



## Module 6:

- Managing physical resources including equipment and supplies
- Technology update
- Ethics
- Finance for non-financials

PROFESSIONAL DESIGNATION ONLINE PROGRAMME  
DAWN WILLIAMS

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## MODULE 6 – ADHOC

In this module, we are going to look at the following topics:

- Managing physical resources including equipment and supplies
- Technology update
- Ethics
- Finance for non-financials

These are areas where you might not be directly involved. If you are working for a large organisation, the work is divided into different departments where you might not necessarily need to know how the budget works (only how much you can spend!) If you move to another organisation or perhaps move up the ladder, you might be required to know a little more. All these topics are essential basics for the administrative professional.

## MODULE 6 OUTCOMES

After completing this module, you will be able to:

- Manage work effectively to be productive – workstation management and safety
- Adjust their work environment using ergonomic guidelines for physical well being
- Plan an office layout for productivity
- Manage office supplies effectively i.e. purchasing, leasing, inventory and storing
- Work with technology and understand basic computer and mobile design skills and applications
- Highlight and address unethical behaviour in the workplace
- Understand the three basic finance principle
- Distinguish the difference between financial statements and have a better understanding of budgets

## WORKSTATION MANAGEMENT AND SAFETY

Office workers must be able to manage work effectively to be productive. The lighting and the way materials and the work area are arranged affect your work. Most companies do try and provide comfortable and safe work areas for their office employees. Employees should keep the work area well organized. They should also be aware of safety and security issues that affect workers in an office.

Arrange your work area to give easy access to the items used frequently. A computer keyboard, telephone, supplies and reference material should be within easy reach. Many companies use modular workstations. These workstations are made up of parts that can be put together in various ways. Wall panels, storage areas and a desktop surface are typical workstation parts.

## DESKTOP AREA

Keep your workstation's surface clear. Clutter on the desktop can cause unnecessary delays as you search for paper or objects. Remove materials that do not relate to your current project. Put descriptive labels on file folders and place documents in the folders where they are not needed. Place the folders in you file drawers.

Arrange your equipment and supplies to allow easy access so that you avoid making unnecessary movements. Keep frequently used supplies, such as pencils and paper clips in a caddy on the surface of your work area. Reaching for the caddy is more efficient than opening and closing a drawer each time you need an item.

## DRAWERS

Reserve your center drawer for frequently used supplies, such as a letter opener, scissors and paper clips that are needed on the surface area. Arrange the contents of the centre drawer so that the most frequently used supplies are toward the front where you can reach them easily.

The top side drawer may be used to store stationery supplies or to lay file folders containing current work so that they are at hand when you need them. You avoid cluttering the desktop by putting the file folders in a specific location on your desk. In this way, you can protect any confidential items.

A desk also may contain either a file drawer or additional side drawers. A file drawer can be used to store files that are referred to often but are not in current use. Other drawers can be used to store supplies.

## REFERENCE MATERIALS

The nature of your job will determine which references you will use most often. Some items may be in print form. Others may be accessed via your computer. Reference materials that should be at your workstation may include a dictionary, telephone directories, company and office reference manuals, safety handbooks and equipment and software manuals. Other reference items used less often may include an almanac, atlas, and vendor supply catalogues.

## SUPPLIES AND ACCESSORIES

Office employees use a variety of supplies and accessories to do their job. The right resources help you perform your job more efficiently. What you need at your workstation will depend on your job. An adequately stocked workstation is essential to your productivity. If you run out of supplies in the middle of a critical task, you could lose valuable work time by stopping to gather needed supplies. Also, you run the risk of not completing the task on time. Use supplies properly for best results and to save money.

Use these guidelines:

- Select the quality of the supply according to the nature and importance of the task. For example, if you are preparing a rough draft of an important letter, do not use expensive letterhead paper. Use a lower quality paper for the rough draft and the letterhead paper for the final copy
- Learn to read the product labels for the correct use of a product. For example: Paper designed for use in a laser printer may not work well in an inkjet printer.
- Look for ways to conserve supplies. For example: Reuse file folders by placing new file folder labels over old ones. To save paper, preview documents carefully on screen before printing.
- Do not keep more supplies than you need in your workstation. Check your workstation periodically. If you have not used a supply item in several weeks, perhaps it should be returned to the supply cabinet.

