Math Test Scores (out of 50 pts)</th> </tr> <tr> <th style="text-align: center;">Stem</th> <th style="text-align: center;">Leaf</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">5 6 8</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">0 2 2 4 5 5 7 8 9</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">0 0 0</td> </tr> </tbody> </table>	Math Test Scores (out of 50 pts)		Stem	Leaf	3	5 6 8	4	0 2 2 4 5 5 7 8 9	5	0 0 0
Math Test Scores (out of 50 pts)											
Stem	Leaf										
3	5 6 8										
4	0 2 2 4 5 5 7 8 9										
5	0 0 0										
Prepare an appropriate legend (key) for the graph.	Legend: 3   6 means 36										

A stem-and-leaf plot shows the shape and distribution of data. It can be seen in the diagram above that the data clusters around the row with a stem of 4.

- The leaf is the digit in the place farthest to the right in the number, and the stem is the digit, or digits, in the number that remain when the leaf is dropped
- To show a one-digit number (such as 9) using a stem-and-leaf plot, use a stem of 0 and a leaf of 9
- To find the median in a stem-and-leaf plot, count off half the total number of leaves

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### Example:

The speeds of two types of bullet were measured to the nearest  $\text{m s}^{-1}$  in an experiment as follows.

Speed of type A ( $\text{m s}^{-1}$ )

480 493 475 471 482 487 464 516 497 485  
481 471 475 498 478 487 491 489 481 493

Speed of type B ( $\text{m s}^{-1}$ )

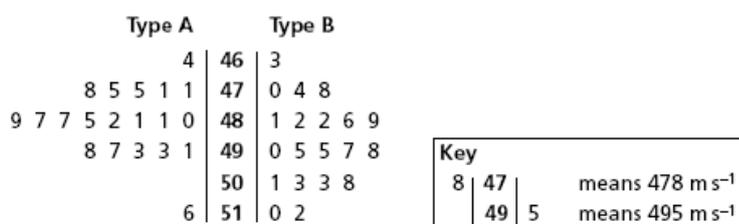
478 463 512 503 508 497 495 482 482 474  
489 490 495 503 510 501 498 470 481 486

It is difficult to compare the speeds of the types of bullets from these lists.

A simple method of organising data is to use a **stem-and-leaf diagram**.

This can be drawn for a single set of data or, as in this case, back-to-back.

The data above would be recorded like this.



The stem-and-leaf diagram shows that type B bullets are generally faster.

### MAKE PROJECTIONS ON THE BASIS OF MATHEMATICAL ANALYSIS

The solution to many statistical experiments involves being able to count the number of points in a sample space. Counting points can be hard, tedious, or both. Fortunately, there are ways to make the counting task easier. This section focuses on three rules of counting that can save both time and effort - event multiples, permutations, and combinations.

The first rule of counting deals with event multiples. An **event multiple** occurs when two or more independent events are grouped together. The first rule of counting helps us determine how many ways an event multiple can occur.

#### Rule 1.

Suppose we have  $k$  independent events. Event 1 can be performed in  $n_1$  ways; Event 2, in  $n_2$  ways; and so on up to Event  $k$  (which can be performed in  $n_k$  ways). The number of ways that these events can be performed together is equal to  $n_1 n_2 \dots n_k$  ways.

#### Examples

- How many sample points are in the sample space when a coin is flipped 4 times?  
Each coin flip can have one of two outcomes - heads or tails. Therefore, the four coin flips can land in  $(2)(2)(2)(2) = 16$  ways.
- A business man has 4 dress shirts and 7 ties. How many different shirt/tie outfits can he create?  
For each outfit, he can choose one of four shirts and one of seven ties. Therefore, the business man can create  $(4)(7) = 28$  different shirt/tie outfits.  
Often, we want to count all of the possible ways that a single set of objects can be arranged. Consider the letters X, Y, and Z. These letters can be arranged a number of different ways (XYZ, XZY, YXZ, etc.) Each of these arrangements is a permutation.
- In general,  $n$  objects can be arranged in  $n(n-1)(n-2) \dots (3)(2)(1)$  ways. This product is represented by the symbol  $n!$ , which is called  $n$  factorial. (By convention,  $0! = 1$ .)

A **permutation** is an arrangement of all or part of a set of objects, with regard to the order of the arrangement.

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The number of permutations of  $n$  objects taken  $r$  at a time is denoted by  ${}_n P_r$ .

### Rule 2.

The number of permutations of  $n$  objects taken  $r$  at a time is

$${}_n P_r = n(n-1)(n-2) \dots (n-r+1) = n! / (n-r)!$$

### Examples

1. How many different ways can you arrange the letters X, Y, and Z?

One way to solve this problem is to list all of the possible permutations of X, Y, and Z. They are:

- XYZ, XZY, YXZ, YZX, ZXY, and ZYX

Thus, there are 6 possible permutations.

Another approach is to use Rule 2. Rule 2 tells us that the number of permutations is  $n! / (n-r)!$ .

- We have 3 distinct objects so  $n = 3$
- And we want to arrange them in groups of 3, so  $r = 3$
- Thus, the number of permutations is  $3! / (3-3)!$  or  $3! / 0!$ . This is equal to  $(3)(2)(1)/1 = 6$

2. In horse racing, a trifecta is a type of bet. To win a trifecta bet, you need to specify the horses that finish in the top three spots in the exact order in which they finish. If eight horses enter the race, how many different ways can they finish in the top three spots?

Rule 2 tells us that the number of permutations is  $n! / (n-r)!$

- We have 8 horses in the race. so  $n = 8$
- And we want to arrange them in groups of 3, so  $r = 3$
- Thus, the number of permutations is  $8! / (8-3)!$  or  $8! / 5!$
- This is equal to  $(8)(7)(6) = 336$  distinct trifecta outcomes. With 336 possible permutations, the trifecta is a difficult bet to win

Sometimes, we want to count all of the possible ways that a single set of objects can be selected - without regard to the order in which they are selected.

A **combination** is a selection of all or part of a set of objects, without regard to the order in which they were selected.

The number of combinations of  $n$  objects taken  $r$  at a time is denoted by  ${}_n C_r$ .

### Rule 3.

The number of Combinations of  $n$  objects taken  $r$  at a time is

$${}_n C_r = n(n-1)(n-2) \dots (n-r+1)/r! = n! / r!(n-r)! = {}_n P_r / r!$$

### Examples

1. How many different ways can you select 2 letters from the set of letters: X, Y, and Z?

One way to solve this problem is to list all of the possible selections of 2 letters from the set of X, Y, and Z.

- They are: XY, XZ, and YZ. Thus, there are 3 possible combinations

Another approach is to use Rule 3. Rule 3 tells us that the number of combinations is  $n! / r!(n-r)!$ .

- We have 3 distinct objects so  $n = 3$
- And we want to arrange them in groups of 2, so  $r = 2$

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- Thus, the number of combinations is  $3! / 2!(3 - 3)!$  or  $3! / 2!0!$
  - This is equal to  $(3)(2)(1)/(2)(1)(1) = 3$
2. Five-card stud is a poker game, in which a player is dealt 5 cards from an ordinary deck of 52 playing cards. How many distinct poker hands could be dealt?

For this problem, it would be impractical to list all of the possible poker hands. However, the number of possible poker hands can be easily calculated using Rule 3.

Rule 3 tells us that the number of combinations is  $n! / r!(n - r)!$ .

- We have 52 cards in the deck so  $n = 52$
- And we want to arrange them in groups of 5, so  $r = 5$
- Thus, the number of permutations is  $52! / (52 - 5)!$  or  $52! / 47!$
- This is equal to 2,598,960 distinct poker hands

### Probability of a sample point

The **probability** of a sample point is a measure of the likelihood that the sample point will occur.

By convention, statisticians have agreed on the following rules.

- The probability of any sample point can range from 0 to 1
- The sum of probabilities of all sample points in a sample space is equal to 1

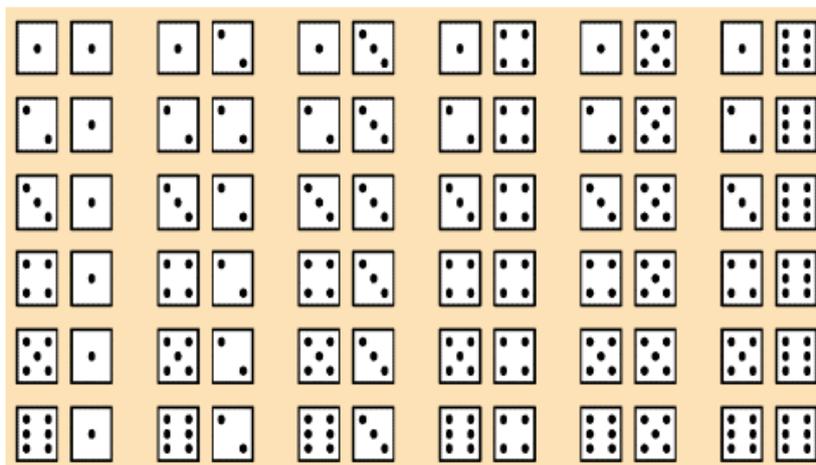
### Examples

1. Suppose we conduct a simple statistical experiment. We flip a coin one time. The coin flip can have one of two outcomes - heads or tails. Together, these outcomes represent the sample space of our experiment. Individually, each outcome represents a sample point in the sample space. What is the probability of each sample point?

The sum of probabilities of all the sample points must equal 1. And the probability of getting a head is equal to the probability of getting a tail. Therefore, the probability of each sample point (heads or tails) must be equal to  $1/2$ .

2. Let's repeat the experiment of the above example, with a die instead of a coin. If we toss a fair die, what is the probability of each sample point? For this experiment, the sample space consists of six sample points: {1, 2, 3, 4, 5, 6}. Each sample point has equal probability. And the sum of probabilities of all the sample points must equal 1. Therefore, the probability of each sample point must be equal to  $1/6$ .

3. If we should use two die in an experiment, the following combinations would be probable (equally likely outcomes when rolling two dice):



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## Probability of an event

The probability of an event is a measure of the likelihood that the event will occur. By convention, statisticians have agreed on the following rules.

- The probability of any event can range from 0 to 1
- The probability of event A is the sum of the probabilities of all the sample points in event A
- The probability of event A is denoted by  $P(A)$

Thus, if event A were very unlikely to occur, then  $P(A)$  would be close to 0. And if event A were very likely to occur, then  $P(A)$  would be close to 1.

### Examples

1. Suppose we draw a card from a deck of playing cards. What is the probability that we draw a spade?

The sample space of this experiment consists of 52 cards, and the probability of each sample point is  $1/52$ . Since there are 13 spades in the deck, the probability of drawing a spade is

$$P(A) = (13)(1/52) = 1/4$$

2. Suppose a coin is flipped 3 times. What is the probability of getting two tails and one head?

For this experiment, the sample space consists of 8 sample points.

$$S = \{TTT, TTH, THT, THH, HTT, HTH, HHT, HHH\}$$

Each sample point is equally likely to occur, so the probability of getting any particular sample point is  $1/8$ . The event "getting two tails and one head" consists of the following subset of the sample space.

$$A = \{TTH, THT, HTT\}$$

The probability of Event A is the sum of the probabilities of the sample points in A. Therefore,

$$P(A) = 1/8 + 1/8 + 1/8 = 3/8$$

### Rules of probability

Often, we want to compute the probability of an event from the known probabilities of other events. This section covers some important rules that simplify those computations.

Before discussing the rules of probability, we state the following definitions:

- Two events are **mutually exclusive** if they have no sample points in common
- The probability that Event A occurs, given that Event B has occurred, is called a **conditional probability**
- The conditional probability of A, given B, is denoted by the symbol  $P(A|B)$
- The probability that event A will not occur is denoted by  $P(A')$
- Note:
  - ✓ The probability of a sample point ranges from 0 to 1
  - ✓ The sum of probabilities of all the sample points in a sample space equals 1

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<b>Rule of Subtraction</b>	<p>The probability that event A will occur is equal to 1 minus the probability that event A will not occur.</p> $P(A) = 1 - P(A')$
<b>Rule of Multiplication</b> <p>The rule of multiplication applies to the following situation. We have two events from the same sample space, and we want to know the probability that both events occur</p>	<p>If events A and B come from the same sample space, the probability that both A and B occur is equal to the probability the event A occurs times the probability that B occurs, given that A has occurred.</p> $P(A \cap B) = P(A) P(B A)$

### Examples

1. A bowl contains 6 red marbles and 4 black marbles. Two marbles are drawn without replacement from the bowl. What is the probability that both of the marbles are black?

Let A = the event that the first marble is black; and let B = the event that the second marble is black. We know the following:

In the beginning, there are 10 marbles in the urn, 4 of which are black. Therefore,  $P(A) = 4/10$ .

After the first selection, there are 9 marbles in the urn, 3 of which are black. Therefore,  $P(B|A) = 3/9$ .

Therefore, based on the rule of multiplication:

$$P(A \cap B) = P(A) P(B|A)$$

$$P(A \cap B) = (4/10) * (3/9) = 12/90 = 2/15$$

2. Suppose we repeat the experiment of the example above; but this time we select marbles with replacement. That is, we select one marble, note its colour, and then replace it in the bowl before making the second selection. When we select with replacement, what is the probability that both of the marbles are black?

Let A = the event that the first marble is black; and let B = the event that the second marble is black. We know the following:

In the beginning, there are 10 marbles in the urn, 4 of which are black. Therefore,  $P(A) = 4/10$ .

After the first selection, we replace the selected marble; so there are still 10 marbles in the urn, 4 of which are black. Therefore,  $P(B|A) = 4/10$ .

Therefore, based on the rule of multiplication:

$$P(A \cap B) = P(A) P(B|A)$$

$$P(A \cap B) = (4/10) * (4/10) = 16/100 = 4/25$$

<b>Rule of Addition</b> <p>The rule of addition applies to the following situation. We have two events from the same sample space, and we want to know the probability that either event occurs</p>	<p>If events A and B come from the same sample space, the probability that event A and/or event B occur is equal to the probability that event A occurs plus the probability that event B occurs minus the probability that both events A and B occur.</p> $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
--	--

Note: Invoking the fact that  $P(A \cap B) = P(A)P(B|A)$ , the Addition Rule can also be expressed as

$$P(A \cup B) = P(A) + P(B) - P(A)P(B|A)$$

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## Examples

1. A student goes to the library. The probability that she checks out

(a) a work of fiction is 0.40,

(b) a work of non-fiction is 0.30, and

(c) both fiction and non-fiction is 0.20.

What is the probability that the student checks out a work of fiction, non-fiction, or both?

Let  $F$  = the event that the student checks out fiction; and let  $N$  = the event that the student checks out non-fiction.

Then, based on the rule of addition:

$$P(F \cup N) = P(F) + P(N) - P(F \cap N)$$

$$P(F \cup N) = 0.40 + 0.30 - 0.20 = 0.50$$

2. A card is drawn randomly from a deck of ordinary playing cards. You win R10 if the card is a spade or an ace. What is the probability that you will win the game?

Let  $S$  = the event that the card is a spade; and let  $A$  = the event that the card is an ace. We know the following:

There are 52 cards in the deck.

There are 13 spades, so  $P(S) = 13/52$ .

There are 4 aces, so  $P(A) = 4/52$ .

There is 1 ace that is also a spade, so  $P(S \cap A) = 1/52$ .

Therefore, based on the rule of addition:

$$P(S \cup A) = P(S) + P(A) - P(S \cap A)$$

$$P(S \cup A) = 13/52 + 4/52 - 1/52 = 16/52 = 4/13$$

## Notes:

A **probability model** is a mathematical representation of a random phenomenon. It is defined by its **sample space**, **events** within the sample space, and **probabilities** associated with each event.

**Simulations** with items such as six sided spinners, random number generators in calculators or computers can be used for comparing experimental results (e.g. the rolling of a die) with mathematical expectations.

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## MODULE 5: FINANCE MANAGEMENT FOR NON-FINANCIAL MANAGERS

### MODULE 5: LEARNING OUTCOMES

Manage the finances of a unit
Demonstrating an understanding of the key concepts of managerial finance.
The accounting cycle is explained by means of a diagram.
The role of budgeting and forecasting in the strategic planning process is explained with reference to the manager's specific organisational context.
The accounting conventions applied in the financial management of a unit are explained with examples.
The financial reports published by the manager's entity are explained with examples.
Interpret financial statements.
Financial statements are analysed, using data sources identified and evaluated for authenticity and accuracy.
The ratios are applied to measure the profitability and liquidity of an entity.
The ratios are applied to measure the working capital and asset utilisation of an entity.
The ratios are applied to measure the return of an entity.
Recommendations are made regarding the profitability of, liquidity, working capital, return and resource utilisation by the entity using the results obtained from the application of the ratios.
Describe and prepare financial forecasts.
The types and formats of financial forecasts are identified with examples.
Sources of financial forecasts are identified as per the entity's standard practice.
Factors in preparing financial forecasts are outlined in line with entity's standard operating procedures.
Relevant factors are incorporated in the preparation of financial forecasts.
Financial forecasts are analysed to determine viability against the entity's requirements.
Draft budgets according to the operational plan of the unit.
Budget plans are linked to operational objectives.
Operational objectives are established in line with the unit's strategic plan.
The budget is formulated according to standard operating procedures.
Drafted budget is reviewed, reflected on and modified to ensure alignment to the operational plan of the unit.
Supervise financial management of a unit against given requirements.
Monitoring systems are agreed and adhered to, according to standard operating procedures.
Expenditure reports are monitored for the year for each team within the unit against given criteria.
Corrective actions are implemented where necessary in accordance with the entity's policies and procedures.

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**MODULE 5: FINANCE MANAGEMENT FOR NON-FINANCIAL MANAGERS**

UNIT STANDARDS IN THIS MODULE	252040	MANAGE THE FINANCES OF A UNIT
	DEMONSTRATING AN UNDERSTANDING OF THE KEY CONCEPTS OF MANAGERIAL FINANCE.	SO 1
	INTERPRET FINANCIAL STATEMENTS.	SO 2
	DESCRIBE AND PREPARE FINANCIAL FORECASTS.	SO 3
	DRAFT BUDGETS ACCORDING TO THE OPERATIONAL PLAN OF THE UNIT.	SO 4
	SUPERVISE FINANCIAL MANAGEMENT OF A UNIT AGAINST GIVEN REQUIREMENTS.	SO 5
	The accounting cycle is explained by means of a diagram.	SO 1 AC 1
	The role of budgeting and forecasting in the strategic planning process is explained with reference to the manager's specific organisational context.	SO 1 AC 2
	The accounting conventions applied in the financial management of a unit are explained with examples.	SO 1 AC 3
	The financial reports published by the manager's entity are explained with examples.	SO 1 AC 4
	Financial statements are analysed, using data sources identified and evaluated for authenticity and accuracy.	SO 2 AC 1
	The ratios are applied to measure the profitability and liquidity of an entity.	SO 2 AC 2
	The ratios are applied to measure the working capital and asset utilisation of an entity.	SO 2 AC 3
	The ratios are applied to measure the return of an entity.	SO 2 AC 4
	Recommendations are made regarding the profitability of, liquidity, working capital, return and resource utilisation by the entity using the results obtained from the application of the ratios.	SO 2 AC 5
	The types and formats of financial forecasts are identified with examples.	SO 3 AC 1
	Sources of financial forecasts are identified as per the entity's standard practice.	SO 3 AC 2
	Factors in preparing financial forecasts are outlined in line with entity's standard operating procedures.	SO 3 AC 3
	Relevant factors are incorporated in the preparation of financial forecasts.	SO 3 AC 4
	Financial forecasts are analysed to determine viability against the entity's requirements.	SO 3 AC 5
	Budget plans are linked to operational objectives.	SO 4 AC 1
	Operational objectives are established in line with the unit's strategic plan.	SO 4 AC 2
	The budget is formulated according to standard operating procedures.	SO 4 AC 3
	Drafted budget is reviewed, reflected on and modified to ensure alignment to the operational plan of the unit.	SO 4 AC 4
Monitoring systems are agreed and adhered to, according to standard operating procedures.	SO 5 AC 1	
Expenditure reports are monitored for the year for each team within the unit against given criteria.	SO 5 AC 2	
Corrective actions are implemented where necessary in accordance with the entity's policies and procedures.	SO 5 AC 3	

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## UNDERSTANDING THE KEY CONCEPTS OF MANAGERIAL FINANCE

Financial figures, by themselves, usually do not mean much. When you compare the financial figures with certain other numbers you can learn much about how your organisation is doing. For example, you can compare the planned expenses depicted in your budget with your actual expenses to see if your spending is on track. You could also use ratios to analyse the financial figures. A ratio is a comparison made by dividing one figure by another, such as how salaries are related to the total expenses for a department to find the implications thereof.

### **Difference between finance and accounting**

Finance has been called “The science of money”.<sup>9</sup> It studies the principles and the methods of obtaining control of money from those who have saved it, and of administering it by those into whose control it passes.

“Finance is the process of conversion of accumulated funds to productive use. It is so intermingled with other economic forces that there is difficulty in appreciating the role it plays.”<sup>10</sup>

Howard and Uptron<sup>11</sup> in their book *introduction to Business Finance* defined finance “as that administrative area or set of administrative functions in an organisation which relate with the arrangement of cash and credit so that the organisation may have the means to carry out its objectives as satisfactorily as possible”.

**Finance** can be defined as **the activity concerned with the planning, raising, controlling and administering of the funds used in the business**. Finance is the activity concerned with the raising and administering of funds used in business.

Financial management is managerial activity which is concerned with the planning and controlling of the firm’s financial resources. Financial Management is an integral part of the overall management of other disciplines and fields of study like economics, accounting, production, marketing, personnel and quantitative methods. The relationship of financial management with other fields of study is explained as follows:



Accounting and finance are closely related. Accounting is an important input in the financial decision-making process. **Accounting is concerned with the recording of business transactions**. It generates information relating to business transactions and reporting them to the concerned parties. The end product of accounting is financial statements, namely profit and loss accounts, Statements of Financial Position (balance sheets) and the statements of changes in financial position. The information contained in these statements assists the financial managers in evaluating the past performance and future direction of the firm (decisions) in meeting certain obligations like payment of taxes and so on. Thus, accounting and finance are closely related.

Financial analysis starts with accounting. Accounting is a service-based profession that provides reliable and relevant financial information for making decisions.

<sup>9</sup> Basu, 1939; quoted in: [http://eprajournals.com/jpanel/upload/621pm\\_17.Md.%20Iqbal%20Uddin%20Tapadar-9.3.16.pdf](http://eprajournals.com/jpanel/upload/621pm_17.Md.%20Iqbal%20Uddin%20Tapadar-9.3.16.pdf)

<sup>10</sup> Source: [http://www.universityofcalicut.info/SDE/financial\\_mgmnt\\_addln\\_lessons.pdf](http://www.universityofcalicut.info/SDE/financial_mgmnt_addln_lessons.pdf)

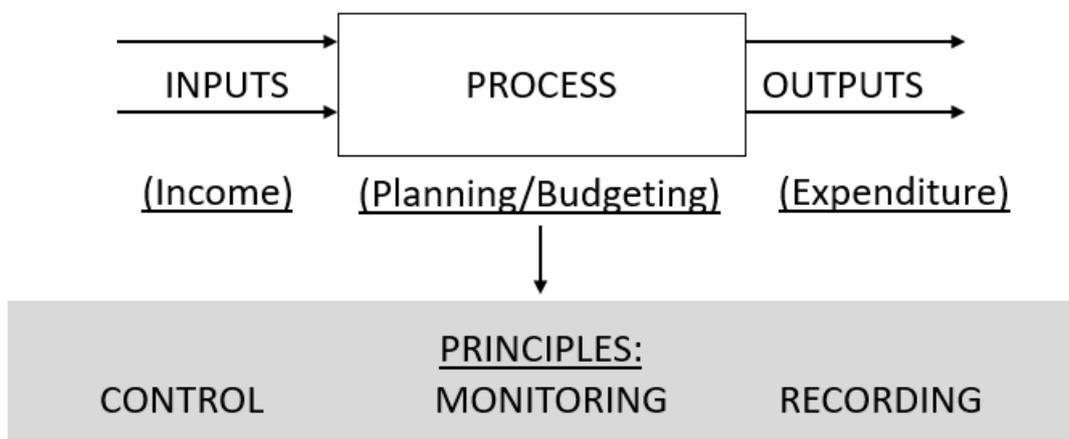
<sup>11</sup> ICWAI Finance Related Discipline - Financial Management & International Finance study material; [www.scribd.com/doc/28899183/](http://www.scribd.com/doc/28899183/)

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Accounting is the method in which financial information is gathered, processed and summarised into financial statements and reports.

Financial analysis is part of financial management, which includes:

- The management and recording of the flow of money
- Planning the future use of money
- Ensuring that the money is well spent and not misused
- Building the financial sustainability of the organisation



### THE ACCOUNTING CYCLE

The accounting cycle is a series of steps in recording an accounting event from the time a transaction occurs to its reflection in the financial statements (also called the bookkeeping cycle).

The steps in the accounting cycle are:

- Recording in journal
- Posting to the ledger
- Preparing a trial balance
- Preparing financial statements.

This procedure is further described as:

**Analyse transactions** - The accounting process begins with analysing transactions. The company first looks at the source documents which describe the transactions and events. Source documents can be either hard copy or electronic. Some examples of source documents include bank statements, cheques, and purchase orders.

**Journalise/ enter transactions in the journal** - When the company journalises, the accountant applies the rules of double-entry accounting. Double-entry accounting means that each transaction must be recorded in at least two accounts, or that the debits must equal the credits. After applying the rules of debits and credits, the accountant should then record the transactions in a journal, or journalise. A journal is a complete record of each transaction.

**Post to ledger accounts** - Posting involves transferring information from the journal to the ledger. A ledger is simply a collection of all accounts – it shows all of the number detail about a company’s accounts.

**Prepare a Trial balance** - To verify that the company’s debits equal the credits, an unadjusted trial balance is prepared. A trial balance is a list of all accounts and their balances at a point in time. The information used in a trial

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balance comes from the ledger. The account balances from the ledger are used to create the trial balance. We call this trial balance an unadjusted trial balance because it is prepared before the adjusting entries.

**Make adjusting entries** - Adjusting entries involve bringing an asset or liability account balance to its proper amount and updating the corresponding revenue or expense account. Adjusting entries are recorded in the general journal and then posted to the ledger. All adjusting entries are made at the end of the accounting time period.

**Prepare Adjusted Trial balance** - This trial balance is called the adjusted trial balance because it is prepared AFTER the adjusting entries. This trial balance is used to verify that the debits equal the credits and also is used to prepare the financial statements.

**Prepare financial statements** - The financial statements must be prepared in a very specific order. The order for the financial statements is: Statement of Comprehensive Income (income statement), statement of retained earnings, Statement of Financial Position (balance sheet), and then statement of cash flows. This order is important because information provided in the Statement of Comprehensive Income (income statement) is used in the statement of retained earnings, and information from the statement of retained earnings is used in the Statement of Financial Position (balance sheet).

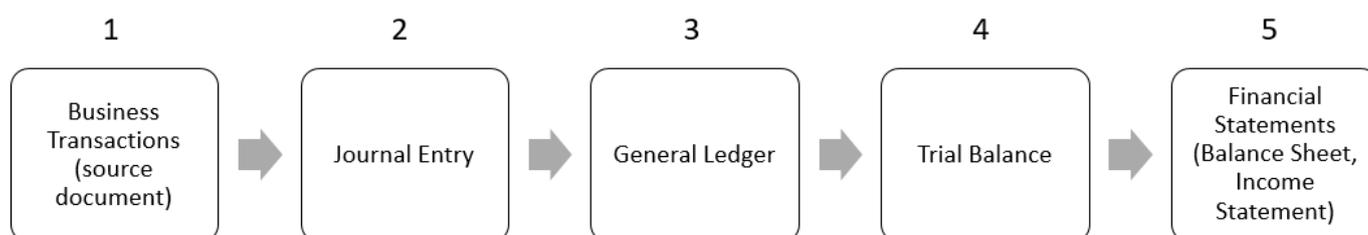
Journalise and post-closing entries - Closing entries are prepared after the financial statements are completed. The purpose of closing entries is to prepare the accounts for recording transactions and events for the next period.

Prepare an after closing Trial balance - For many companies this is the last step in the accounting cycle, as the company is now ready to start the new accounting period. A post-closing trial balance should only contain the debit and credit balance for permanent accounts, because these are the only accounts that are remaining after the closing process. Once again the purpose of this trial balance is to ensure that the debits equal the credits and that all temporary accounts have a zero balance.

**Reversing entries** are optional. These entries reverse certain adjustments in the next period.

It's important to realise when the steps occur. Steps 1 to 3 occur often throughout the accounting time period. Steps 4 to 10 occur only at the end of the accounting period.

The main steps of the accounting cycle can be represented by the following graphic (reduced to 5 main steps):



**International financial reporting standards - IFRS vs. GAAP**

Many people and organisations make decisions based on financial information that accountants prepare. That's why it is important for these people to understand how this information is measured. To facilitate this communication, accountants establish rules that business people can use to ensure they are talking about the same thing.

All the rules of accounting and accounting measurement are collected in one group called International Financial Reporting Standards (IFRS) (Note: South Africa used to use Generally Accepted Accounting Principles (GAAP) and are subject to certain statutory regulations.

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As a basis for financial analysis, we need to understand some basics first, such as:

- Statutory regulations
- IFRS

## **STATUTORY REGULATIONS**

### **Accounting records**

In terms of the Companies Act, 2008, all companies must keep accounting records in one of the eleven official languages. At a minimum, these records must include:

- The assets and liabilities of the company
- A fixed-assets register
- Cash receipts and payments
- Details of goods purchased and sold
- Annual stock-taking (inventory) statements

The accounting records must be such as to fairly present the state of affairs and business of the company and explain the transactions and financial position of the trade or business of the company.

### **Annual financial statements**

The Companies Act, 2008 aims to provide a flexible regime that balances accountability and transparency, with less of a regulatory burden. To that end, it sets certain common requirements for all companies. Differentiated requirements depend on the company's wider responsibility to the public and the social and economic impact that the company's operations have. This flexibility is illustrated by the following provisions:

- All companies must prepare annual financial statements (AFSs), unless the company can satisfy the Commission that it meets certain criteria
- Public companies are subjected to a more demanding regime, with the added requirement that their AFSs have to undergo an annual audit
- All companies have to file annual returns with the Commission
- Public companies have to file a copy of their audited AFSs with their annual return
- Public companies must appoint a company secretary, auditors and an audit committee.
- Certain private companies with a greater responsibility to the wider public as a consequence of their significant social or economic impact may be required to have their AFSs audited. All other companies must be either voluntarily audited or independently reviewed
- All financial statements, or a summary thereof, must satisfy the prescribed financial reporting standards. These standards may vary for different categories of companies but must be consistent with International Financial Reporting Standards as set by the International Accounting Standards Board
- All public and certain private companies must appoint an auditor

Thus the law (which is part of an organisation's business environment) requires that an organisation's annual financial statements shall be set out in accordance with certain financial reporting frameworks.

This manual will refer to the appropriate IFRS standards in the terminology that it is published. Thus standards will be referred to as IAS x. IAS stands for International Accounting Standard and the 'x' denotes the number of the standard for example "IAS 2".

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## The framework deals with:

1. The objective of financial statements which is to:
  - To provide financial information about the:
    - ✓ Financial position
    - ✓ Performance
    - ✓ Changes in financial position

of an organisation that is useful to a wide range of users for making economic decisions, such as investors, employees, lenders of finance, suppliers of trade credit, customer, government and the general public.
2. The qualitative characteristics that determine the usefulness of information in financial statements
3. The elements from which financial statements are constructed
4. The concepts of capital and maintenance

It is important to note that financial statements, even though they may comply with the framework, should be treated with care for the following reasons:

- They do not necessarily supply all the financial information required
- They are historically based
- They do not necessarily provide non-financial information

To expand your knowledge, it is suggested that you acquire and read guidelines to IFRS in South Africa. These guidelines should be available from:

- Your organisation (probably through your finance department)
- Your organisation's auditors
- A supplier or publisher of financial publications

## IFRS standards

Some of the IFRS standards referred to in this manual include:

Standard	Topic
IAS 1	Presentation of financial statements
IAS 2	Inventories
IAS 16	Accounting for property, plant and equipment
IAS 18	Revenue

## Presentation of financial statements

IAS 1 sets out how financial statements should be presented. Organisations that follow these practices will be able to compare their own financial statements with:

- Their own organisation's previous financial statements
- Financial statements of other organisations that follow these practices

Financial statements should 'fairly present' the financial position of an organisation. An organisations financial statements that adhere to IAS, disclose relevant interpretations and provide additional disclosures when necessary, are presumed to be fairly presented and should contain a note to this effect.

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IAS 1 defines a complete set of financial statements as comprising of the following:

Let's examine the Statement of Financial Position (balance sheet) as an example of a financial statement:

**The Statement of financial position (balance sheet)** comprises two main sections:

- **Assets** (The properties used in the operation or investment activities of a business)
- **Liabilities** (Claims by creditors to the property /assets of a business until they are paid) and Equity (The owner's rights to the property (assets) of the business; also called proprietorship and net worth)

An organisation is required to present current and non-current assets and current and non-current liabilities separately unless a liquidity approach allows for a fairer presentation. The liquidity approach presents assets and liabilities in order of liquidity and is generally adopted by organisations that do not have a clearly identifiable operating cycle, for example financial institutions.

Operating Cycle	An operating cycle is the period between the purchasing of raw materials and the realisation of cash (or cash equivalents) for the finished product
Current assets	<p>Current assets are those assets that are:</p> <p>Expected to be settled in the normal course of the organisation's operating cycle</p> <p>Due to be settled within twelve months of the Statement of Financial Position (balance sheet) date</p> <p>Primarily for trading purposes</p> <p>The organisation does not have an unconditional right to defer settlement of the liability for at least twelve months after the Statement of Financial Position (balance sheet) date</p>
Non-current assets	Any assets that do not fall into the current asset definition
Current liabilities	<p>Current liabilities are those liabilities that are:</p> <p>Expected to be settled in, or held for sale or consumption in the normal course of the organisations operating cycle</p> <p>Expected to be settled within twelve months of the Statement of Financial Position (balance sheet) date</p> <p>Primarily for trading purposes</p>
Non-current liabilities	Any liabilities that do not fall into the current liabilities definition
Equity	The difference between total assets and total liabilities

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**Note:** IAS 1 is a comprehensive statement and the full implications of IAS 1 are not dealt with here. Only the aspects that are relevant to later topics in this manual have been covered.

### Inventories

IAS 2 relates to accounting for inventories (or stock).

Inventories are defined by IAS 2 as assets:

- Held for sale in the ordinary course of business
- In the process of production for sale
- In the form of materials or supplies to be consumed in the production process or in the rendering of services

As such, inventories include:

- Finished goods for sale
- Work-in- progress
- Raw materials
- Consumables (as specified in the third point above)
- Merchandise
- Products and services

### **Accounting for inventories**

The main concern in accounting for inventories is the cost to be recognised as an asset. Inventory is recognised as an asset when:

- It is controlled by the organisation
- It is the result of a past event (purchase or production)
- There are probable future benefits to be derived from the asset
- There is a cost that can be reliably measured and attached

### **Costing inventories**

Inventories are generally valued at historical cost. This is the total cost of purchase and production and other costs that were incurred to place the inventory in the condition and location that it is valued in.

<b>Cost of purchase</b>	These costs include the purchase price which will include freight (transport) and handling costs plus any applicable taxes (such as import duties etc.) and any other costs that can be directly attributed to acquiring the inventory. Any taxes that can be recovered must be excluded and any trade rebates or discounts must also be excluded.
<b>Cost of production</b>	These costs are the conversion, processing or conversion costs incurred to place the inventory in the condition and location that it is valued in. Cost of production includes costs relating directly to the units of production such as direct labour. Cost of production also includes an allocation of fixed and variable production overheads.
<b>Other costs</b>	Other costs are included only if they are incurred to place the inventory in the condition and location that it is valued in, for example storage costs directly related to the production process.

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## Specific exclusions

IAS 2 excludes the following from the cost of inventories:

- Selling expenses
- General administration overheads
- Storage costs of finished goods
- Abnormal waste incurred in the production process which does not relate to placing the inventory in the condition and location that it is valued in

## Net realisable value

Inventory should be measured at the lower of:

- Cost
- Net realisable value

One of the conditions (noted earlier) for inventory to be recognised as an asset is that there are probable future benefits to be derived from the asset. If the future economic benefit of the inventory is less than the cost of the inventory, then the value of the inventory should be diminished to reflect the anticipated future revenues. In other words, inventory should be written down to net realisable value. These write downs may be reversed if circumstances change.

IAS 2 defines net realisable value as the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs to make the sale.

**Note:** IAS 2 is a comprehensive statement and the full implications of IAS 2 are not dealt with here. Only the aspects that are relevant to later topics in this manual have been covered.