## OFFICE EQUIPMENT

The condition of your office equipment affects the quality of your work. You will want to keep your equipment in top working order. To get dependable service from your equipment, you will need to do preventative maintenance and give your equipment routine care. This involves servicing equipment and replacing parts while the equipment is working properly to prevent failure. Few repairs are necessary when equipment is cared for properly on a regular basis. By caring for equipment properly, you can extend the life of the equipment.

Learn how to use and care for the equipment properly. Read and understand the manufacturer's operating instructions. Follow the care guidelines so that you can recognize and correct minor problems.

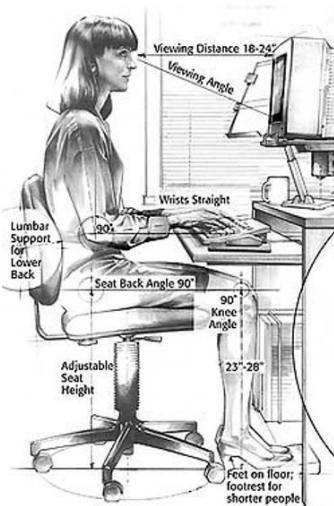
Inspect and clean equipment regularly. Know the basic care routines your equipment requires. Make repairs as needed.

Report problems immediately to the appropriate person. Many minor problems can be corrected before they become serious and require costly repair.

## ERGONOMIC FACTORS

Ergonomics is the study of the effects of the work environment on the health of workers. The way a workstation and its parts are designed can affect your physical well-being. A suitable workstation allows the user to adjust the chair, desk, lighting, and computer equipment.

## ERGONOMIC STANDARDS



The German Institute for Standardisation and the Trade Cooperative Association developed 30 ergonomic standards. These standards serve as a guideline for organisations contemplating the application of ergonomics factors to increase office productivity. They include the following types of items:

- Keyboards should be detachable and ergonomically designed
- Display monitors need to be adjustable
- Keyboard slope no more than 15 degrees
- Work areas and display monitors should meet specific height, depth and viewing angle specifications

OSHA (Occupational Safety and Health Administration) have also set up certain rules for ergonomics.

The International Organisation for Standardisation (IOS) specifies that well designed tasks should safeguard the worker's health and safety, promote the individual's well-being, and facilitate task performance.

The height of the desktop should allow your elbows to be parallel to the computer keyboard and floor. This arrangement prevents unnecessary strain on the arms and wrists. Keep the desktop clear of materials no related to the current task.

Two kinds of lighting are often found in workstations – ambient and task. Ambient lighting is provided by overhead light fixtures for the entire work area. Although you may not be able to adjust the overhead lighting, you can adjust the arrangement of your workstation. Task lighting focuses on the immediate work area and should be adjustable for your specific needs. Adjust the task lighting to prevent glare on your computer monitor or the desktop. Eliminate dark or dimly lit areas where you may have to retrieve files or work away from your desktop.

Your computer monitor should be placed at eye level to help reduce eyestrain and neck pain. Glare on the monitor often contributes to eyestrain. Common symptoms of eye strain are teary or burning eyes, blurred vision, and headaches. Glare from the outside light can be prevented by placing the computer monitor so that you do not face a window or have your back to a window. Peripheral input devices, such as the mouse, should be located next to the computer keyboard. The movement of the arm from the keyboard to the input device should be natural and without strain.

Other ergonomic considerations:

- **Lighting** – task, ambient, natural daylight, fluorescent and incandescent
- **Colour conditioning** e.g. red (heat, action, and excitement), orange and yellow (warmth, cheerfulness). The colour of an office can influence how you perform at work. If you go

around to big companies, you find that they are blues or lilacs which seem to be cool and refreshing.

- **Sound control** – measured in decibels
- **Masking** – white noise or white sound. There is a hum in the background which drowns out most of the noise. If you do work in a building that uses white sound / masking and they switch it off, you are suddenly aware of how much sound it drowns out.
- **Air conditioning** – must be maintained and serviced regularly.
- **Surface textures, shapes, and arrangements** – these must be placed so that the worker is always comfortable . An office professional should have a u-shaped desk where they can roll their chair from one side to another without putting themselves in danger.
- **Control of static electricity** – some companies have purchased plastic mats which are placed under your chair to prevent static electricity at your workplace
- **Power sources** – these should be neat and tidy and tied up or placed in poles. Wires should not run across floor where people can trip on them!

## MANAGING YOUR OFFICE HEALTH

Be aware of the physical responses your body has to your work procedures and habits. Doing so will enhance your job satisfaction, comfort, and productivity. The following guidelines may help you complete your work without feelings of strain, fatigue, or other physical discomforts:

- Learn to adjust the workstation parts for the best fit to your work habits and procedures. Follow the manufacturer’s recommended work postures and practices even if at first, they feel unnatural.
- Take rest breaks often – at least 15 minutes every two hours. Do not sit in front of your computer monitor or at your desk for long uninterrupted periods of time. Arrange your work so that you must get out of your chair and walk to the copier or to the supply cabinet. If you feel yourself becoming bored, stop working and do simple breathing or relaxation exercises.
- Learn stretching exercises for your hands, wrists, arms, and fingers to relieve pressure on them. Carpel tunnel syndrome is a repetitive strain injury (RSI) that occurs when stress is placed on the hands, wrists, or arms. It can occur while working at the computer keyboard or using the computer input device for long periods of time.
- Focus your eyes away from your computer monitor often. Remember to blink your eyes. If possible, face your computer monitor against a wall to avoid looking directly out of a window or into glare from other bright light sources. Place antiglare filters over the monitor screen. Filters reduce glare, static electricity and dirt and smudge build-up on the screen.
- Adjust the screens brightness to a contrast level that is comfortable for you. Adjust the screen angle so that it is at eye level or slightly lower. Adjust the screen display properties for comfortable viewing.
- Learn and use good posture. Keep your back straight against the back of your chair and your feet flat on the floor. Use a footrest if your feet do not touch the floor. Use a back pad to

keep your back in a straight line and adjust your computer monitor to the right height and angle for you.

- Arrange your work materials so that you do not have to reach far to a telephone or supplies. Take care when lifting heavy binders or boxes or bending to reach files. Do not strain to use staplers or paper punches. Avoid repetitive motions for a period without taking a break.
- Report any prolonged physical discomfort that affects your work performance to your manager.

## OFFICE LAYOUTS

The work environment affects administrative professionals psychologically, sociologically, and physically whether a traditional or modern office design is applied. The traditional (closed) design is usually referred to as the private office. Business personnel requiring private space have offices separated from the general work area. The modern design is usually referred to as the open office. Two open office approaches, office landscaping and modular, design the work area without permanent walls and with flexible furniture and aisle space to accommodate the communication flows throughout the division. The design of homework areas typically tends to reflect the open office arrangement since a portion of the living space may be remodelled or rearranged into a comfortable workspace.

An office environment needs to be planned so business professionals can function effectively and productively. The following factors should be considered before any long-range decisions about the office environment are made:

- Strategic planning for the business
- Cost of work area design
- Job functions
- Computer requirements
- Employee expectations

## TYPES OF OFFICE DESIGNS

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### THE PRIVATE OFFICE

The private office design is known as the traditional (closed) design or bull pen approach. Business professionals are typically housed in offices separated from general office areas where office support personnel are located.

The traditional office layout is made up of individual offices that are “built-in” meaning that they are permanent or semi-permanent. This style of office layout will include a combination of enclosed offices and meeting spaces with a more open reception area for receiving customers.

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## THE OPEN OFFICE

The open office situates business professionals and functions in relatively open areas to accommodate the workflow and communication required. The open office design is characterised by these features: large open areas of workspace with only a minimum of permanent walls, use of modular furniture systems, clustering of workspaces and the use of accent colours to enhance the work area décor. Two popular approaches are office landscaping and the modular office.