## Property, plant and equipment

Property, plant and equipment are defined as tangible assets that:

- Are used in the production or supply of goods and services, for rental to others or for administrative purposes
- Are expected to be used for more than one accounting period

IAS 16 relates to accounting for property, plant and equipment and deals with two major issues in accounting for property, plant and equipment:

- Timing– the timing of recognition of property, plant and equipment
- Charges – determining carrying charges and related depreciation charges

## Recognition of property, plant and equipment

Property, plant and equipment should be recognised as assets when:

- It is probable that future economic benefits associated with the item will flow to the organisation
- The cost of the item can be measured reliably

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## Charges for property, plant and equipment

Cost	The cost of property, plant and equipment is determined by the amount of cash (or cash equivalents) paid or the fair value given to acquire the asset at the time of its acquisition, or the value of the asset as determined by the specific requirements of other International Financial Reporting Standards (IFRS).
Fair value	Is the amount for which an asset could be exchanged or a liability settled between willing, knowledgeable parties in an arm's length transaction.
Useful life	Useful life is either: the period over which an asset is expected to be of use to an organisation; or the number of production units (or similar) expected to be produced by the asset.
Residual value	Residual value is the estimated value that an organisation would currently realise from the disposal of the asset if the asset were already of the age and condition expected at the end of its useful life. Estimated costs of disposal would need to be deducted from the estimated value of the asset to determine residual value.
Depreciable amount	The depreciable amount is the cost of an asset less the asset's residual value.

## Depreciation

This is the allocation of the depreciable amount of an asset over its useful life. Property, plant and equipment should initially be measured at cost.

Carrying amount	The amount at which an asset is valued after deducting accumulated depreciation and impairment losses. Property, plant and equipment should initially be measured at cost.
Impairment loss	The amount by which the carrying amount of an asset exceeds its recoverable amount

The cost of property, plant and equipment includes:

Cost of purchase	These costs include the purchase price which will include freight (transport) and handling costs plus any applicable taxes (such as import duties etc.) and any other costs that can be directly attributed to bringing the asset to the location and condition required for it to be capable of operating in its intended manner. Any taxes that can be recovered must be excluded and any trade rebates or discounts must also be excluded.
Cost of disposal	These costs are the estimated costs of disposing of the asset. However if the asset is used for producing inventory then these costs will be capitalised to the inventories and not included in the cost of the asset.
Excluded costs	When the asset is in the location and condition required for it to be capable of operating in its intended manner then costs will no longer be capitalised.

IAS 16 highlights the three most common methods of depreciation:

- Straight-line
- Diminishing balance
- Sum-of-the-units

**Note:** IAS 16 is a comprehensive statement and the full implications of IAS 16 are not dealt with here. Only the aspects that are relevant to later topics in this manual have been covered.

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## Revenue

IAS 18 relates to accounting for revenue (or sales, turnover, fees, etc). Revenue is the income stream generated during the course of the ordinary activities of an organisation.

- Revenue should be accounted for at fair value which is the amount for which an asset could be exchanged or a liability settled between willing, knowledgeable parties in an arm's length transaction. Furthermore:
- Revenue should be net of trade discounts and rebates

When a transaction is financed 'interest free' the fair value is calculated by discounting all future cash receipts using an imputed rate of interest. The difference between the fair value of the transaction and the discounted value of all the future cash receipts is recognised as interest revenue.

When the revenue generated by a transaction includes an amount for subsequent maintenance or servicing (not warranties) then the amount that is identified for maintenance or servicing should be deferred and only recognised, on an appropriate basis, as revenue over the period which the maintenance or servicing takes place.

### **Interest, royalties and dividends**

Revenue resulting from interest, royalties and dividends should be recognised when:

- The amount of the revenue can be measured reliably
- It is probable that the economic benefits of the transaction will flow to the organisation

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IAS 18 requires the following disclosure:

- The accounting policies adopted for the recognition of revenue, including the methods adopted to determine the stage of completion of transactions involving the rendering of services
- The amount of each significant category of revenue recognised during the period. These categories include:
  - ♦ The sale of goods
  - ♦ The rendering of services
  - ♦ Interest
  - ♦ Royalties
  - ♦ Dividends
  - ♦ The amount of revenue arising from the exchanges of goods or services, analysed by category

**Note:** IAS 18 is a comprehensive statement and the full implications of IAS 18 are not dealt with here. Only the aspects that are relevant to later topics in this manual have been covered.

**Note:** IAS 17 deals with the recognition of income from leases and IAS 28 deals with profits from associates. These are beyond the scope of this manual.

### Using IFRS in financial analysis

The statutory requirements and the IFRS requirements must be considered while doing financial analysis and working through this learner guide. Remember that for internal reporting and analysis purposes an organisation has to abide by IFRS. However, the organisation must be consistent in its treatment of financial recording and analysis if the recording and analysis is to be of value to the organisation. It is therefore recommended that organisations adopt IFRS for internal use where possible.

IFRS includes numerous guidelines and conventions that help insure that reported financial information is accurate, objective and reasonably consistent for all types of business, so that results from one business can be compared to those from another.

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Although accountants apply International Financial Reporting Standards, there is room for variation among different businesses (and among different accountants) in the application of IFRS.

Consistency generally is required within a particular business. However, different policies in different businesses can affect their reported results and distort the picture of where your business stands in relation to other businesses.

In this regard, consider that:

- The time at which sales show up on an Statement of Comprehensive Income (income statement) may differ from business to business. A more aggressive approach may accelerate income items by reporting them at the earliest possible moment, while a more conservative approach may postpone revenues.
- Depreciation charges for financial reporting purposes on essentially similar assets can differ from business to business, depending on accounting policies with regard to depreciation methods and useful lives
- Inventory accounting policies may differ. A business using first-in, first-out (FIFO) accounting will show higher profits in a period of rising prices than will a business using last-in, first-out (LIFO) accounting. Note that LIFO is not in terms of IFRS.
- Policies may differ in regard to expensing. One business may charge an item to income immediately as an expense, while another business may capitalise the same item and report a higher profit.
- Different methods of treating the cost of developing a product will affect the cost of goods sold and affect the gross profit reported
- Extraordinary or nonrecurring charges may or may not be reflected in operating income, depending on your accounting policies
- The treatment of tax items may vary from one business to the next

For all these reasons, when you're comparing your financial statements to industry standards or to those of another business, take the results with a grain of salt.

### **Calculating ratios according to IFRS**

IFRS includes numerous guidelines and conventions that help insure that reported financial information is accurate, objective and reasonably consistent for all types of business, so that results from one business can be compared to those from another.

Although accountants apply International Financial Reporting Standards, there is room for variation among different businesses (and among different accountants) in the application of IFRS

Consistency generally is required within a particular business. However, different policies in different businesses can affect their reported results and distort the picture of where your business stands in relation to other businesses.

IFRS Standards that are useful and important in using ratios to analyse financial statements include:

- IAS 1 - Presentation of financial statements
- IAS 2 – Inventories
- IAS 16 - Accounting for property, plant and equipment
- IAS 18 - Revenue, to define sales (revenue)

There are other IAS statements that impact on defining and valuing assets but these are beyond the scope of this learner guide.

### **Financial relationships**

The relationship between the financial statements:

The financial statements of a company are developed from the bookkeeping process of the business. As the company records the financial transactions of the firm over an accounting time period, the financial statements begin to appear. They are developed through recording the transactions in the accounting journal and the general

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ledger. The financial statements come together from those records. The financial statements are based on the accounting equation.

**The Statement of comprehensive income (income statement) and the accounting equation**

The statement of comprehensive income (income statement) (statement of profit and loss) shows how profitable the firm is. A positive net income means the firm is making money. A negative net income means the firm is losing money. The statement of comprehensive income (income statement) is developed from the accounting entries for revenues and expenses over the accounting period.

The accounting equation is stated as:

**Assets = Liabilities + Owner's Equity**

In the accounting equation, owner's equity is made up of revenue and expenses. Revenue increases owner's equity and expenses decrease owner's equity (the money the owners have invested in the company). Since the firm's Statement of Financial Position (balance sheet) is based on the accounting equation, with owner's equity a component of the left side of the Statement of Financial Position (balance sheet), this is the tie to the Statement of Comprehensive Income (income statement).

**The statement of retained earnings**

The statement of retained earnings is developed after the statement of comprehensive income (income statement) because it uses data from the statement of comprehensive income (income statement). The net income from the statement of comprehensive income (income statement) is either retained by the firm or paid out as dividends or a combination of both.

**The statement of financial position (balance sheet) and the accounting equation**

The business firm's statement of financial position (balance sheet) shows how much money the firm is worth -- its net worth. The balance sheet items are stated in terms of book value. The two sides of the accounting equation mirror the format of the balance sheet. The two sides of the balance sheet have to balance since every asset has to be purchased with either a liability, like a bank loan, or owner's equity, such as a portion of the retained earnings.

The balance sheet is an indicator of net worth while the statement of comprehensive income (income statement) or statement of profit and loss is an indicator of profitability.

**The statement of cash flows**

The statement of cash flows uses data from both the Statement of Comprehensive Income (income statement) and Statement of Financial Position (balance sheet). It is the financial statement that is developed last due to this fact.

**THE ROLE OF BUDGETING AND FORECASTING IN STRATEGIC PLANNING**

Strategic planning is a structured and coordinated approach for developing long-term organisational goals and for developing strategies to accomplish them. It is typically used to facilitate communication, to accommodate divergent interests, and to foster decision making through leadership and consensus building.

One of the primary purposes of strategic planning is to set the stage for the annual budget process, providing a roadmap for annual resource allocation decisions.

The budget process consists of activities that encompass the development, implementation, and evaluation of a plan for the provision of services and capital assets.

Budgeting is **implementing a business plan on paper** before any resources are committed to production; it helps you predict the consequences of an adjustment in your operation before ever making the adjustment. While records

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serve as a record of the past, **budgets are an anticipation of the future**. After budgets are done, they become a **standard for monitoring** what actually happens in the operation.

Budgets are usually **compiled and re-evaluated on a periodic basis**. A budget is a tool that managers use to translate future **plans** into quantitative terms. Through budgeting, managers ensure that they have the resources available to carry out the plans to reach the organisation’s goals.

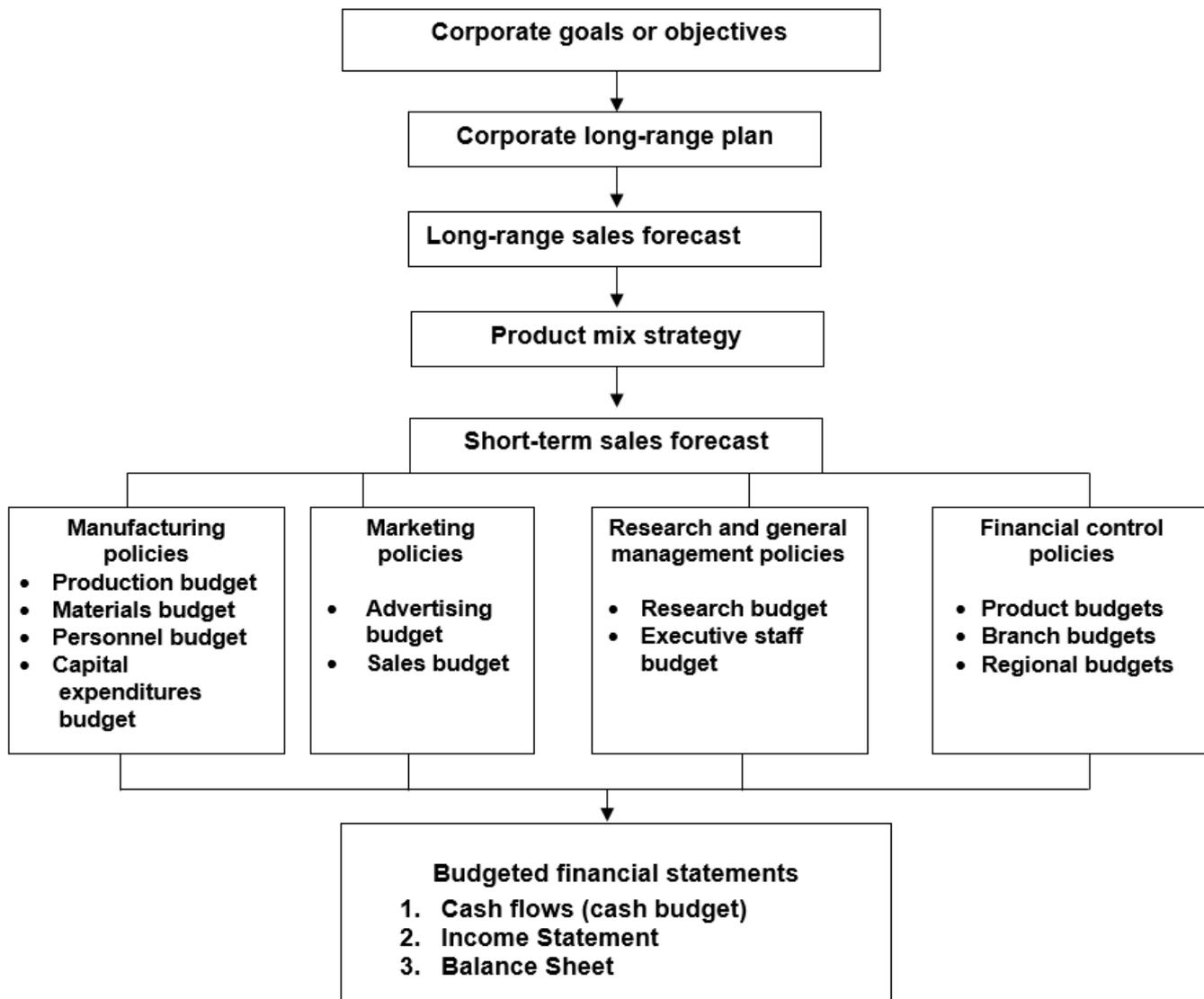
Depending on the nature of the business, detailed plans may be formulated for the next few months, the next year, the next 5 years, or even longer.

*A company engaged in heavy **construction** is constantly submitting tenders that may or may not be successful; therefore, it cannot plan as far ahead as an **electric utility company**.* The utility company can base its projections on population growth, which is predictable for 5- to 10-year periods. It must plan asset acquisitions years ahead, because of the long lead times involved in constructing dams, nuclear power plants, etc.

The budget system of an organisation provides an integrated picture of the organisation’s operations as a whole. It enables the manager of each business unit to see the relation of his/her part of the enterprise to the totality of the company.

The **total budgeting process in an organisation** can be depicted as follows:

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At the outset you need to establish what positive expectations – goals – you have for your business and the plans you will put in place to help you reach those goals. Goal-setting is a critical factor because without a target, there is nothing to aim for and little chance of anything being hit or achieved.

A budget provides a good way of directing your business towards goals in terms of both expenses and revenues. It gives a constant overview of costs incurred and revenues raised, which then allows for the micro control of both of those elements.

Communicate your long-term plan to all concerned with drawing up budgets. Get the right people involved from the start. Internally, staff members with financial responsibilities should definitely have a role, as well as those who head specific projects, and those accountable for devising sales targets and production costs.

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## THE ACCOUNTING CONVENTIONS APPLIED IN FINANCIAL MANAGEMENT

In drawing up accounting statements, whether they are external "financial accounts" or internally-focused "management accounts", a clear objective has to be that the accounts fairly reflect the true "substance" of the business and the results of its operation.

The theory of accounting has, therefore, developed the concept of a "**true and fair view**". The true and fair view is applied in ensuring and assessing whether accounts do indeed portray accurately the business' activities.

To support the application of the "true and fair view", accounting has adopted certain concepts and conventions which help to ensure that accounting information is presented accurately and consistently.

### **Accounting conventions<sup>12</sup>**

The most commonly encountered convention is the "**historical cost convention**". This requires transactions to be recorded at the price ruling at the time, and for assets to be valued at their original cost.

Under the "historical cost convention", therefore, no account is taken of changing prices in the economy.

The other conventions you will encounter in a set of accounts can be summarised as follows:

Monetary measurement	Accountants do not account for items unless they can be quantified in monetary terms. Items that are not accounted for (unless someone is prepared to pay something for them) include things like workforce skill, morale, market leadership, brand recognition, quality of management etc.
Separate entity	This convention seeks to ensure that private transactions and matters relating to the owners of a business are segregated from transactions that relate to the business.
Realisation	With this convention, accounts recognise transactions (and any profits arising from them) at the point of sale or transfer of legal ownership - rather than just when cash actually changes hands. For example, a company that makes a sale to a customer can recognise that sale when the transaction is legal - at the point of contract. The actual payment due from the customer may not arise until several weeks (or months) later - if the customer has been granted some credit terms.
Materiality	An important convention. As we can see from the application of accounting standards and accounting policies, the preparation of accounts involves a high degree of judgement. Where decisions are required about the appropriateness of a particular accounting judgement, the "materiality" convention suggests that this should only be an issue if the judgement is "significant" or "material" to a user of the accounts. The concept of "materiality" is an important issue for auditors of financial accounts.

<sup>12</sup> Information on Accounting Conventions retrieved from: [http://tutor2u.net/business/accounts/accounting\\_conventions\\_concepts.htm](http://tutor2u.net/business/accounts/accounting_conventions_concepts.htm)

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## Accounting concepts

Four important accounting concepts underpin the preparation of any set of accounts:

Going Concern	Accountants assume, unless there is evidence to the contrary, that a company is not going broke. This has important implications for the valuation of assets and liabilities.
Consistency	Transactions and valuation methods are treated the same way from year to year, or period to period. Users of accounts can, therefore, make more meaningful comparisons of financial performance from year to year. Where accounting policies are changed, companies are required to disclose this fact and explain the impact of any change.
Prudence	Profits are not recognised until a sale has been completed. In addition, a cautious view is taken for future problems and costs of the business (they are "provided for" in the accounts" as soon as there is a reasonable chance that such costs will be incurred in the future.
Matching (or "Accruals")	Income should be properly "matched" with the expenses of a given accounting period.

## Key characteristics of accounting information

There is general agreement that, before it can be regarded as useful in satisfying the needs of various user groups, accounting information should satisfy the following criteria:

Criteria	What it means for the preparation of accounting information
Understandability	This implies the expression, with clarity, of accounting information in such a way that it will be understandable to users - who are generally assumed to have a reasonable knowledge of business and economic activities
Relevance	This implies that, to be useful, accounting information must assist a user to form, confirm or maybe revise a view - usually in the context of making a decision (e.g. should I invest, should I lend money to this business? Should I work for this business?)
Consistency	This implies consistent treatment of similar items and application of accounting policies
Comparability	This implies the ability for users to be able to compare similar companies in the same industry group and to make comparisons of performance over time. Much of the work that goes into setting accounting standards is based around the need for comparability.
Reliability	This implies that the accounting information that is presented is truthful, accurate, complete (nothing significant missed out) and capable of being verified (e.g. by a potential investor).
Objectivity	This implies that accounting information is prepared and reported in a "neutral" way. In other words, it is not biased towards a particular user group or vested interest

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## THE FINANCIAL REPORTS PUBLISHED IN THE ORGANISATION

The organisation is required to create the following financial statements. These financial statements are what we will be using later in order to do a financial analysis:

### **A statement of financial position (balance sheet)**

Our Company Statement of Financial Position For the Period Ended 201X	
Assets	R15,000
<b>Total Assets</b>	<b>15,000</b>
Liabilities	4,000
Equity	
Contributed Capital	10,000
Retained Earnings	1,000
Total Equity	11,000
<b>Total Liability and Equity (Claims)</b>	<b>15,000</b>

The statement of financial position (balance sheet) lists the assets and the corresponding claims (i.e., liabilities and equity). Logically, the assets must have the source, so they balance with the claims. That is why the total claims are equal to the total assets.