- **Office landscaping** – this office places primary emphasis on analysing office procedures and controlling workflow.
- **Modular office** – in this type of open-office design, office furniture is creatively used in the workspace to meet the specific needs of the employee. The modular office is also referred to as the modern office.

## OFFICE LAYOUTS

- **Home office** – are more popular than ever as flex-time and work from home programs have made it possible. The layout of your home office requires careful consideration as well to make it an efficient and productive place for you to get your work done. Ergonomics is also important to the telecommuter's homework area. The open office is the most typical arrangement.
- **Hot desking** – with some offices in use only 10 to 20 percent of the time, workspace designers have recommended that the space be shared by two or more employees. This approach, known as hot desking, can reduce office space costs for organisations. Hoteling and modelling are two hot desking alternatives. Hoteling is an open office design with unassigned desks. A business professional needs to call in advance to pre-book a workspace for a specific period. Motelling is similar but does not require pre-booking. Business personnel arrive at the organisation and arrange for their workspace needs 'on the spot'.
- **Cubicle office** - a type of open office plan where the workspaces are created using partition walls on 3 sides to form a box or "cubicle". This style of workspace is more space and cost efficient compared to built-in offices. It is typically used in combination with built-in meeting rooms and private offices for senior staff.
- **Low partition office** - the more modern version of the cubicle office, where the height of the partition walls around the workspaces is lower to allow for more light and interaction between workers. Like a cubicle office layout, it may include built-in meeting rooms and offices if more privacy is required.
- **Team based office** - a newer type of layout where workers are grouped by team. The size and space allocated to each team vary depending on the type of work that needs to get done. A team workspace will often include individual workstations and a collaboration space. This reduces the need for meeting rooms.

- **Open plan office** - does away with partition walls altogether. Instead, work areas are created and defined using furniture. Desks may be lined up side by side to create “banks” or they may be replaced with multi-person worktables called “benches”. Tables and lounge seating are used to create informal meeting and collaboration areas. The appeal of this type of office is that it is very flexible and can expand, contract and be reconfigured easily.
- **Hybrid office** - combines elements of all the above office styles based on the needs of your company. Think of creating your office layout as if you had a menu, from which to choose different “environments” based on the needs of your company. Innovative new office systems are making this more possible and easier than ever.
- **Co-working office** - one of the great workplace innovations of this century. They allow you access to all the aspects of a modern office without you having to create it yourself. Instead, you pay a monthly fee to become a member. Just sign in and find a workstation or spot in the lounge. Like a hybrid office, a co-work office layout will offer a range of workspaces from open lounge areas to private offices and meeting rooms.

## ENERGY MANAGEMENT IN THE OFFICE

Many new organisations are building new buildings that are ‘green’ friendly! We have some delegates from ABSA who are currently moving into their new ‘green’ building!

There should be the following in the office:

- An energy control committee
- Energy audits
- Conservation goals (**green technology**)
  - Heat generated by various sources is recycled
  - Solar energy may be utilised
  - Temperatures in public, non-work areas such as hallways and lobbies can be reduced or increased
  - Lighting and heating can be reduced or eliminated in non-used areas
  - Use of external daylight can reduce the need for internal lighting
  - Heating and cooling equipment can be kept maintained for optimum efficiency
- **Green computing** – using computing resources efficiently e.g. materials recycling e.g. printer cartridges, batteries etc.

## OFFICE SAFETY

Most of us think of the office as a safe place to work. Office workers are not required to use heavy equipment or power tools. They are seldom exposed to poisonous chemicals or dangerous working conditions. Yet thousands of office workers have disabling accidents each year. Falling, tripping, or slipping account for many office accidents. Common causes of falls include drawers partially open,

slippery floors, torn or loose carpeting, obstructions on stairs or in walkways and dangling telephone or electrical cords.

Faulty or poorly maintained equipment can be a cause of accidents in the office. Falling objects and fire and electrical hazards can pose dangers. Human carelessness can also be a cause of accidents in the office. With knowledge of correct safety procedures, however, you can learn how to correct and report safety problems. Reporting problems will help prevent injury to you and your co-workers.

## ACCIDENT PREVENTION

To many people, the office seems to hold little danger. Accidents may happen because workers do not see possible dangers. Becoming aware of safety hazards in an office is the first step to preventing accidents. Workers should develop positive safety attitudes. They should try to see potential safety problems and take steps to remove them.

## WORKSTATION SAFETY

Most office employees spend most of their working time at their workstations. Applying safety practices at your workstation will prevent accident and injuries.

### DESKTOP AREA

As you work, you will occasionally use scissors and other sharp objects. Place them away from the edge of the workstation so they will not be knocked off easily. Pencils stored on the top of your desk with the sharp points up are dangerous – they are best stored flat or with points down. Use a stapler remover, rather than your fingernail to remove staples. Never examine a jammed stapler by holding it near your eyes or testing it over your finger.

### DRAWERS

Keep your workstation drawers neat. Do not allow papers to collect to the point of clutter. If the drawers are cluttered, your hands could easily be punctured by a hidden scissors, pins, or pencils. Sharp objects such as pins and thumbtacks should be placed in closed containers.

Even with these precautions, never reach blindly into your desk drawer or file drawer. Take time to look where you are placing your hands, even if you are rushed or talking to somebody. Close workstation and file drawers by the handle. Do not push a drawer shut by placing your hand at the top or side of the drawer. You may lose a fingernail or suffer a crushed finger or hand.

### CHAIRS, MATS, STATIC CONTROL

Most office chairs have casters, which are small wheels that provide ease of movement for the worker. This same ease of movement can produce painful injury unless you look at the chair and

hold onto its arms or seat as you sit down. When seated, be careful not to lean too far forward or backward to prevent falling out of the chair.

A chair mat is a vinyl pad placed underneath the chair to eliminate wear on the carpet from rolling the chair. Static control mats are designed for use on floors underneath workstations and computers. The static control mat safeguards valuable computer data and electronic equipment from possible harm from a charge of static electricity.

Chair mats and static control mats can cause you to trip, particularly if the edges are beginning to curl. Replace worn mats when they become a hazard.

## WORK AREA SAFETY

In addition to your workstation, other objects in your immediate work area can add to your comfort and work productivity. They can also become a source of injury.

## ELECTRICAL EQUIPMENT

Office workers use many pieces of equipment that require cords and cables. These cords and cables can become a safety hazard. Cables and cords should never extend into traffic areas. Do not overload electrical outlets. If necessary, purchase a power strip or surge suppressor made for use with multiple appliances. An extension cord should only be used to extend the position of the electrical appliance. It should not be used to increase the power load.

Cords, cables, and power strips should be placed behind equipment or within the walls of the workstation. If cords must be placed where people walk, tape them with materials specifically for this purpose.

## GENERAL OFFICE EQUIPMENT

Office equipment can be dangerous if it is not operated properly. Keep the following safety procedures in mind when you use the office equipment:

- Follow the manufacturer's directions for safe and efficient equipment use.
- Avoid other activities that will distract you from the operation of the equipment
- If you feel a tingling sensation, notice smoke, or smell something burning while you are operating the equipment, turn it off. Investigate the problem or report it to the appropriate person immediately.
- Know where the power switches are located on the equipment in your general area. In the event of an emergency or power outage, you may need to turn off the equipment.

## OFFICE FURNISHINGS

Learn how to use small furnishings, such as a step stool and paper cutter. In using a step stool with casters (wheels), step firmly in the middle of the stool. Never step to the side because this can cause the stool to slide out from under you. When using a paper cutter, keep your fingers away from the blade and never leave the blade up. Furniture with rough or sharp edges should be sanded or taped to prevent injury to employees and to prevent clothing from being torn. Report tears in carpets, burnt out lights, broken handles on equipment and other potential hazards related to office furnishing to the appropriate person.