The statement of financial position is a good example of the use of the accounting equation:

$$\text{Assets} = \text{Liabilities} + \text{Owner's equity}$$

### **A statement of comprehensive income (income statement)**

Our Company Statement of Comprehensive Income For the Period Ended 201X	
Revenues (i.e., assets increase)	R5,000
Expenses (i.e., assets decrease)	R2,000
<b>Net Income (i.e., change in net assets)</b>	<b>R3,000</b>

The statement of comprehensive income measures the difference between the assets increase and the assets decrease. The assets increase from the operating activities is labelled revenues. The asset decrease is called expenses. The difference between revenues and expenses is called net income (if revenues are greater than expenses) or net loss (if vice versa).

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### A statement of changes in equity

Our Company Statement of Changes in Equity For the Period Ended 201X	
Beginning Contributed Capital	R 0
Plus: Capital Acquisition	10,000
Ending Contributed Capital	10,000
Beginning Retained Earnings	0
Plus: Net Income	3,000
Less: Distributions	(2,000)
Ending Retained Earnings	1,000
<i>Total Equity</i>	<i>11,000</i>

The statement of changes in equity is used to explain the effects of transactions on equity during the accounting (reporting) period. This statement includes the beginning and ending balances for the amount of contributed capital; it also reflects any new capital acquisitions made during the period. Moreover, the statement shows the portion of the net earnings retained in the business.

### A statement of cash flows

Our Company Statement of Cash Flows For the Period Ended 201X	
Cash Flows from Operating Activities	
Cash Receipts from Revenue	R7,000
Cash payments for Expenses	(4,500)
Net Cash Flow from Operating Activities	2,500
Cash Flows from Investing Activities	0
Cash Flows from Financing Activities	
Cash Receipts from Borrowed Funds	4,000
Cash Receipts from Capital Acquisitions	10,000
Cash Payments for Distributions	(1,500)
Net Cash Flow from Financing Activities	12,500
Net Increase in Cash	15,000
Plus: Beginning Cash Balance	0
<i>Ending Cash Balance</i>	<i>R15,000</i>

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The statement of cash flows shows how a company obtained and used cash. The sources of cash are called **cash inflows** and the uses are known as **cash outflows**. The statement classifies cash inflows and cash outflows into three categories:

1. Financing activities - describe the cash transactions associated with the resource providers (i.e., owners and creditors);
2. Investing activities - include cash received or spent by the business on productive assets and investments in the debt or equity of other companies;
3. Operating activities - explain the cash generated through revenue and the cash spent on expenses.

### Notes to Financial Statements

Notes are added to the financial statements to explain what the figures cannot, such as how motor vehicles are depreciated and to report on specifically high or low figures in the statements.

The notes to the financial statements (sometimes called footnotes) are also an integral part of the overall picture. If the Statement of Comprehensive Income (income statement), Statement of Financial Position (balance sheet) and statement of cash flows are the heart of the financial statements, then the footnotes are the arteries that keep everything connected. If you aren't reading the footnotes, you're missing out on a lot of information.

The footnotes list important information that could not be included in the actual ledgers. Could you imagine if the company listed out individual expenses on the Statement of Comprehensive Income (income statement) instead of putting them under one or two neat headings? The Statement of Comprehensive Income (income statement) would be 20 pages long!

The notes will list relevant things like outstanding leases, the maturity dates of outstanding debt and even details on where the revenue actually came from. Generally speaking, there are two types of footnotes:

**Accounting Methods** - This type of footnote identifies and explains the major accounting policies of the business. This portion of the footnotes will tell you the nature of the company's business, when its fiscal year starts and ends, how inventory costs are determined and any other significant accounting policies that the company feels that you should be aware of. This is especially important if a company has changed accounting policies. It may be that a organisation is practicing "cookie jar accounting" and is changing policies only to take advantage of current conditions to hide poor performance.

**Disclosure** - The second type of footnote provides additional disclosure that simply could not be put in the financial statements. The financial statements in an annual report are supposed to be clean and easy to follow. To maintain this cleanliness, other calculations are left for the footnotes. For example, details of long-term debt such as maturity dates and the interest rates at which debt was issued can give you a better idea of how borrowing costs are laid out. Other areas of disclosure include everything from pension plan liabilities for existing employees to details about ominous legal proceedings in which the company is involved.

The majority of investors and analysts read the statement of financial position (balance sheet), statement of comprehensive income (income statement) and statement of cash flows but, for whatever reason, the footnotes are often ignored.

In South Africa a directors' report is to be included in the financial statements. This is a requirement of the Companies Act 2008.

**A financial audit** is an independent evaluation performed for the purpose of attesting to the fairness, accuracy, and reliability of financial data.

It is important to note that auditor reports on financial statements are only an opinion on whether the information presented is correct and free of material misstatements, whereas all other determinations are left for the user to decide.

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## Interpreting financial statements

Financial statements are used to do financial analysis. Financial statements are accounting reports prepared periodically to inform the owner, creditors and other interested parties as to the financial condition and operating results of the business.

### Purpose of financial analysis

The purpose of financial analysis varies in every organisation, but generally it would include:

- To determine whether the organisation achieved its main objective which is the maximisation of profit
- To determine whether the organisation will be able to repay interest and capital on long-term loans
- To determine whether an organisation will be able to service its short-term debts from liquid funds
- To determine whether a company will be able to honour commitments relating to guarantees supplied
- To establish if certain investments yield a fair and acceptable return
- To establish whether a company has the potential to issue further ordinary shares, preference shares or debentures
- To establish, if an organisation is underperforming, what the problem areas are
- To make recommendations in connection with the take-over, reconstruction or amalgamation of organisations
- To evaluate the ability of an organisation to pay personnel and supply other benefits to personnel
- To establish tax policy
- To prepare and use national income statistics
- To regulate the operations of organisations

### Financial analysis users

There are two broad categories of accounting information and financial analysis users:

- External
- Internal

#### **External users**

Accounting information that is designed to satisfy the needs of resource owners (external users) is called financial accounting. Investors, creditors and brokers, to name a few, represent external users; they are interested in a company because they have money invested, etc.

#### **Internal users**

Managerial accounting provides information that is useful to internal users in running a business. The group of internal users includes managers, employees and unions that show interest in accounting information due to their direct concern in the prosperity of a business.

#### **Users and their information requirements<sup>13</sup>**

From the above, you will realise that there are many users of financial analysis information, such as:

**Management** - Management is interested in information contained in the financial statements in order to carry out its planning, decision making and control responsibilities

**Owners** - Regardless of the form of the enterprise, the owners, partners, members, trustees and shareholders will be interested in the total financial well-being of the enterprise. This includes the profit potential, financial stability

<sup>13</sup> Source: [http://www.mca.gov.in/XBRL/pdf/framework\\_fin\\_statements.pdf](http://www.mca.gov.in/XBRL/pdf/framework_fin_statements.pdf)

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and growth potential. Owners need information to assist them in deciding if they should buy, sell or retain their investment.

**Potential investors** - The providers of risk capital and their advisors (brokers, auditors, economists) are concerned with the risk inherent in and return provided by, their investment and also the ability of the enterprise to pay dividends

**Employees** - Employees and their representative groups (e.g. trade unions) are interested in information pertaining to the stability and profitability of employers. They are also interested in information which enables them to assess the ability of the enterprise to provide remuneration, retirement benefits and employment opportunities.

**Lenders of money** - Lenders of money are interested in information enabling them to assess whether their loans and the interest payable on these loans, will be paid when due

**Suppliers and other trade creditors** - Suppliers and other creditors are interested in information enabling them to establish whether amounts owing to them will be paid when due. Trade creditors, as opposed to lenders, are likely to be interested in an enterprise over a shorter period, unless they are dependent on the enterprise (being a major customer) for their continued existence.

**Customers** - Customers are interested in information about the continued existence of an enterprise if they are involved with it over the long term or if they are dependent on the enterprise being their chief supplier

**Governments and their agencies** - Governments and their agencies are interested in the allocation of resources and therefore, the activities of enterprises. Agencies such as these would include the Receiver of Revenue, the Departments of Statistics, Trade and Industry, Health and so forth. These agencies require the information in order to regulate the activities of enterprises, to determine taxation policies and as the basis for national income and other similar statistics.

**The public and consumer organisations** - Enterprises affect members of the public in a variety of ways. For instance, enterprises may make a substantial contribution to the local economy in many ways, including the number of people they employ and their patronage of local suppliers. Financial statements may assist the public by supplying information in connection with trends and recent developments in the prosperity of the enterprise and the range of its activities.

Management of an organisation needs to measure the success of their activities. Their success needs to be measured relative to their past performance as well as their competitors. Financial analysis is not easy as there are many ways of interpreting data that is often complex and voluminous.

### **ANALYSE FINANCIAL STATEMENTS**

The primary financial statements of a company are prepared in order to provide information to the users of these statements to help them make economic decision. Such decisions are made within the context of environmental factors which impact on the company. The analysis of financial statements must therefore be conducted with insight into the expected economic conditions which will prevail in the industry and economy.

The main considerations in every analysis are:

- To establish the purpose of the analysis that needs to be done
- Only when the purpose of the analysis is defined is it possible to select the appropriate ratios and items for analysis
- The results of the analysis are then compared and evaluated in a trend analysis
- Finally, the decisions require a prediction based on the ratio and trend analysis

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Financial analysis is used to fulfil one of the key challenges facing an organisation - establishing how well the organisation is performing. This is also known as a financial health check or organisational viability and is also referred to as organisational sustainability.

### **Trends and ratios**

Using trends and ratios to analyse financial reports provides the organisation (management) with an understanding of financial information.

In assessing the significance of various financial data, experts engage in ratio analyses, the process of determining and evaluating financial ratios. A financial ratio is a relationship that indicates something about a company's activities, such as the ratio between the company's current assets, current liabilities or between its accounts receivable and its annual sales. The basic sources for these ratios are the company's financial statements that contain figures on assets, liabilities, profits, or losses.

Financial analysis is done by doing a comparative analysis. It is conducted by setting consecutive Statement of Financial Position (balance sheet), Statement of Comprehensive Income (income statement) or statement of cash flow side-by-side and reviewing changes in individual categories on a period to period multi-period basis. The most important item revealed by comparative financial statement analysis is trend.

Financial ratios are only meaningful when compared with other information. Since they are most often compared with industry data, ratios help an individual understand a company's performance relative to that of competitors; they are often used to trace performance over time.

**Ratio analysis** can reveal much about a company and its operations. However, there are several points to keep in mind about ratios<sup>14</sup>:

- First, financial statement ratios are "flags" indicating areas of strength or weakness. One or even several ratios might be misleading, but when combined with other knowledge of a company's management and economic circumstances, ratio analysis can tell much about a corporation.
- Second, there is no single correct value for a ratio. The observation that the value of a particular ratio is too high, too low, or just right depends on the perspective of the analyst and on the company's competitive strategy.
- Third, a ratio is meaningful only when it is compared with some standard, such as an industry trend, ratio trend, a ratio trend for the specific company being analysed, or a stated management objective
- In **trend analysis**, financial ratios are compared over time, typically years. Year-to-year comparisons can highlight trends, pointing to the need for action. Trend analysis works best with five years of data.

### **Ratio analysis**

Ratio analysis involves expressing one piece of financial information (for example profit) in terms of another (for example total assets). Ratio analysis cannot be performed using only one set of figures.

Ratio analysis involves the comparison of ratios either with ratios of other companies and/or with previous ratios within the same organisation.

#### **Step 1: Selection for ratio analysis**

There are many possible ratios which could be selected. The objective of the analysis is the criteria used when deciding upon the relevant ratios to be selected. The analyst must be convinced that the number and denominator line items

<sup>14</sup> Retrieved from: <https://www.ventureline.com/ratio-analysis-accounting-ratios/private-company/>

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selected have a relationship which is meaningful. It is probable that a number of relevant ratios may be identified and selection from among these will be necessary to avoid information overload. You need to identify:

- What is the purpose of the analysis?
- What are the appropriate tools to use?

### Step 2: Comparison of ratio analysis

The use of ratios for comparison between companies is limited by the differing accounting policies and the lack of uniformity in disclosure between organisations' financial statements. This makes the comparison of ratio outcomes difficult between organisations. You need to identify who or what you are going to compare the ratio analysis with:

- With other companies
- With previous years
- With the industry
- With budgets
- With ideal targets

### Step 3: Evaluation of ratio analysis

Factors such as the size of a company, outside influences on the company during the period under review, seasonal differences which arose within the period bounded by the two Statement of Financial Position (balance sheet) dates and which may not be reflected in either of the two Statements of Financial Position (balance sheets), must be noted when evaluating the ratio analysis. You need to identify:

- Is it good or bad?
- Was the result expected?
- If bad, why?
- If good, maintainable?
- Who/what is responsible?

### Step 4: Prediction based on ratio analysis

The decision to be made resulting from the analysis of historic data will require taking many variables into consideration for the present and future. The usual judgement must be exercised as any mechanical application is likely to be questionable. You need to identify:

- What is likely to happen if no action is taken?
- What improving action is possible?

Ratios are calculated to provide you with information about four aspects of a business's operations:

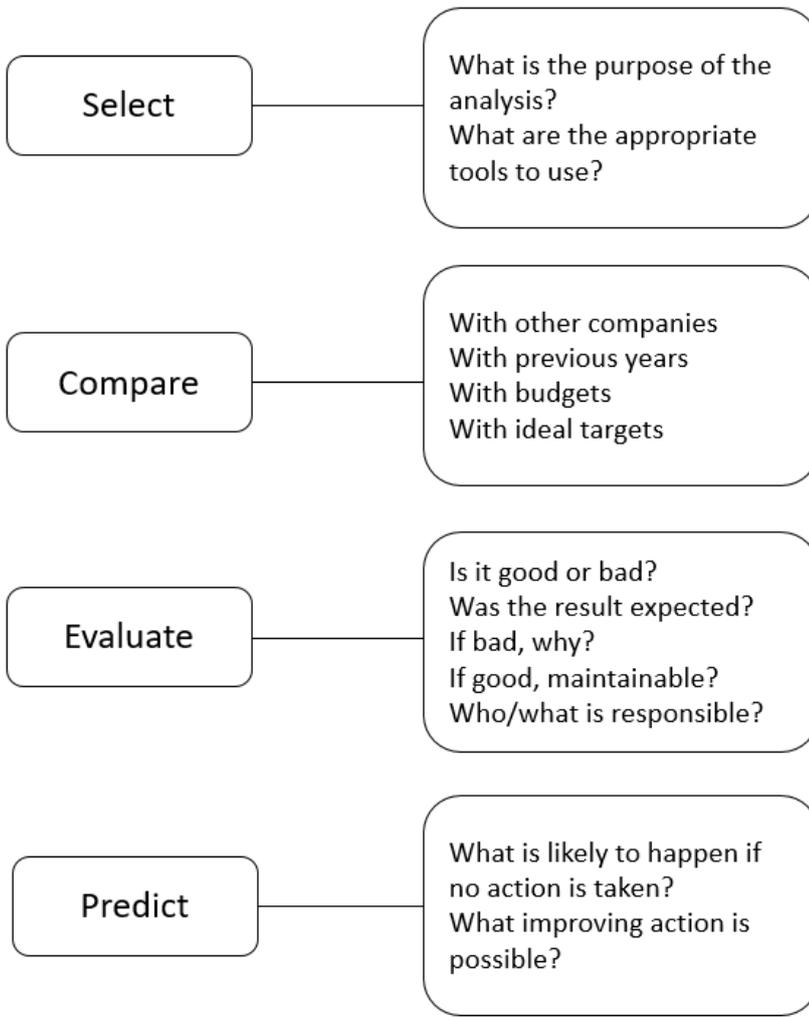
- Profitability
- Liquidity
- Efficiency
- Leverage

**Note:** The categories must not be considered to be mutually exclusive, as the selection of a ratio for the primary purpose of establishing liquidity for example, may include a ratio with we have place into the efficiency category.

### To summarise:

To do a financial analysis, the manager needs to establish the purpose of the analysis. Once the purpose of the analysis has been established, the approach usually follows the typical stages illustrated below:

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**Apply ratios to measure profitability and liquidity**

***Profitability ratios***

Profitability ratios determine if returns will be generated to ensure the sustainability of an organisation. They attempt to reflect the profit per rand of sales or the profit per rand or capital invested.

Profitability ratios offer a glimpse into a company’s operational performance and help business owners determine if they are maximising their bottom line. They also offer insights into the return a company is generating from its assets and invested capital. These ratios should be compared on a period over period basis (i.e. year to year).

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While these ratios may vary from industry to industry, standard profitability ratios include:

<b>Gross margin percentage</b>	$\text{Gross margin} = \frac{\text{gross margin}}{\text{Sales}} \times 100$ <p>Expressed as percentage (%)</p>
<b>Net margin</b>	$\text{Net margin} = \frac{\text{Net profit to ordinary shareholders}}{\text{Sales}} \times 100$ <p>Expressed as percentage (%)</p>
<b>Net Profit margin on sales</b>	$\text{Profit margin} = \frac{\text{net profit after taxes}}{\text{Sales}}$ <p>gives the profit per rand of sales</p>
<b>Return on assets before interest and tax (ROABIT)</b>	$\text{ROABIT} = \frac{\text{Net operating profit}}{\text{Total assets}} \times 100$ <p>Expressed as percentage (%)</p>
<b>Return on capital employed (ROCE)</b>	$\text{ROCE} = \frac{\text{Net operating profit}}{\text{Shareholders' equity} + \text{long-term loans}} \times 100$ <p>Expressed as percentage (%)</p> <p>Measures the net profit before tax before the providers of long-term capital have been rewarded by using the profit before interest has been deducted.</p>
<b>Return on equity (ROE)</b>	$\text{ROE} = \frac{\text{Net profit to ordinary shareholders}}{\text{Shareholders' Equity}} \times 100$ <p>Expressed as percentage (%)</p> <p>Measures the residual net profit which is available to ordinary shareholders.</p>
<b>Return on net worth</b>	$\text{Return on Net Worth} = \frac{\text{net profit after taxes}}{\text{net worth}}$ <p>measures the rate of return on the stockholders investment</p>

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## Liquidity ratios<sup>15</sup>

Liquidity ratios help you determine your company's ability to generate sufficient amounts of cash to meet any current or short-term obligation.

Liquidity ratios focus on a company's ability to pay its bills when they come due. Bankers and suppliers use liquidity ratios to measure a company's creditworthiness. If liquidity ratios remain relatively high for a prolonged period, too much capital may be invested in liquid assets (for example, cash, short-term investments, accounts receivable, inventory) and too little capital may be devoted to increasing shareholder value. If liquidity ratios remain relatively low, a company may not have sufficient liquidity to meet ongoing financial obligations.

Liquidity ratios include:

<b>Current Ratio</b>	$\text{Current Ratio} = \frac{\text{current assets}}{\text{current liabilities}}$ <p>(e.g.) 1,21 expressed as 1,21 : 1</p> <p>The current ratio is the most commonly used measure of short-term creditors covered by assets that are expected to be converted to cash in a period roughly corresponding to the maturity of the claims.</p>
<b>Acid Test Ratio</b> (Quick Ratio)	$\text{Acid Test Ratio} = \frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}$ <p>(e.g.) 0,45 expressed as 0,45 : 1</p> <p>measures the organisation's ability to pay off short-term obligations without relying on the sale of inventories (typically the least liquid of an organisation's current assets)</p>

## APPLY RATIOS TO MEASURE WORKING CAPITAL AND ASSET UTILISATION

Efficiency ratios enable you to evaluate how effectively your company uses its fixed and current assets. Assets are compared to turnover to see how the relative use of assets over the period has performed in generating sales rands.

Turnover or efficiency ratios measure the activity or changes in certain assets, including accounts receivable, accounts payable and inventory. Poor turnover generally indicates resources are invested in non-income producing assets. The ratios presume that a "proper" balance should exist between sales and the various asset accounts-inventories, accounts receivable, fixed assets and others.

Efficiency ratios include:

<b>Fixed assets turnover</b> (sales or gross revenue)	$\text{Fixed assets turnover} = \frac{\text{sales}}{\text{fixed assets}}$ $= \frac{\text{turnover}}{\text{fixed assets}}$ <p>(e.g.) 3,5 expressed as 3,5 times</p> <p>measures the extent to which fixed assets have been efficient in generating sales</p>
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<sup>15</sup> Source: <http://www.bizplanit.com/financial-plan-financial-ratios/>

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<b>Total assets turnover</b>	<p>Total assets turnover = <math>\frac{\text{sales}}{\text{total assets}}</math></p> <p>= <math>\frac{\text{turnover}}{\text{total assets}}</math></p> <p>(e.g.) 2,4 expressed as 2,4 times</p> <p>measures the extent to which all assets have been efficient in generating sales</p>
<b>Days' inventory</b>	<p>Days' inventory = <math>\frac{\text{inventory} \times 365 \text{ days}}{\text{Cost of sales}}</math></p> <p>expressed as days</p> <p>measures the quantity of inventory on hand in relation to the quantity purchased each day</p>
<b>Debtors collection period</b>	<p>Average collection period = <math>\frac{\text{receivables}}{\text{sales per day}}</math></p> <p>or = <math>\frac{\text{debtors} \times 365 \text{ days}}{\text{credit sales}}</math></p> <p>expressed as days</p> <p>measures how long debtors take to pay their accounts, by measuring the number of days from the date of sale to the payment date</p>
<b>Creditors settlement period</b>	<p>Creditors settlement period = <math>\frac{\text{creditors} \times 365 \text{ days}}{\text{credit purchases}}</math></p> <p>expressed as days</p> <p>measures the time taken to settle debts with creditors.</p> <p>Credit purchases for the year can be calculated by adding the cost of sales and the closing inventory less the opening inventory.</p>
<b>Inventory turnover</b>	<p>Inventory turnover = <math>\frac{\text{sales}}{\text{Inventory}}</math></p> <p>When calculating and analysing the inventory turnover ratio note that sales are at market prices; if inventories are carried at cost, as they generally are, it would be more appropriate to use cost of goods sold in place of sales in the numerator of the formula.</p>

### Working capital turnover ratio

This ratio represents the number of times the working capital is turned over in the course of year and is calculated as follows:

Formula of working capital turnover ratio:

Following formula is used to calculate working capital turnover ratio

$$\text{Working capital turnover ratio} = \text{Cost of sales} / \text{net working capital}$$

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The two components of the ratio are cost of sales and the net working capital. If the information about cost of sales is not available, the figure of sales may be taken as the numerator. Net working capital is found by deduction from the total of the current assets the total of the current liabilities.

**Example:**

Cash	10 000
Bills receivables	5 000
Sundry debtors	25 000
Stock	20 000
Sundry creditors	30 000
Cost of sales	150 000

**Calculate working capital turnover ratio**

**Calculation:**

Working capital turnover ratio = Cost of sales / net working capital

Current assets = R10 000 + R5 000 + R25 000 + R20 000 = R60 000

Current liabilities = R30 000

Net working capital = Current assets – current liabilities

= R60 000 – R30 000

= R30 000

So the working Capital Turnover Ratio = 150 000 / 30 000

= 5 times

**Significance:**

The working capital turnover ratio measures the efficiency with which the working capital is being used by a firm. A high ratio indicates efficient utilisation of working capital and a low ratio indicates otherwise.

However, a very high working capital turnover ratio may also mean lack of sufficient working capital which is obviously not a good situation.

**APPLY RATIOS TO MEASURE RETURN**

***Leverage ratios***

Leverage ratios provide information about a business’s ability to meet its long-term obligations. These ratios examine the financing structure of the business. They focus on the combination of owner’s equity and outside financing (long and short term) used by the company.

Leverage ratios indicate how well a company’s uses borrowed funds (rather than stockholders’ equity or investments) to expand its business. The goal is to borrow funds at a low interest rate and invest in a business activity that produces a rate of return exceeding the target rate of return for investments.

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Leverage ratios include:

<p><b>Debt ratio</b> (Total Debt to Total Assets)</p>	<p>Debt Ratio = <math>\frac{\text{total debt}}{\text{total assets}} \times 100</math> expressed as percentage (%) measures the percentage of total funds provided by creditors (e.g.) 20% indicates that for every R1 used to purchase total assets, 20 cents of the financing was provided by parties other than the ordinary shareholders.</p>
<p><b>Debt to equity ratio</b></p>	<p>Debt to equity = <math>\frac{\text{long-term loans}}{\text{Shareholders' equity}} \times 100</math> expressed as percentage (%) compares long-term loans and shareholders' equity (e.g.) 30% indicates that for every R1 of capital proved by ordinary shareholders, 30 cents was raised through long-term loans.</p>
<p><b>Interest cover</b> (Times interest earned)</p>	<p>Interest cover = <math>\frac{\text{Net operating profit before interest and tax}}{\text{Interest}} \times 100</math> expressed as times measures the number of times which the net profit is able to cover the interest which is due without resultant financial embarrassment to the organisation because of inability to meet annual interest costs.</p>

Leverage ratios, which measure the funds supplied by owners as compared with the financing provided by the organisation's creditors, have a number of implications:

- First, creditors look to the equity, or owner-supplied funds, to provide a margin of safety. If owners have provided only a small proportion of total financing, the risks of the organisation are borne mainly by the creditors.
- Second, by raising funds through debt, the owners gain the benefits of maintaining control of the organisation with a limited investment.
- Third, if the organisation earns more on the borrowed funds than it pays in interest, the return to the owners is magnified. For example, if assets earn 6 percent and debt costs only 4 percent, there is a 2 percent differential accruing to the stockholders.

Leverage cuts both ways, however; if the return on assets falls to 3 percent, the differential between that figure and the cost of debt must be made up from equity's share of total profits. In the first instance, where assets earn more than the cost of debt, leverage is favourable, in the second, it is unfavourable.

Organisations with low leverage ratios have less risk of loss when the economy is in a recession, but they also have lower expected returns when the economy booms. Conversely, organisations with high leverage ratios run the risk of large losses but also have a chance of gaining high profits. The prospects of high returns are desirable, but investors are averse to risk. Decisions about the use of leverage, then, must balance higher expected returns against increased risk.

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In practice, leverage is approached in two ways:

1. One approach examines Statement of Financial Position (balance sheet) ratios and determines the extent to which borrowed funds have been used to finance the organisation.
2. The other approach measures the risks of debt by Statement of Comprehensive Income (income statement) ratios designed to determine the number of times fixed charges are covered by operating profits. These sets of ratios are complementary and most analysts examine both leverage ratios.

### **MAKE RECOMMENDATIONS BASED ON RATIO ANALYSIS**

One of the uses of ratios is to determine the profitability of an organisation. Profitability is an indicator of the viability of an organisation or its ability to sustain itself into the future.

An organisation uses profitability ratios to determine the financial health of the organisation. This type of analysis is of interest to many different parties, such as:

- The board of directors will use these to analyse the financial health of the organisation. This will assist in the measurement of how well their strategic objectives have been met in the past as well as helping to plan their future strategy based on the current strength of the organisation.
- Department managers will use these ratios to assess the profitability and sustainability of their business units.
- External users, such as shareholders and providers of capital and finance to the organisation will use these ratios to help determine the level of risk that they face in terms of their investments or lendings.

We will use information from the following Statement of Financial Position (balance sheet) and Statement of Comprehensive Income (income statement) summaries to work through some examples. We will refer to this set of information as **Document Set 1**.

*ABC Company is a retail company with its main business being the purchase of CD's from manufacturers, which are then sold in bulk to retail outlets and music shops. The figures provided below are not set out in accordance with IFRS, but rather as a financial analyst would prepare them – in a spreadsheet format.*

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**ABC Company LTD**

**Statement of Financial Position information at 30 June**

	20X1	20X2	20X3	20X4
	R	R	R	R
<b>EQUITY AND LIABILITIES</b>				
Shareholders' equity	45 745	44 651	49 225	59 218
Non-current loan	6 719	11 187	14 314	21 670
<b>Current liabilities</b>	7 228	8 436	13 217	18 453
Creditors	4 246	4 827	8 986	12 810
Other	2 982	3 609	4 231	5 643
	<b>59 692</b>	<b>64 274</b>	<b>76 756</b>	<b>99 341</b>
<b>ASSETS</b>				
<b>Fixed assets</b>				
Tangible assets	29 444	32 499	43 908	64 047
Investments	12 032	11 881	8 102	5 608
<b>Current assets</b>	18 216	19 894	24 746	29 686
Inventory	3 807	12 041	15 074	17 224
Debtors	8 183	5 614	8 939	11 406
Cash resources	6 226	2 266	733	1 056
Total assets	<b>59 692</b>	<b>64 274</b>	<b>76 756</b>	<b>99 341</b>

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ABC Company LTD							
Statement of Comprehensive Income (income statement) for the Year Ended information at 30 June							
	20X1		20X2		20X3		20X4
	R		R		R		R
Sales (gross revenue)	128 415		141 481		195 016		275 855
Cost of goods sold	106 634		125 605		162 383		230 822
Gross margin	21 781		15 876		32 633		45 033
Revenue from investments	2 982		2 376		827		897
	24 7863		18 252		33 460		45 930
Expenses	12 302		13 934		16 939		18 375
Operating expenses	4 026		4 320		4 520		5 026
Selling expenses	2 364		3 142		3 862		4 216
Depreciation	5 912		6 472		8 557		9 133
Net operating profit	12 461		4 318		16 521		27 555
Interest	816		1 454		2 290		3 900
Net profit before tax	11 645		2 864		14 231		23 655
Taxation	4 658		958		6 057		9 462
Net profit attributable to ordinary shareholders	6 987		1 906		8 174		14 193
Dividends	3 600		3 000		3 600		4 200
Net profit for year	3 387		(1 094)		4 574		9 993
Accumulated profit at beginning of year	12 358		15 745		14 651		19 255
Accumulated profit at end of the year	15 745		14 651		19 225		29 218

Additional information from financial statement notes:

- All sales and purchases are on credit
- Information for the previous accounting year: Sales R119 122

**Note:** The 20X4 figures from Document Set 1 are used to illustrate calculation of all the ratios which follow in the rest of the learner guide.

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### Applying Ratios to measure Profitability

We have selected five primary aspects of profitability which are commonly identified in various industries. The ratios attempt to reflect the profit per rand of sales or the profit per rand of capital invested, such as:

- Gross margin
- Net margin
- Return on assets before interest and tax
- Return on capital employed
- Return on equity

**Note:** The 20X4 figures from Document Set 1 are used to illustrate calculation of all the ratios which follow in the rest of the learner guide.

<b>Gross margin percentage (GM)</b>	Gross margin = $\frac{\text{gross margin}}{\text{Sales}} \times 100$ $= \frac{45\,033}{275\,855} \times 100$ $= 16,3\%$
-------------------------------------	---

This ratio indicates the percentages by which the total selling price is greater than the cost prices.

- A gross margin percentage of 16,3% indicates that for every R1 of sales, 16,3 cents was gross profit. The remaining 83,7 cents in each rand is the cost price of the goods.

The trend for ABC Company shows:

	<b>20X1</b>	<b>20X2</b>	<b>20X3</b>	<b>20X4</b>
Gross margin	17,0	11,2	16,7	16,3

When comparing this with previous years, the ratio has dropped from 17,0% in 20X1 to the current 16,3%. It is apparent that ABC Company had pressure on its gross margin in 20X2, as its gross margin fell to 11,2 %. This could have been from two sources:

- Pressure on selling prices as a result of competition in the industry
- Upward pressure on costs as a result of inflation or other cost factors.
- It is important to note that the rand amount of gross margin has more than doubled over the period as a result of the growth of sales.

<b>Net margin (NM)</b>	Net margin = $\frac{\text{Net profit to ordinary shareholders}}{\text{Sales}} \times 100$ $= \frac{14\,193}{275\,855} \times 100$ $= 5,2\%$
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This ratio indicates the percentages by which the total selling price eventually becomes net profit.

- The net margin percentage of 5,2% indicates that for every R1 of goods sold, 5,2 cents eventually becomes profit attributable to the ordinary shareholders.
- If turnover increases, then each time R1 is received, 5,2 cents will accrue to ordinary shareholders as net profit.
- The faster the turnover, the greater will be the accumulation of 5,2 cents and the larger the ultimate net profit.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Net margin	5,4	1,3	4,2	5,2

The net margin has followed similar trend to that of the gross margin, with the percentage achieved in 20X1 being the high point.

It would seem that following the slump in 20X2, ABC Company has recovered well and it is likely that the net margin will increase in 20X5.

<b>Return on assets before interest and tax (ROABIT)</b>	$\text{ROABIT} = \frac{\text{Net operating profit}}{\text{Total assets}} \times 100$ $= \frac{27\,555}{99\,341} \times 100$ $= 27,7\%$
--	--

ROABIT ratio indicates how well total assets have been used in earning profit, before any parties are rewarded by distribution of the profit, including the South African Revenue Service (SARS) in the form of tax and the providers of debt capital by way of interest.

- Every rand invested in total assets earned 27,7 cents

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
ROABIT	20,9%	6,7%	21,5%	27,7%

The ROABIT has had a drastic drop in 20X2 and 20X4 is the best achievement in the four-year period.

<b>Return on capital employed (ROCE)</b>	$\text{ROCE} = \frac{\text{Net operating profit}}{\text{Shareholders' equity} + \text{long-term loans}} \times 100$ $= \frac{27\,555}{59\,218 + 21\,670} \times 100$ $= \frac{27\,555}{80\,888} \times 100$ $= 34,1\%$
--	--

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Return on capital employed has been calculated using only long-term capital and attempting to measure the net profit before tax and before the providers of long-term capital have been rewarded, by using the profit before interest has been deducted.

- A return of 34,1% indicates that for every R1 of total long-term capital employed, 34,1 cents has been earned before tax.
- This means that 34,1 cents in every R1 is available to pay interest, tax and shareholders.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
ROCE	23,8%	7,7%	26,0%	34,1%

Apart from 20X2, the organisation was quite profitable.

<b>Return on equity (ROE)</b>	$\text{ROE} = \frac{\text{Net profit to ordinary shareholders}}{\text{Shareholders' Equity}} \times 100$ $= \frac{14\,193}{59\,218} \times 100$ $= 24,0\%$
-------------------------------	--

The return on equity is the residual net profit which is available to ordinary shareholders. When net profit is divided by the shareholders' equity, the result is the return on shareholders' funds. While not arithmetically sound, the net profit for the year attributable to ordinary shareholders is customarily divided by the shareholders' equity at the end of the year.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
ROE	15,3%	4,3%	16,6%	24,0%

A return of 24% is likely to be considered as more than satisfactory by the shareholders.

**Note:** It can be seen from the figures that interest expense of R3 900 when compared with long-term loans of R21 670 indicates an average interest rate of 18% for the year. As interest is a tax deductible expense, the effective cost to the company is less than 18%, because the interest expense made the amount on which company tax is calculated, smaller. The company thus pays less tax than it would have paid had there been no interest. The interest expense has shielded the company from the 30% tax it otherwise would have had to pay, had it not borrowed funds and thus been unable to deduct the interest from its taxable income.

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## Applying Ratios to measure Working Capital and Asset Utilisation

We have selected five ratios to assess the efficiency of the company in managing its fixed and current assets. Assets are compared to turnover to see how the relative use of assets over the period has performed in generating sales rands. The three most important working capital items are also tested to determine whether they have been efficiently used. The five ratios which we will be calculating are:

- Fixed assets turnover
- Total asset turnover
- Days' inventory
- Debtors collection period
- Creditors settlement period

**Note:** The 20X4 figures from Document Set 1 are used to illustrate calculation of all the ratios which follow in the rest of the learner guide.

<b>Fixed assets turnover</b> (sales or gross revenue)	$\begin{aligned} \text{Fixed assets turnover} &= \frac{\text{sales}}{\text{fixed assets}} \\ &= \frac{\text{turnover}}{\text{fixed assets}} \\ &= \frac{275\,855}{64\,046} \\ &= 4,31 \text{ times} \end{aligned}$
---	--

The fixed assets turnover measures the extent to which fixed assets have been efficient in generating sales.

- It indicates that for every R1 invested in fixed assets, R4,31 was generated in sales during 20X4.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Fixed assets turnover	4,36	4,36	4,44	4,31

The trend over the four-year period has been consistent and this is a good indicator of stability in non-current tangible asset management.

<b>Total assets turnover</b>	$\begin{aligned} \text{Total assets turnover} &= \frac{\text{sales}}{\text{total assets}} \\ &= \frac{\text{turnover}}{\text{total assets}} \\ &= \frac{275\,855}{99\,341} \\ &= 2,78 \text{ times} \end{aligned}$
------------------------------	--

This ratio is similar to the fixed assets turnover and measures the extent to which total assets have generated sales.