File drawers should be filed beginning with the bottom drawer of the cabinet and moving to the top drawer. They should be emptied from the top drawer down. When working with file cabinets, pull out only one drawer at a time. You do not want to change the cabinet's centre of gravity and cause it to tip over. Avoid placing objects that have potential to harm you or your co-workers at the top of filing cabinets. Coffeemakers or heavy plants can slip off the cabinet and cause serious injuries.

## EMERGENCY PROCEDURES

Emergency procedures are steps used to follow in time of trouble or danger. A fire, storm or robbery in progress is examples of emergencies you might face at work. Learn emergency procedures as soon as you begin a new job. If your office does not have established procedures, do what you can to help initiate practices such as those described in the following paragraphs:

### EMERGENCY TELEPHONE NUMBER

Telephone numbers to call in times of emergency should be posted beside each telephone. The most important ones are those of the company medical and security personnel. Numbers for the local police, fire department and paramedics should be included in the list. If your area has a general emergency number, include it as well. Emergency numbers may also be stored in each telephone's memory. The memory feature saves valuable time. You press only one or two buttons and the number is automatically dialled.

### FIRST AID PROCEDURES

First aid kits should be located conveniently within the office. They should be inspected frequently and restocked whenever supplies are used from the kit. Some firms will send an employee from each floor or work group for first aid training and/or CPR classes. These courses are given periodically by the Red Cross and other private organisations. Each employee should know who has completed first aid training and who is qualified to help in the critical first minutes of an emergency. First aid posters can be placed where they can easily be seen to further assist employees.

### FIRES

Some companies prohibit the use of appliances, such as cup warmers and space heaters because of their potential fire hazard. If appliances are allowed in your offices, always unplug them when they are not in use and before leaving the office. Know the location of the nearest fire exit, fire alarm box and fire extinguisher. Large office buildings generally have the fire alarm boxes and fire extinguishers in the same location patterns on each floor. Learn how to use the fire extinguisher and what type of fire it is intended to put out. Never attempt to fight a fire alone. Always have someone report it to the proper channels.

## BUILDING EVACUATION PLANS

Learn the established escape routes and evacuation procedures for your building. Emergency exit routes should be posted in noticeable places throughout the building. Employees should know their duties during a fire drill or evacuation. Who, for example, is responsible for checking conference rooms, restaurants, and other areas where the alarm may not be heard?

## PERSONAL SECURITY ON THE JOB

Protection for yourself and your property requires continuous attention on your part. Most business strive to provide a safe and secure work environment for their employees. To support the company's efforts in provide for your safety and security on the job, always use good common sense. A purse left at a workstation, a jacket slung over the back of a chair or left in an unoccupied office, cash left out in plain sight – all are invitations to a would-be thief! Keep personal belonging out of sight and locked in a drawer, file cabinet, employee locker or closet. The key to this drawer or other container should be issued only to the employee who is assigned its use.

Sometimes you may find it necessary to stay late at the office or to come in early. Follow your company's procedures for being in the building during non-working hours. If no after-hours procedures exist, create your own security routine, and follow it. Follow these security procedures when you work alone:

- Always work near a phone and keep emergency telephone numbers handy
- Lock all doors to your work area. Do not open the door to anyone you are not expecting or cannot identify
- Get to know the cleaning staff and when to expect them
- If you use the elevator to leave the building, do not enter the elevator if anyone is in it who you find suspicious
- Avoid using a restroom that is located away from your work area
- When working late, phone home before leaving the office to let someone know what time to expect you. If you live alone, call a friend before leaving the office and again when you get home to let her or him know you have arrived safely

- Park your car near the building entrance and/or in a lighted parking lot. Check the parking lot visually before leaving the building. Have your car keys in your hand and ready to use. If security personnel are available, ask to be escorted to your car.

## BUILDING AND OFFICE SECURITY

Many businesses take a serious approach to fulfilling building and office security needs. Discontented workers, theft, sabotage, and fire are major security concerns of a business.