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The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Total assets turnover	2,15	2,20	2,54	2,78

The trend has been more positive than that of the fixed asset turnover ratio and the expectation is that it will continue to increase, indicating improvement in the management of current assets relative to the revenue from sales.

<b>Days' inventory</b>	Days' inventory = $\frac{\text{inventory} \times 365 \text{ days}}{\text{Cost of sales}}$
	= $\frac{17\,224 \times 365 \text{ days}}{230\,822}$
	= 27,24 days

Days' inventory ratio measures the quantity of inventory on hand in relation to the quantity purchased each day.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Days' inventory	13,03	34,91	33,88	27,24

The number of days' inventory has shown considerable fluctuation over the four-year period.

- The major difference between 20X1 and 20X2 may have arisen as a result of a change in policy to keep more inventory on hand, or may have resulted from the decline in trading activity in 20X2 which is evident in all the ratios for that year.
- It appears that inventory is beginning to move more quickly and the improvement to 27,24 days in 20X4 may signal an attempt to return to the efficiency which was achieved in 20X1.
- Inventory is clearly the most significant current asset. Changes in this ratio have an impact on the current ratio as can be from the trends in these two ratios over the last three years.

<b>Debtors collection period</b>	Average collection period = $\frac{\text{debtors} \times 365 \text{ days}}{\text{credit sales}}$
	= $\frac{11\,406 \times 365 \text{ days}}{275\,855}$
	= 15,09 days

The debtors collection period shows how long debtors take to pay their accounts, by measuring the number of days from the date of sale to the payment date.

- The debtors collection period assumes that all sales are on credit. While this may not always be the case, the comparisons do provide useful information.

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The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Debtors collection period	23,26	14,48	16,73	15,09

This period has fluctuated from a short collection period of 14,48 days in 20X2 to a high of 23,26 days in 20X1.

- This current year's figure of 15 days seems to be within the range maintained apart from the unfortunate lapse in 20X1.

<b>Creditors settlement period</b>	Creditors settlement period = $\frac{\text{creditors X 365 days}}{\text{credit purchases}}$
------------------------------------	---

To calculate the time taken to settle debts with creditors, the credit purchases for the year must be known. As the opening and closing inventory as well as the cost of sales for each year are known, it is possible to calculate credit purchases, assuming that all purchases take place on credit:

$$\begin{aligned} \text{Credit purchases for the year} &= \text{cost of sales} + \text{closing inventory} - \text{opening inventory} \\ &= 230\,822 + 17\,224 - 15\,074 \\ &= R232\,972 \end{aligned}$$

	Creditors settlement period = $\frac{\text{creditors X 365 days}}{\text{credit purchases}}$
	= $\frac{12\,810 \times 365 \text{ days}}{232\,972}$
	= 20,07 days

The creditors settlement period measures how long it takes the company to pay its creditors. It is determined in the same way as the debtors collection period, except that creditors and cost of sales are substituted for debtors and sales respectively.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Creditors settlement period	14,50	13,17	19,82	20,07

Creditors are settled promptly although it is apparent that in the last two years, ABC Company has adopted a policy of keeping the creditors waiting marginally longer.

- This may be a symptom of its liquidity problems and scrutiny of the Statement of Financial Position (balance sheet) indicates that very low bank and cash resources are currently on hand.
- Note that sound management of working capital would try to ensure that the debtor's collection period is shorter than the creditors payment period, an objective which has only been achieved in recent years.

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## Making Recommendations after an Analysis

Once the ratio and trend analysis has been done, the analyst is in a position to make certain recommendations based on the outcome of the analysis. The components of the calculations are used to create a better outcome of future analysis and to make the required recommendations.

See Appendix A for an example of such an analysis report.

## Describing and preparing financial forecasts

Business entities need to plan for the future; they must also consider alternative management strategies and prepare capital and operating budgets; in addition, they must consider alternative funding and cash budget possibilities. An important part of the planning process is the preparation of prospective financial statements that attempt to predict the outcome of the business entity's activities in future periods.

**Financial forecasts** and **financial projections** are prospective financial statements that present an entity's expected financial position, results of operations, and cash flows in future periods under two different conditions.

**Financial forecasts** assume that the entity will continue to function in the manner in which it is currently functioning. For example, that a retail store chain will continue to do business in the manner in which it is currently engaged. The financial forecast presents the predicted results for the next year.

**Financial projections**, on the other hand, make one or more hypothetical assumptions about an entity's future course of action. For example, if the retail store chain were considering a Website at which it would also sell merchandise - in addition to the merchandise sold in the stores - a financial projection would provide expected results. Financial forecasts and projections should be distinguished from *pro forma* financial statements, which show the effect of a hypothetical future event on the historical financial statements results<sup>16</sup>.

It is critical to your business success that you prepare realistic forecasts of your future business performance. You need to forecast your operations for three to five years in order to guide your business growth. You will need realistic forecasts to support your business plan if you need a loan or investor funds. The elements of and influences on pro forma statements include<sup>17</sup>:

## Prior Financial Statements

Of course you will have to use previous financial statements if your business has been operating for some time. From your prior financial statements, you will use sales and revenue levels, business ratios, average expenses, and any relevant information about your accounts receivable or payable. You should expect your prior financial statements to show financial improvement for each year of operation.

## Internal Factors

The status of your operations is important in preparing pro forma statements and projections. For example, you must consider whether your business needs to relocate due to expansion, or your business needs to buy expensive new equipment to replace older models. You also must consider your competition, how you are measuring up to them, and whether you need a new marketing plan to be more competitive. Also, consider whether your company needs additional personnel or additional training.

<sup>16</sup> Source: <http://igr CPA.com/FinancialForecastsAndProjections.aspx>

<sup>17</sup> Retrieved from: <http://ezinearticles.com/?Preparing-Financial-Projections-and-Pro-Forma-Statements&id=248204>

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## External Factors

The status of the country's economy is very relevant to your company's future. Certain businesses may be affected by the status of the global economy. It is important to understand the industry trends to be certain that your product or services will continue to be marketable.

## Projected Financial Statement

The pro forma financial statements will include estimated future sales, expenses, and profits. These items need to be broken down in order to be meaningful. The sales estimates should state which salesperson, which department, or which region will generate the sales. The estimated expenses must be broken down into general and administrative, operating expenses, depreciation, and taxes.

## Analysing Past Performance, Recognising Opportunities and Planning for the Future

Part of your role as a manager requires that you analyse past performance, recognise opportunities and plan for the future of your unit.

It's easy to focus only on the day-to-day running of your business, especially in the early stages. But once you're up and running, it can pay dividends to think about longer-term and more strategic planning.

This is especially true as you take on more staff, create departments within the business, appoint managers or directors and become distanced from the everyday running of the business.

Reviewing your progress will be particularly useful if you feel:

- uncertain about how well the business is performing
- unsure if you're getting the most out of the business or making the most of market opportunities
- your business plan may be out of date, e.g. you haven't updated it since you started trading
- your business is moving in a direction different to the one you had planned
- the business may be becoming unwieldy or unresponsive to market demands

Retrieved from: <http://www.infoentrepreneurs.org/en/guides/review-your-business-performance/>

Good decision making is an essential skill for career success generally, and effective leadership particularly. If you can learn to make timely and well-considered decisions, then you can often lead your team to spectacular and well-deserved success. However, if you make poor decisions, your team risks failure and your time as a leader will, most likely, be brutally short.

An organised and systematic decision-making process usually leads to better decisions. Without a well-defined process, you risk making decisions that are based on insufficient information and analysis. Many variables affect the final impact of your decision. However, if you establish strong foundations for decision making, generate good alternatives, evaluate these alternatives rigorously, and then check your decision-making process, you will improve the quality of your decisions.

*“Why is it that some people recognise business opportunities where many others see only problems? Opportunities are everywhere, yet many people do not see them. Successful entrepreneurs, however, have the capacity to see what others do not”*

Jeffry Timmons (1941–2008) Professor of Entrepreneurship, known as a pioneer of both entrepreneurship research and education

Successful business unit managers, too, have the ability to look at the successes and failures of the past and see opportunities for growth and doing things better.

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All of your estimates and projections must logically flow from previous years' financial statements, so that you have a benchmark or standard to evaluate future performance.

### **Identifying Opportunities for Growth**

Once the analysis has been done, the analyst is in a position to identify where the organisation can change tactics and do things differently in order to create a better outcome of the ratio analysis and ensure growth.

Here are three easy ways to uncover potential opportunities<sup>18</sup>:

#### *Examine your current client base*

The cost of securing a new client can be anywhere from five to 15 times that of securing a repeat client. Consequently, developing strategies that generate repeat business on a regular basis is essential to a business's bottom line. It goes without saying that you need to provide quality service in the first place for your clients to come back. But after a transaction is completed between you and a client, do you have ways to stay in touch and stay top of mind? Do you provide reasons and incentives for repeat businesses? Can you up sell some of your past and current clients with a new service or product you have? Do they have family, friends, and associates you can offer your services to? Assuming that you provided an excellent work to your clients, they can be your biggest fans who will gladly promote and endorse you.

#### *Look at how you are currently receiving clients*

A business's client source is generally tied to its marketing effort. Besides identifying the appropriate marketing vehicles to reach your target clients, it is important to track the effectiveness of your tactics. Are your clients mostly through word of mouth referrals? Do they usually find you online? Are they typically attendees to speaking engagements you have throughout the year? Do your strategic alliances send the majority of your clients? Once you have identified the successful sources, explore creative ways to take those sources to the next level.

#### *Identify complementary services/products that will open up a different market for you*

Products and services that complement what you offer the market can affect the demand curve. For example, you may sell hot dogs, while a complementary business offers hot dog rolls. If the price of the hot dog rolls increases, it can cause the demand for hot dogs to decrease. As a result, the demand curve shifts to the left, and the price for hot dogs would also increase.

### **IDENTIFY TYPES AND FORMATS OF FINANCIAL FORECASTS**

The following guidelines for preparation of financial forecasts are excerpted from the American Institute of Certified Public Accountants' (AICPA) publication, *Guide for Prospective Financial Information*.

1. Financial forecasts should be prepared in good faith. Good faith in this context includes making a diligent effort to develop appropriate assumptions and exercising care not to mislead a third-party reader. Good faith precludes preparing a financial forecast with either undue optimism or pessimism.
2. Financial forecasts should be prepared with appropriate care by qualified personnel. Appropriate care means that diligence and proper attention should be exercised in the preparation of the financial forecasts.
3. Financial forecasts should be prepared using appropriate accounting principles. The accounting treatment applied to events and transactions contemplated in financial forecasts should be the same as the accounting treatment expected to be applied in recording the events when or if they occur.
4. The process used to develop financial forecasts should provide for seeking out the best information that is reasonably available at the time. The reliability of the basic data should be considered in the process of preparing the financial forecasts and the use of an appropriate level of detail is another key consideration.

<sup>18</sup>Retrieved from: <http://smallbusiness.chron.com/factors-affect-demand-curve-11258.html>

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5. The information used in preparing financial forecasts should be consistent with the plans of the entity. Financial forecasts should be consistent with the expected economic effects of anticipated strategies, programs, and actions. An indication of the entity's plans can often be found in its budgets, goals, and policies.
6. Key factors should be identified as a basis for the assumptions. Key factors are those significant matters upon which an entity's future results are expected to depend and are basic to the entity's operations.
7. Assumptions used in preparing financial forecasts should be appropriate. Recognising that assumptions are the essence of developing financial forecasts, the quality of the underlying assumptions largely determines the quality of financial forecasts. Assumptions should be reasonable and suitably supported.
8. The process used to develop financial forecasts should provide the means to determine the relative effect of variations in the major underlying assumptions. Particular attention should be devoted to those assumptions (1) to which the attainment of forecasted results is particularly sensitive and (2) for which the probability of variation is high.
9. The process used to develop financial forecasts should provide adequate documentation of both the financial forecasts and the process used to develop them. Documentation makes possible review and approval of financial forecasts by the responsible party. It facilitates comparison of the financial forecasts with actual financial results, and it provides the discipline necessary for developing reliable financial forecasts.
10. The process used to develop financial forecasts should include, where appropriate, the regular comparison of the financial forecasts with attained results. Comparison of prospective financial results with actual results for the prospective period and for prior periods for which financial forecasts were prepared provides an historical measure of success in developing financial forecasts.
11. The process used to prepare financial forecasts should include adequate review and approval by the responsible party at the appropriate levels of authority. The ultimate responsibility should rest with the responsible party at the highest level of authority. The review should be conducted in sufficient depth to assure the responsible party of the soundness of the process used to develop the financial forecasts

### **Trend Analysis**

A trend analysis tries to predict the future movements of figures on financial statements and/or their ratios. Many people believe that history repeats itself, so it is important to analyse any trends from historical financial data in order to predict the future.

A comparison of financial statements over several years reveals the direction, speed and extent of a trend(s).

The analysis is done by restating the amount of each item or group of items as a percentage. Such percentages are calculated by selecting a base year and then assigning a weight of 100 to the amount of each item in the base year statement. Thereafter, the amounts of similar items or groups of items in prior or subsequent financial statements are expressed as a percentage of the base year amount. The resulting figures are called index numbers or trend ratios.

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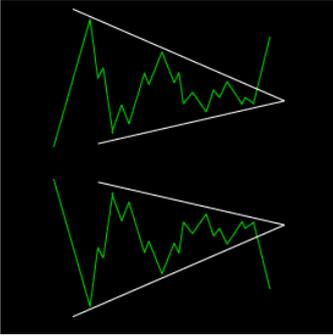
A trend analysis can be done in two ways, such as:

### 1. Using a spreadsheet

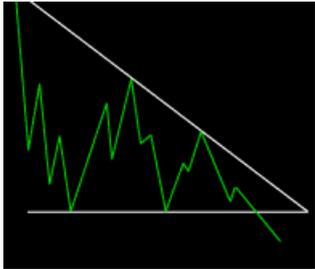
Profitability ratios:	Year 1	Year 2	Year 3	Year 4	Year 5
Net Sales to Gross Sales	100.0%	100.0%	100.0%	100.0%	100.0%
Gross Profit Margin on Sales	84.1%	96.2%	96.3%	98.2%	98.8%
Net Profit Margin (Pre-tax)	-202.5%	20.7%	41.9%	63.4%	75.4%
Net Profit Margin (After-tax)	-202.5%	20.7%	23.2%	36.2%	43.4%
Operating Expense to Sales	285.6%	74.3%	53.3%	34.2%	23.0%
Operating Profit to Sales	-185.6%	25.7%	46.7%	65.8%	77.0%
Basic Earning Power	-118.6%	33.4%	68.3%	86.3%	78.6%
Return on Assets (After-tax)	-118.6%	33.4%	37.8%	49.4%	45.2%
Return on Equity	-329.7%	59.5%	52.3%	60.2%	52.7%

### 2. Graphically

It is valuable to create charts of the comparisons done when trying to identify trends, as the charts would show various patterns or trends such as:

<p style="text-align: center;"><b>Symmetrical Triangle</b></p> 	<p>The converging trendlines give this pattern its distinct triangular shape. It is created by drawing two trendlines that connect a series of sequentially lower peaks and a series of sequentially higher troughs. As the pattern develops, these trendlines act as barriers that prevent the data from dramatically moving in any one direction. Symmetrical triangle patterns are regarded as very reliable - they can also be extremely profitable and drastic change (up or down) normally occurs after the trend</p>
<p style="text-align: center;"><b>Ascending Triangle</b></p> 	<p>The first trendline is drawn horizontally at a level that has prevented the data from moving higher on several occasions. The second trendline is drawn so that it connects a series of increasing troughs, which is often considered to be a graphical representation of an increase in demand. An ascending triangle is generally deemed to be a continuation pattern, meaning that once it breaks above the upper resistance, it usually continues in the direction of the prior trend</p>

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<p style="text-align: center;"><b>Descending Triangle</b></p> 	<p>The major difference between the Ascending and Descending triangular chart patterns becomes apparent when you examine how the two trendlines are drawn. Notice how the horizontal trendline is drawn at a level that has prevented the data from heading lower, rather than preventing it from going higher like it was in the ascending version. This type of pattern is usually identified in downtrends</p>
<p><b>Head and Shoulders</b></p> 	<p>The head and shoulders pattern is one of the most reliable chart patterns used by analysts. When the head and shoulders pattern is formed, it is used to predict a change in the direction of the current uptrend. It rises to a peak and subsequently declines; it rises above the former peak and declines again; and finally, rises again - but not to the second peak - and declines once more</p>

<p style="text-align: center;"><b>Double Bottom</b></p> 	<p>This pattern is used by analysts to predict a shift from a previous downtrend to a new uptrend. A double bottom is formed by data that has created a series of two relatively equal lows with a small peak in the middle</p>
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An analysis of trends can be done for the department or organisation when you compare different financial statement sets (per year) with each other. You can also do a trend analysis for an industry or compare your organisation with another – even if the other organisation is much bigger, by using the ratio analysis outcomes.

**IDENTIFY SOURCES OF FINANCIAL FORECASTS**

Your financial forecast will be based on information gathered from industry and market research. Since you will be responsible for achieving the predetermined financial objectives, make sure your estimates and assumptions are realistic. Be consistent and make sure that your financial forecast reflects the rest of the business plan. For example, your sales forecast should reflect the capacity of production equipment mentioned in the operational section.

Combine the components of your financial forecasts to generate projected financial statements, (balance sheet, profit and loss statement). You may need help from your accountant to assemble the figures in the conventional format, but the research and operational assumptions should be your own.

You can develop your own financial forecast by using the spreadsheets to complete the individual components. Then add the timing dimension (when you expect to receive payment and the amount) over 12 months to generate an annual cash flow forecast.

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## OUTLINE FACTORS IN PREPARING FINANCIAL FORECASTS

The preparation of prospective financial statements requires considerable knowledge of the organisation's business and the factors that are likely to determine its future results. The following key factors<sup>19</sup> related to future results must be considered in the preparation of such statements:

- Factors related to the specific entity
- Factors related to the industry
- Factors related to the market
- Factors related to the economy

**Factors related to the specific entity.** The principal cost elements of the entity's doing business must be considered. Depending on the entity, these elements may include such costs as payroll and benefits, needed employees, raw materials, products the entity sells, freight or shipping, and advertising.

Another consideration is the availability of resources. For example, are the expert, specialised, or skilled workers available to meet the needs of the entity under the plan

as initially proposed? Are the raw materials and/or products for resale available? Can the delivery system be organised to accomplish the task? Are the company's physical facilities sufficient for the uses and for the capacities contemplated?

**Factors related to the industry.** Factors related to the industry in which the entity is operating must be considered. Is the industry one in which companies are very competitive? Are competitive industries emerging? Is obsolescence emerging within the industry? Are there regulatory considerations and requirements? Is new technology being introduced into the industry? What are the economic conditions within the industry?

**Factors related to the market.** Market factors must be considered. What are the trends in business or consumer demand related to the services or goods being sold by the entity? Are competitive companies emerging, perhaps with new or different products? Is unique marketing required? Are there pricing developments to be factored into the forecast?

**Factors related to the economy.** Numerous factors related to the economy must be considered. What are the economic conditions in the country? What are critical economic trends? Is the economy inflationary, deflationary, or stable? What is the trend with regard to labour availability? What are the financing considerations in relation to the economy? What are interest rates? Are there significant factors related to long-term versus short-term financing? Is a public stock offering a possible financing option?

## INCORPORATE FACTORS IN THE PREPARATION OF FINANCIAL FORECASTS

When preparing the financial forecasts for your business unit you must take the factors impacting on the organisation into account in terms of how they relate to your business unit:

**Factors related to the specific unit.** The principal cost elements of the unit's operation, such as staffing requirements, raw materials, and running costs.

**Factors related to the industry.** How does competition affect the work of the unit? Are you affected by obsolescence or outdated technology? Are there regulatory considerations and requirements? Is there still growth in your industry?

**Factors related to the market.** Is your product or service still in demand or do you have to look for innovative ways to create a new demand? Is your pricing still market-related?

<sup>19</sup> Adapted from: <http://www.answers.com/topic/financial-forecasts-and-projections>

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**Factors related to the economy.** Factors related to the economy which will probably need to be considered in your unit are: strength of the rand, rate of inflation, supply of skilled labour and labour unrest, interest rates and the petrol price.

### ANALYSE FINANCIAL FORECASTS TO DETERMINE VIABILITY<sup>20</sup>

The concept of the going concern is an important accounting concept. Financial Statements are usually prepared with the assumption that the enterprise is a going concern, without evidence to the contrary. This assumption implies that the business will continue its operations for the foreseeable future.

Financial viability implies that:

- The company will continue its operations in the foreseeable future.
- The enterprise is sufficiently profitable (or will be in the future) to continue its operations.
- There is inherent worth in continuing operations.

This is related to the concept of ongoing profits. It is important to note that sometimes companies do not make a profit every year – especially in the first few years of operations. A businessperson would examine financial statements for their financial viability and also take a view on the inherent worth of the company.

An analysis of profitability alone is not sufficient to determine the viability of an organisation. The capability of the organisation to pay its way in the future is important. The capacity of an organisation to pay its way depends on its level of liquidity.

### **Evaluating financial viability**

In order to evaluate the financial viability of an organisation, a combination of the following information is required:

**Financial performance** - a measure of the difference (i.e. profit/loss, surplus/deficit) between revenue and expenses that arises from operations for a period of time

**Financial position** – the “position” at a point in time assessed in terms of assets, liabilities and public equity

**Cash flow** – the sources and uses of cash relating to operations, investing in assets and financing the organisation for a period of time

### **Using liquidity ratios to analyse the organisation’s viability**

These ratios help to determine whether the company will be able to meet its financial obligations in the short term. It is a measure of liquidity reflected by the working capital, which is the difference between current assets and current liabilities. Two ratios have been selected, both of which are frequently used by management:

- Current ratio
- Acid test ratio

**Note:** The 20X4 figures from Document Set 1 are used to illustrate calculation of all the ratios which follow in the rest of the learner guide.

<sup>20</sup> Source: <https://www.scribd.com/doc/51446737/Financial-Accounting>

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<b>Current Ratio</b>	<p>Current Ratio = <math>\frac{\text{current assets}}{\text{current liabilities}}</math></p> <p>= <math>\frac{29\,686}{18\,453}</math></p> <p>= 1,61 expressed as 1,61:1</p>
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The current ratio is the most commonly used measure of short-term creditors covered by assets that are expected to be converted to cash in a period roughly corresponding to the maturity of the claims.

The trend for ABC Company shows:

Current Ratio	<b>20X1</b>	<b>20X2</b>	<b>20X3</b>	<b>20X4</b>
	2,52:1	2,35:1	1,87:1	1,61:1

The current ratio has shown a consistent decline over the four-year period, from a high of 2,52 in 20X1 to a low of 1,61 in 20X4.

From a scrutiny of the Statement of Financial Position (balance sheet) it is apparent that the current liabilities have increased relatively more than the current assets over the four-year period. This may be a cause for concern and ABC Company would be well advised to ensure that it has adequate cash resources on hand in order to meet its short-term commitments.

<b>Acid Test Ratio</b> (Quick Ratio)	<p>Acid Test Ratio = <math>\frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}</math></p> <p>= <math>\frac{(29\,686 - 17\,224)}{18\,453}</math></p> <p>= 0,68 expressed as 0,68:1</p>
---	---

The Acid Test Ratio measures the organisation's ability to pay off short-term obligations without relying on the sale of inventories (typically the least liquid of an organisation's current assets).

- This ratio is the real test of liquidity as it removes inventory, which is not easily converted into cash, from the calculation of current assets.
- To interpret this ratio it may be said that the company has 68 cents in cash and near cash to meet every R1 which will require repayment in the short term.

The trend for ABC Company shows:

Acid Test Ratio	<b>20X1</b>	<b>20X2</b>	<b>20X3</b>	<b>20X4</b>
	1,99:1	0,93:1	0,73:1	0,68:1

The acid test ratio has also declined dramatically over the last four years from a high of 2,19 to its current low level of 0,68.

- Unless convinced that liquidity will not be a problem, it would be well advised to take the necessary steps to redress the trend away from liquidity.

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### Using Leverage Ratios to Analyse the Organisation's Viability

The leverage ratios examine the financing structure of the organisation. They focus on the combination of owner's equity and the outside financing (long and short term) used by the company. Three ratios have been selected for this purpose:

- Debt ratio
- Debt to equity ratio
- Interest cover

**Note:** The 20X4 figures from Document Set 1 are used to illustrate calculation of all the ratios which follow in the rest of the learner guide.

<b>Debt ratio</b> (Total Debt to Total Assets)	$\begin{aligned} \text{Debt Ratio} &= \frac{\text{total debt}}{\text{total assets}} \times 100 \\ &= \frac{21\,670 + 18\,453}{99\,341} \times 100 \\ &= 40,4\% \end{aligned}$
---	---

The debt ratio has been defined as total debt compared to total assets. The total debt includes long-term loans and current liabilities. The ratio of 40,4% indicates that for every R1 used to purchase total assets, 40,4 cents of the financing was provided by parties other than the ordinary shareholders.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Debt Ratio	23,4%	31,5%	35,8%	40,4%

It is apparent that over the four-year period ABC Company has moved towards a policy of using more debt to finance its assets.

<b>Debt to equity ratio</b>	$\begin{aligned} \text{Debt to equity} &= \frac{\text{long-term loans}}{\text{Shareholders' equity}} \times 100 \\ &= \frac{21\,670}{59\,218} \times 100 \\ &= 36,6\% \end{aligned}$
-----------------------------	--

The debt to equity ratio concentrates only on long-term debt, i.e. debt that requires a reward in the form of interest. The comparison is between long-term loans and shareholders' equity. The ratio may be interpreted to mean that for every R1 of capital provided by ordinary shareholder, 36,6 cents was raised through long-term loans.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Debt to equity	14,7%	26,5%	29,1%	36,6%

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The debt to equity ratio has been a little erratic over the four years, but a definite trend to increasing this ratio is apparent, with the highest percentage of debt to equity over the four years in 20X4.

<b>Interest cover</b> (Times Interest Earned)	Interest cover
	= $\frac{\text{Net operating profit before interest and tax} \times 100}{\text{Interest}}$
	= $\frac{27\,555 \times 100}{3\,900}$
	= 7,07 times

The interest cover / times interest earned ration shows the number of times which the net profit is able to cover the interest which is due. It is calculated before tax and interest in order to reflect the position most accurately.

The trend for ABC Company shows:

	20X1	20X2	20X3	20X4
Interest cover	15,27	2,97	7,21	7,07

In the difficult year of 20X2, ABC Company's creditors were most at risk of not receiving their interest as net profit achieved less than three times the required interest expense. Had it not been for investment income, the profit would only just have covered the interest commitment.

### DRAFTING BUDGETS AND SUPERVISING FINANCIAL MANAGEMENT

Budgeting is the process of planning financial activities for an upcoming accounting period, usually a year. It requires analysing how a business is currently performing and setting objectives for improving its future financial health. Specific revenue and expense expectations are identified with the intention of increasing a business's profits while keeping expenses in check.

### LINK BUDGET PLANS TO OPERATIONAL OBJECTIVES

In some organisations the preference is for **'top-down' budgeting**: Budgets are imposed by top managers with little or no consultation with lower-level managers. Most companies however prefer the process of **"bottom-up" budgeting**: Budgets are prepared by those who must implement them. The budgets are then sent for approval to higher level managers.

In order to strengthen a business's financial health, budgeting is necessary. Since the financial activities of a business can become quite complex, a budget is needed to outline a plan that managers and employees can follow. Budgeting provides the structure that is required in order to implement effective pricing and spending efforts.

Budgeting offers five main benefits:

- 1. Budgeting facilitates planning** - Planning is the main key to budgeting. A business that plans its future financial activities is one that will have a vision for success. Budget planning requires a business to articulate its vision for the future and how it will accomplish it. Strategies are developed and deadlines are identified to accomplish the established budget.

The planning aspect of budgeting also helps a business establish benchmarks that it can use to measure its progress toward achieving its financial objectives.

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2. **Budgeting enhances communication** - Budgets communicate the spending and sales expectations of the managers and employees within an organisation. Communication is enhanced when the individuals responsible for enforcing and meeting financial expectations can find these guidelines in a budget. Managers and employees know what their boundaries are for the upcoming accounting period and can adjust their spending and sales activities accordingly.
3. **Budgeting reinforces accountability** - Since budgets are communicated to those individuals responsible for implementing them, accountability is reinforced. The responsible managers and employees can be consulted if any deviations from the budget occur. Budgets enable accountable individuals to make wise financial decisions by giving them the information they need.
4. **Budgeting identifies problems** - Budget planning requires a business to identify any financial problems that are developing. Since a budgeted financial statement is broken into months or quarters, deviations from the budget can alert members of management to potential problems. Assigning specific numbers to financial expectations helps draw attention to situations the business needs to investigate.
5. **Budgeting motivates employees** - The clear guidelines that are outlined in a budget provide a method by which managers and employees can be rewarded for their efforts. It is easy to evaluate managers' and employees' performance by identifying whether the financial objectives articulated in the budget are met. The compensation that individuals will receive if they meet the financial expectations in the budget will motivate them to adhere to it.

In general, there are three different types of budgets:

1. **Operating Budget:** This is often referred to as the annual budget and shows how much money will be needed over a longer period, such as a year or for the duration of a specific project or programme. Budget amounts are usually divided into major categories, such as salaries, benefits, equipment, office supplies, etc. These major categories can be divided into smaller specific items if needed. The more detailed the categories, the more accurate the budget.
2. **Cash Budget:** shows the amount of cash you expect to receive and pay in the near term, such as a month.
3. **Capital Budget:** shows how much money you have to spend if you want to buy, operate and maintain major pieces of equipment, such as buildings, cars, computers, furniture, etc.

When you are required to create a budget, it is imperative that you understand exactly what you are budgeting for. You need to understand what the company's vision, strategy and goals are; what the activities are that you need to budget for; and what the overall expectations of the budget is.

### **ESTABLISH OPERATIONAL OBJECTIVES**

Objectives provide the direction you need when establishing a budget. The guidance objectives provide will ensure that your budgeting decisions relate back to promoting the overall financial health of your business. Without objectives, you risk making budgeting decisions that are misguided or simply not as effective as they could be.

In order to set effective objectives, you can follow four steps:

1. **Use the data from the previous accounting periods** - Since the first step of creating a budget is to analyse financial statements from previous accounting periods, you have already identified the strengths and weaknesses of your business's financial operations. Use the figures provided from the ratio analysis to determine which financial activities are in need of improvement and which ones are healthy.
2. **Address strengths and weaknesses** - Once you have determined which financial activities are inadequate, create objectives that address these weaknesses. Since you also identified which financial activities are strong, you can use this information to direct your efforts toward the areas that truly need attention.

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For example, if your day's sales outstanding is poor, you might decide to set a somewhat ambitious objective that decreases the amount of time it takes after making a sale to collect money from a customer. Conversely, if your debt-to-total-assets ratio is strong, you could set an objective that was less ambitious for decreasing the amount of debt your business owes.

- 3. Assess resources required** - It is important that you examine your objectives to determine if you have the resources necessary to achieve them. If the resources are unavailable, it will be impossible to meet your objectives.

For example, imagine that one of your objectives for the upcoming accounting period is to improve your total assets turnover ratio by increasing the number of sales your company makes. You would have to determine whether or not you have the manpower available to accomplish this objective. Specifically, you would have to decide if you have enough sales people to handle the increase in projected sales.

- 4. Make adjustments to objectives** - If you discover that you do not have sufficient resources to meet your objectives, you must adjust your objectives appropriately. Slight modifications might be all that are necessary to make your objectives achievable. However, a more creative strategy might be required to adjust your objectives.

For example, imagine that you do not have enough sales people to generate an increase in sales by a certain percentage. You'll have to adjust your objective to reflect a lower, more reasonable figure and look for another financial activity that could be used to accommodate this adjustment, such as increasing your sales price or lowering sales commissions.

Any objective you set for your budget should possess these characteristics:

**Specific** - A budget must be as specific as possible in order for any person who refers to the budget to be able to fully understand what needs to be accomplished.

**Measurable** - In order to assess the budget's progress, you should develop measurable objectives. For example, if you wanted to cut the cost of office stationery then a specific percentage should be chosen.

**Achievable** - It is important to set challenging budgets, but they must be attainable. A budget that sets out unachievable goals will cause frustration and lead to the process losing its impact.

**Relevant** - Budgets must be relevant to the overall objective of the organisation. If budgets serve no purpose, it is a waste of time and money to create them. Budgets should relate to the financial health of the organisation.

**Time-based** - Establishing a timeline for goals involves identifying deadlines and milestones. Using milestones allows the team to track its progress and helps break the goal into manageable segments.

#### Guidelines for Avoiding Budget Traps

**Losing sight of your objectives** - Sometimes the process of budgeting becomes overwhelming resulting in the focus becoming more on the process of budgeting than the objectives of the budget. It is therefore important that you focus every decision toward the achievement of your objectives.

**Failing to keep objectives realistic** - Often people overstate income and or expense projections and then become disappointed when the numbers on the budget do not match actual performance. Therefore, it is crucial that you compare all objectives for the upcoming accounting period with actual performances from previous periods. Also, carefully examine all assumptions made about the organisation and the economic environment for the upcoming accounting period.

**Using an incorrect approach** - Historical-base budgeting is the process of basing your objectives for the upcoming accounting period on the previous period's actual performance. Some persons automatically use the previous accounting period's performance as the budgeted amount for the upcoming period, adding an inflationary increase.

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The problem with this budgeting approach is that consideration is often not given to whether the previous accounting period's performance was good or poor. If the financial activities from the previous accounting period were inadequate, using these figures as a guideline for the upcoming accounting period will simply prolong poor performance.

**Accepting arbitrary changes** - Objectives are set for a reason: to guide the financial activities for an upcoming accounting period. Therefore, any deviations from the plan for achieving a budget objective should be investigated and, if found to be inappropriate, stopped.

**Believing that sales have to increase** - It is often believed that sales have to increase with each new accounting period. In fact, some individuals think that if sales do not significantly increase each accounting period, the company's efforts have been a failure. However, this is not always true.

**Inflexible budgets** - Another difficulty with budgets is that they are often inflexible. Sometimes situations change beyond the control of those responsible for the budget. For example, an operating budget based on annual sales of R10 000 000 may be completely unrealistic if sales are reforecast to R15 000 000 by the time half the accounting period has passed. Since the cost of operations generally increases when more items are produced to meet increased demand, it would be unreasonable to expect those responsible for the operating budgets to keep to the original budget.

To overcome this potential problem, organisations use variable budgeting. Variable budgets show how each item should vary as the level of activity or output varies.

### FORMULATE THE BUDGET

Budgeting allows a company to be cost effective by carefully monitoring operating expenses. Weekly, monthly, or quarterly monitoring of budget projections through performance reports allows a company to take corrective measures on short notice where and when necessary.

When we are compiling a budget, we would have to analyse the items in the budget from previous years or even the items in other business units, such as:

Costs	Explanation
Fixed	These are costs which do not change i.e. they are fixed, irrespective of how much we produce or sell. An example of a fixed cost would be that of the rental which we are paying for our premises
Variable	These are costs which vary as production varies i.e. the more we produce, the more our variable costs will increase. An example of variable costs would be electricity i.e. the more we produce, the more electricity we will use up in the form of lighting etc. This is only one example of a variable cost. There are many others: advertising, wages, postage etc.
Product	Product costs refer to costs which are associated with the production of the particular units or outputs being sold and these costs are charged against revenues made from the sale of the product. Examples of product costs include material, labour etc.
Period	Period costs are costs which are associated with certain periods of time and therefore expire when the particular time period to which they refer has lapsed. Examples of period costs include depreciation, salaries, rent expense etc.

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Costs	Explanation
Opportunity	Opportunity Costs refer to the loss of an opportunity, as a result of rejecting an alternative use of our resources, whether these resources be Land, Labour, Capital or Entrepreneurship. The concept of opportunity cost is often associated with the question " What If...?" In other words, opportunity cost refers to the cost involved of our choosing one option (Option A) at the expense / instead of another option (Option B).
Controllable	Controllable costs are those costs which can be influenced or controlled, either through production or size, as a result of direct management intervention
Non-Controllable	Non-controllable costs refer to those costs which cannot be influenced by management. Examples of non-controllable costs would be the rate of interest that the company has to pay for any monies which it has borrowed from the bank
Future	Future costs refer to those costs that may need to be incurred by the business in the future. It is important to realise that these costs will always only be estimates, as the operation will never have any guarantee as to what is going to happen to the price of things in the future
Past	Past costs refer to those costs which the business has incurred in the past, to assist it with its performance / operation. What is important to realise is that these past costs can often serve as an indication of what the future costs of the business are going to be. Past costs can thus be used for budgeting and forecasting processes, but they must be used with care, as they are no guarantee of what is going to happen in the future. Past costs can also be used for controlling purposes, as well as being able to give management an idea as to what they are spending most of their money on

A manager would prepare a budget to determine whether he/she can achieve their profit goals. To do this, you must project your fixed costs and your variable costs. From these three figures -- targeted profit, fixed expenses and variable expenses -- you can determine your required level of income:

- Many businesses start with a forecast of profits and work up to a forecast of sales.
- Even large corporations can determine the required return on investment that shareholders require, then work back to planned revenue goals.
- Alternatively, you can start with a sales forecast, but don't forget the bottom line must still give you the required return.