Many companies have security procedures to guard against actions by employees who have been fired or who are under pressures from work. Sometimes upset workers can pose a hazard to themselves and to other workers. Be alert to changes in your co-workers' behaviour. Notice statements they may make that sound like threats against employees or the company. Know the procedures for protecting yourself from these workers:

- Do not get involved in a verbal argument
- Leave the work area if you feel threatened and go to a safe area
- Report any unusual behaviour to your supervisor and/or company security personnel

The protection of data is an issue in many companies. Entrance to secure areas where data are kept or can be accessed is carefully controlled. Employees may need access codes or passwords to enter these areas.

## CONTROLLING OUTSIDER ACCESS

Many companies must be open to the public to do business. However, the public does not need access to all parts of most office buildings. Businesses use varied security means to protect employees and assets.

Some companies have security personnel who make sure each visitor signs a log. The log shows the visitor's name, address and the name of the person or office being visited. Some companies send an employee to the lobby to escort a visitor back to the office. In smaller offices, the receptionist may be present in the front office and may screen visitors.

## CONTROLLING EMPLOYEE ACCESS

At some companies, employees must wear identification (ID) badges. These badges are used to gain entrance to parts of the building. The badge may contain the employee's photo or a fingerprint. The badge may have a magnetic code. A card reader may read the code to allow entrance to a room or use of equipment.

Proximity readers can read some badge codes. The reader automatically identifies the badge when the wearer is in a restricted area. The reader sends data to a computer. The data provides a record

of who enters and leaves designated areas, the time of entry and in some instances, the time of exit – all valuable security information.

Your cooperation in wearing your ID helps assure your personal safety and security on the job. A lost or stolen ID should be reported right away to the appropriate persons.

## EQUIPMENT AND SUPPLIES

The administrative professional is often responsible for the management of various physical resources, including office equipment and supplies. In this section will be considering the procurement, use, maintenance, inventorying, storing, reordering, and management of these office assets.

### PURCHASING EQUIPMENT AND SUPPLIES (ORDERING AND RECEIVING)

Office supplies are used to help save time and money for organizations and their personnel. Office equipment is used to provide work and storage space and perform various functions that must take place in an office.

When new office equipment is being considered, the following factors need to be considered:

- **Determine the need for the equipment** - evaluate how the equipment will be used and its importance to the functioning of the office.
- **Find the right equipment for the work to be accomplished** - consider issues such as quality, cost to purchase or lease, cost to operate and maintain, reliability, speed (especially for the accomplishment of urgent projects), adaptability, and the amount of added productivity and efficiency that will be obtained.
- **Try to keep equipment standardized** - keep in mind that when office equipment is the same brand (or only a few brands), and when equipment standardization is maintained in an office, there are fewer concepts for personnel to learn in the operation of equipment; and costs to purchase, lease, operate, maintain, and obtain supplies can be reduced.
- **Determine equipment specifications** - be sure size, installation requirements, access to appropriate electrical power, and other related issues are considered.
- **Learn about equipment processes involved** - find out if any special supplies will be needed and ascertain if the supplies will be readily available in the future.
- **Evaluate the equipment's safety** - learn if there are any safety issues regarding the equipment, especially if there is any potential equipment misuse.
- **See if the equipment is simple to use** - determine the level of difficulty involved in learning how to operate, operating, and maintaining the equipment.
- **Determine if the equipment will need to be shared between departments or areas** (this consideration involves other factors such as the organization's decision to centralize or decentralize control over various forms of office equipment. For example, copy centers may

be set up in organizations so that equipment, personnel, and related factors can be centralized into one place. The same organization may also provide convenience copiers in various dispersed work areas--a decentralized approach).

- **Consider ergonomic factors** involved with the item(s) to be purchased.
- **Involve those who will use the equipment** in the purchase or lease decision making process: Have those who will use the equipment involved in the selection process; at the very least, obtain their feedback.