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## Example of a Cash Budget

CASH BUDGET FOR KAURY LIMITED			
Month	Jan	Feb	March
<b>CASH BALANCE</b>			
Beginning of the month	R 10 000	R 10 900	R 11 700
<b>A. RECEIPTS</b>			
<b>Cash Receipts</b>			
Cash Sales	R 20 000	R 24 000	R 28 000
Collections from Debtors	R 5 000	R 6 000	R 4 000
<b>TOTAL CASH RECEIPTS</b>	<b>R 25 000</b>	<b>R 30 000</b>	<b>R 32 000</b>
<b>B. PAYMENTS</b>			
<b>Cash Payments</b>			
Purchases	R 11 000	R 15 000	R 17 000
Salaries and Wages	R 8 500	R 9 500	R 9 000
Rent	R 2 400	R 2 400	R 2 400
Telephone	R 450	R 550	R 600
Advertising	R 900	R 1 000	R 1 100
Payments to Creditors	R 850	R 750	R 650
<b>TOTAL CASH PAYMENTS</b>	<b>R 24 100</b>	<b>R 29 200</b>	<b>R 30 750</b>
<b>NET CASH FLOW</b>			
Surplus/Deficit	R 900	R 800	R 1 250
Beginning Cash Balance	R 10 000	R 10 900	R 11 700
<b>Ending Cash Balance</b>	<b>R 10 900</b>	<b>R 11 700</b>	<b>R 12 950</b>

The Cash Budget consists of two sections: **Cash receipts and cash payments**. Remember that the cash receipts section also includes monies which you have received from your debtors, whilst the cash payments section also needs to include payments which you will make to your creditors, as well as the payment of loans, bank overdrafts etc.

The cash budget is compiled to give the business an idea as to when and how much additional funds it may require, which could, for example be obtained from a bank. It is thus advisable to do the cash budget at the beginning of the business's financial year, so that adequate and timely provision can be made to obtain outside sources of finance. The cash Budget is also very important in that it forms an essential part of the financial planning process to ensure the survival of the business.

When drawing up the cash budget of the business, remember to include both fixed (rent) and variable (advertising) expenses. Remember that the variable expenses will change from month to month, hence the name "variable". To determine the extent of the change in the variable expenses of the business, you will need to look at past trends of the business (if it is already in business), the expenses of your competitors / market related businesses and /or such things as inflation. The latter is just one reason why it is so important to keep simple, clear and accurate financial records, as it is these financial records which are often used as a source of projections.

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When forecasting the income and expenses of the business, remember to work on the prudence principle i.e. overestimate the business expenses and underestimate Sales or Income. By following this principle there is a good chance that your projections will be more realistic.

Remember that the closing balance for January will become the opening balance for February.

**Analysing past trends in the budget**

You can use an Income and Expenditure Statement to determine the revenue and expenditure for your department. The purpose of an Income and Expenditure Statement is to clearly show how much money was made and how much was spent within a given time period.

An income and expenditure statement is a report of the money you made and the money that you spent during a period of time. You can do a statement for a month, a quarter or a year or any time period.

**Income** - For the purposes of this module, income is defined as money that has been made within the time period of the statement. It is an important accounting concept to correctly account for income within the time period of the financial statement. This means that you should include in your income calculation money that you have made but not yet received. For example, if you were a trader and sold goods but had not yet received the money (because you had given your customer some credit terms) you should nonetheless include the sale as income for the period, even if the customer only pays you after the end of the period.

**Expenditure** - For the purposes of this module, expenditure is defined as the costs that have been incurred within the time period of the statement. As with the concept of income, you should accrue for expenditures incurred within the time-period even if you have not paid for them. If, for example, you were doing a household income and expenditure statement for the end of September and you had not received your water and lights account, nor paid it for September, you should nonetheless include it (or a reasonable estimate) in the income and expenditure statement for September. This ensures that you have an accurate statement of the real expenditures incurred within the period.

At the end of the income and expenditure statement, you subtract Expenditure from Income and the remaining portion is what an enterprise would call Profit. If expenditures were more than Income, the negative difference is what an enterprise would call Loss.

**Example:**

*Best Ltd produces the chemical flavours used to flavour foodstuffs. They have been in operation since 1958 and continue to run as a family owned private business. Because they are incorporated as a company, they are required to produce Annual Financial Statements. Interested parties, such as the owners of the company, clients and suppliers who do business with them and SARS, the Receiver of Revenue, may review these financial statements and make decisions on the results accordingly.*

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<b>Best Ltd</b>	
<b>Statement of Income and Expenditure</b>	
<b>For the period 1 September 2XX9 to 31 October 2X10</b>	
	<u>R</u>
<b>Income</b>	
Sales	1,500,000
Less: Purchases	700,000
Gross Profit	800,000
<b>Less: Expenditure</b>	
Accounting Fees	1,200
Cleaning Materials	5,000
Computer Expenses	20,000
Motor & Travel	50,000
Rental of Factory Premises	200,000
Stationery & Office Expenses	20,000
Staff Refreshments	10,000
Salaries	400,000
Staff Training	1,000
UIF	4,000
Workman's Compensation	4,000
<b>Net Profit</b>	<b>84,800</b>

### Sources of income and expenditure

Income and expenditure sources are as varied as the types of industries and businesses in operation. People too, derive their income and spend their money in all possible ways. The ways of income are many and varied: it is your task to identify these in the financial statements and be able to recognise the income from the costs.

The items that make up the gross revenue (income) in your specific business unit would include:

- Sales
- Interest earned
- Donations
- Grants
- Fees received, etc.

The items that make up the gross expenditure (expenses) in your specific business unit would include:

**Fixed Expenses** - Regardless of sales, fixed expenses generally stay the same. Several examples of fixed expenses are insurance, rent, taxes on property, wages paid to salaried employees, depreciation of equipment, interest on borrowed money, building maintenance costs, office salaries and office expenses

**Variable Expenses** - This type of expense varies with sales. In a product business, the cost of materials or goods for resale are the largest variable expenses. In some service businesses, the cost of labour is the biggest factor. Sales

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commissions, direct wages, payroll taxes, insurance, advertising and delivery expense are other examples of variable expenses

Expenditure also includes, but is not limited to payments, commissions payable, claims, management expenses and remuneration

### **REVIEW AND MODIFY THE DRAFTED BUDGET**

Once complete, the drafted budget is reviewed, reflected on and modified to ensure alignment to the operational plan of the unit.

The frequency with which a manager monitors the budget and checks for variances will differ: a sales person or production supervisor usually checks his/her performance daily, while the production or sales manager might check weekly.

Determine what caused the variance:

- Have we lost orders?
- Have we spent too much on raw materials?
- Have we used more materials than we thought we would?
- Have we spent too little or too much on promotion?

**Variance analysis** entails measuring actual performance against the standards and the coordinated plan. A variance is the **difference between budgeted and actual performance**. A deviation from the standard could be favourable or unfavourable, i.e. positive or negative.

React and report to everyone else who needs to know. If someone else has a variance, you need to ask yourself what it means to your bit of the business. What corrective action do you need to take?

*A production variance occurs when a machine fails. If this is likely to cause a prolonged problem, Production should let Marketing know, as Marketing might commit the business to orders which cannot be filled, or spend money advertising products which cannot be delivered.*

A budget is not cast in stone. The manager needs to take appropriate action to either get the original budget back on track, or revise the original budget commitment to take new facts into account, depending on how significant the variance is.

Questions the manager would ask, are:

- Should we reduce costs?
- Should we increase promotional expenditure to continue to maintain sales?
- Should we increase production to meet higher than expected sales figures?
- Should Marketing cut back because Production can't keep up?
- Should the whole budget be revised to meet the new position?

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## SUPERVISE FINANCIAL MANAGEMENT OF A UNIT

*If it can't be measured, it can't be managed*

*What gets measured gets watched*

*What gets watched gets done*

Unknown author

Financial management consists of planning for the future of a business enterprise to ensure a positive cash flow. It includes the administration and maintenance of financial assets, as well as the process of identifying and managing risks.

The primary concern of financial management is the assessment rather than the techniques of financial quantification. A financial manager looks at the available data to judge the performance of the enterprise.

Some experts refer to financial management as the science of money management.

At the corporate level, the main aim of the process of managing finances is to achieve the various goals a company sets at a given point of time.

Businesses also seek to generate substantial amounts of profits, following a particular set of financial processes.

Financial managers aim to boost the levels of resources at their disposal. Besides, they control the functioning on money put in by external investors. Providing investors with sufficient amount of returns on their investments is one of the goals that every company tries to achieve. Efficient financial management ensures that this becomes possible.

From the business unit's point of view, the manager's role in its financial management is associated with financial planning and financial control.

**Financial planning** seeks to quantify various financial resources available and plan the size and timing of expenditures.

**Financial control** refers to monitoring cash flow. Inflow is the amount of money coming into the unit, while outflow is a record of the expenditure being made by the unit. Managing this movement of funds in relation to the budget is essential for the unit's successful financial management.

A business unit manager must be able to:

- Interpret financial reports including Statements of Comprehensive Income (income statements), Profit and Loss statements, Statement of Cash Flows and Statement of Financial Position (balance sheet) statements
- Improve the allocation of working capital within business operations
- Review and fine tune financial budgeting, and revenue and cost forecasting
- Look at the funding options for business expansion, including both long and short term financing
- Review the financial health of the company or business unit using ratio analyses
- Apply critical financial decision-making techniques to assess whether to proceed with a project

### **Financial performance measurement techniques**

Planning, budgeting, and performance measurement transform strategy into action. They complete the strategic process of goal setting, strategy formulation, and implementation. Goals and strategy are the products of strategic thinking. The products of planning are objectives, timetables, budgets, and a baseline to measure and analyse performance.

Financial performance measurement is about using any of many different mathematical measures to evaluate how well a company is using its resources to make a profit. Common examples of performance measurement include

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operating income, earnings before interest and taxes, and net asset value. It is important to note that no one measure of performance should be taken on its own. Rather, to arrive at a true sense of how a company is doing, one must use as many different measures as possible together.<sup>21</sup>

Getting on top of financial measures of your performance is an important part of running a growing business, especially in the current economic climate.

**Measuring your profitability:**

Most growing businesses ultimately target increased profits, so it's important to know how to measure profitability. The key standard measures are:

**Gross profit margin** - how much money is made after direct costs of sales have been taken into account, or the contribution as it is also known.

**Operating margin** - this lies between the gross and net measures of profitability. Overheads are taken into account, but interest and tax payments are not. For this reason, it is also known as the EBIT (earnings before interest and taxes) margin.

**Net profit margin** - this is a much narrower measure of profits, as it takes all costs into account, not just direct ones. All overheads, as well as interest and tax payments, are included in the profit calculation.

**Return on capital employed** - this calculates net profit as a percentage of the total capital employed in a business. This allows you to see how well the money invested in your business is performing compared with other investments you could make with it, like putting it in the bank.

**Other key accounting ratios:**

There are a number of other commonly used accounting ratios that provide useful measures of business performance. These include:

**Liquidity** ratios, which tell you about your ability to meet your short-term financial obligations

**Efficiency** ratios, which tell you how well you are using your business assets

**Financial leverage or gearing** ratios, which tell you how sustainable your exposure to long-term debt is

**PRINCIPLES OF PERFORMANCE MEASUREMENT**

All significant work activity must be measured

- Work that is not measured or assessed cannot be managed because there is no objective information to determine its value. Therefore, it is assumed that this work is inherently valuable regardless of its outcomes. The best that can be accomplished with this type of activity is to supervise a level of effort.
- Unmeasured work should be minimised or eliminated
- Work measurement must include the resources (manpower, expenses, and investment) required to accomplish the desired results

Desired performance outcomes must be established for all measured work

- Outcomes provide the basis for establishing accountability for results rather than just requiring a level of effort
- Desired outcomes are necessary for work evaluation and meaningful performance appraisal

<sup>21</sup> <http://financial-dictionary.thefreedictionary.com/Performance+Measurement>

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Defining performance in terms of desired results is how managers and supervisors make their work assignments operational

- A time phased performance baseline must be developed to evaluate total organisational performance. This baseline must incorporate all organisational activity. This includes:
  - Operating performance outcomes that define the desired results from operations and the operational resources (manpower, material, assemblies, etc.) required to achieve these results

Financial performance outcomes that define the expected revenue and expense results, and investment required to support operating activity

- Schedule performance that defines when these results and investment are expected to occur
- This baseline provides the standard for evaluating organisational results, determining variances from the plan, and implementing corrective action.

Operating and financial performance reporting must be synchronised with the same reporting periods and reporting frequency

- Reporting periods and frequency must be consistent with the time phasing of the performance baseline
- Performance reporting and variance analyses must be accomplished frequently
- Frequent reporting enables timely corrective action

Timely corrective action is needed for effective management control

### Develop the Performance Measurement Baseline

- Work should be planned at the organisational level accountable for the results of that work
- This planning establishes accountability for variance analysis and corrective action
- Work planning may include breaking down the work into lower level results and resource requirements. Examples:

*Subdividing marketing expense requirements into advertising, promotion, administrative, etc.*

*Subdividing production manpower requirements into direct manpower, indirect manpower, and overhead manpower*

*Subdividing sales expectations into product A sales, product B sales, etc.*

- The lower the level of work planning and reporting, the more accurate will be the variance analysis
- Meaningful work planning cannot go lower than the organisation's management reporting capability
- Work planning includes identifying the desired results from the work activity and estimating the physical and financial resources needed to accomplish these results
- Operational planning begins by determining the operating results to be achieved and estimating the physical resources needed to achieve them
- Estimating relationships used to relate operating results and physical resources should be formalised so they can be monitored during performance measurement. Example: *Direct production man-hours per unit produced*
- Financial planning involves estimating the income and expense results from the operating plan and the investment needed to support the plan
- ✓ Estimating relationships used to relate physical activity and resources to income, expense, and investment rands should be formalised so they can be monitored during performance measurement. Example: *Revenue per unit sold*
- The performance measurement baseline integrates operational and financial planning results and displays them on a common timeline

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- Operational and financial planning results and resource requirements may be summarised to the organisational level accountable for the results of that work
  - ✓ Summary reporting may be more convenient for upper management needs
  - ✓ Lower reporting levels must still be maintained for variance analysis
- Operating plans and budgets must be consistent with the performance measurement baseline
- Functional operating budgets lower than the baseline can be used to provide an incentive to managers and supervisors but operating budgets may not exceed the baseline values
  - ✓ When operating budgets are less than the baseline the resource requirements must be reduced commensurately to preserve the estimating relationships used to develop the budget
- Changes to the performance measurement baseline must be controlled and justified.

**AGREE AND ADHERE TO MONITORING SYSTEMS**

The key aspects to financial controls and monitoring are:

**Accounting records (or accounts receivable and payable)** - Establish a process that records every financial transaction by maintaining paper files, an electronic database, and copying all records in a virtual library. You need to be able to demonstrate what funds were received and how funds were spent.

Accounting records should be consistent. Choose a method and regular schedule for tracking income and expenses according to your organisation’s policies and procedures. This is important in case the organisation is audited.

**Financial planning** - Financial planning converts your unit’s objectives into a budget. The budget serves as a critical planning guide for you and your staff. It is a record of how you intend to spend the funds received. Financial planning allows you to review your unit, examining successes and challenges in the past. Planning also enables you to make projections and set targets, informing strategies for future success.

**Financial monitoring and reporting** - Drawing from the information in the accounting records, you can create internal reports that help monitor progress by comparing budgets to actual expenses. Frequent reviews and monitoring allow you to measure your unit’s progress and help inform decision-making about the unit’s or a project’s future.

Internal reports, sometimes called management reports, allow you to be forward thinking as you assess the financial status of the unit and what will be needed to realise your goals.

Accounting records are also the source for creating external financial reports that demonstrate to stakeholders how funds have been spent.

Management may require financial reports at the completion of a project or periodically during a project’s implementation.

**Internal controls** - Controls are financial practices that help safeguard your assets and ensure that money is being handled properly. Controls help detect errors in accounting, prevent fraud or theft, and help support the people responsible for handling your unit’s finances.

Examples of how to ensure that funds are spent transparently and in a manner for which they are intended:

- Have two people approve and sign the expenses over a certain amount of money
- Keep records that cannot be altered by numbering receipts, using a system where the data entry corresponds with a specific invoice or contract
- Assign qualified and experienced personnel to manage accounts

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- Assign different staff in your unit distinct responsibilities related to managing income. For example, one person is responsible for authorising expenses, another is responsible for handling cash, and another is responsible for recording transactions
- Develop a procedural manual for record-keeping

### **MONITOR EXPENDITURE REPORTS**

Expenditure is defined<sup>22</sup> as: “Actual payment of cash or cash-equivalent for goods or services, or a charge against available funds in settlement of an obligation as evidenced by an invoice, receipt, voucher, or other such document.

Revenue expenditure is cash used in payment for goods and services consumed in a short period.

A capital expenditure is cash used in purchase of fixed assets that last one year or more.”

Your team will report back on expenditures at the frequency and in the format required by your organisation. Your role is to control the submissions, analyse the reports and pick up variances timeously in order to strategise and implement corrective actions.

### **IMPLEMENT CORRECTIVE ACTIONS WHERE NECESSARY – VARIANCE ANALYSIS**

The **purpose** of variance analysis is to determine the corrective action needed (if any) to accomplish the desired operating and financial results.

- Variance analysis effectiveness is directly proportional to the level of detail used to develop the performance measurement baseline.
  - ✓ Comparing the estimating relationships used to develop the baseline with current measured values provides advance notice of the accuracy of the baseline estimates.
  - ✓ Comparing the baseline to an estimate using these updated relationships will show how current results are impacting final performance.
- The decision whether to take corrective action is driven by the impact of current performance on estimated final results.
- Variance analysis contributes to learning and understanding the system dynamics that causes the observed results.

Variance analysis has the following **objectives**:

- Analyse the impact of current performance on final operating and financial results.
  - ✓ This will determine whether corrective action is indicated.
  - ✓ If the estimated final results are unacceptable, corrective action is needed.
- Determine the root causes of the existing variances.
- Determine the corrective action needed to achieve the desired results.

Operating results must be **reported** promptly and on a consistent schedule.

- Timely corrective action requires prompt variance analysis.
- Performance reporting should include the data needed to analyse the estimating relationships that were used to develop the baseline.

<sup>22</sup> Retrieved from: <http://www.businessdictionary.com/definition/expenditure.html>

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