## VENDOR AND SUPPLIER CONSIDERATIONS

The following factors should be considered when considering which supplier or vendor to use:

- The supplier's reputation and track record - the vendor may provide this information in different forms (i.e., indicating the number of years they have been in business or providing a list of clients or customers who can be contacted to learn of their experience with the vendor). In addition, "Hello Peter" or other sources can be contacted to learn if any negative reports have been submitted about a supplier or vendor.
- The vendor's purchase or lease options - supplier purchase or lease option terms should be obtained.
- Vendor willingness to allow the organization to use equipment on a trial basis (or do a test-run of equipment before the purchase or lease arrangement is established).
- Training provided by the vendor - if equipment requires use training, it should be determined what options are provided by the supplier.
- Vendor costs and promises regarding service and maintenance - these issues are critical, especially in cases of expensive equipment on which much reliance will be placed to continue productive office operations.
- New equipment delivery and installation - determine if the supplier can meet organizational needs in this area.

As noted above, purchase and lease options may be available in connection with equipment. Supplies and some equipment are purchased, because they are consumed and will have no residual or trade-in value.

## GENERAL PURPOSE VS LEASE CONSIDERATION

A **breakeven analysis** should be performed for both purchase and lease options to help in the decision-making process. In this process, the organization determines when it neither experiences income nor a loss in terms of the number of units produced by the equipment. Fixed costs, variable costs, and planned production volume levels are used to make this computation (more details on breakeven can be found in the Management portion of this program).

Issues relative to the **payback period** length should also be evaluated. This is found by determining how long it will take the organization to recover the amount it cost the business to purchase or lease the equipment. For example, if the equipment will become obsolete in a relatively short period of time, it may be more cost-effective for the organization to consider a lease option rather than a purchase option.

A **comparative analysis** form may be used when making the purchase or lease decision. This form lists the vendor or manufacturer and the comparable factors involved. Here is an example of an abbreviated comparative analysis form:

The **average rate of return** may also be determined. In this method, the average savings to be realized from the equipment is divided by the average amount of the investment. An investment may be considered reasonable if the cost to purchase the equipment is the same or less than the company's current financing cost (for example, if the organization pays five percent interest to finance purchases and the company's finance cost is five percent or higher).

## EQUIPMENT LEASING

Sometimes a lease option may be more advantageous than making a traditional purchase (i.e., rapidly changing technologies impact a business's ability to be competitive, the lease of computers or other specialized equipment may be a better financial and strategic approach than equipment purchase). Photocopiers are often leased by organizations, as well.

The following types of leases are used:

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### STANDARD (OR TRUE) LEASE

The organization pays a monthly fee for a specified period. At the end of the lease, the equipment is returned to the lessor (the lease mayor may not have a renewal option).

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### LEASE WITH THE OPTION TO PURCHASE THE EQUIPMENT

The equipment is leased for a specified period, after which the organization becomes owner of the equipment.

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### CONDITIONAL SALES CONTRACT

This type of lease allows the lessee to gain tax benefits (as it makes the organization the owner of the equipment, for tax purposes).

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### SALE-LEASEBACK

The sale-leaseback is used when a business needs to obtain capital quickly. It occurs when the organisation purchases equipment, sells it back to a lessor, and then leases it from the lessor.

Lease benefits include the following:

- Freed up cash flow
- Budgetary control (lease payments are easily determined)
- Equipment maintenance and record keeping may be contracted out
- Lessee is another potential financing source
- The lessee may provide financing flexibility
- Protection against obsolescence provided
- Tax benefits may be derived
- Capital expenditures approval by top management may be bypassed
- Special equipment lease packages for growing companies may be arranged Equipment Purchasing

When an organization wants an asset to do with as it pleases (as many leases place use restrictions on equipment), and there is no other special consideration making a lease option more favourable, it will purchase the equipment.

Another incentive for purchase from a vendor is that sometimes suppliers or manufacturers will sell their equipment and provide financing at no interest for a specified period of time (i.e., no interest for six months), or the vendor will provide a very low interest rate on monthly payments made by the purchaser for the specified financing time period.

**Office furniture** is typically purchased because it will be used for a long period of time and there is typically no advantage to taking a lease option. Details regarding furniture purchasing decisions and ergonomically-related issues are covered elsewhere in this program.

## USAGE AND MAINTENANCE

Office equipment must be used properly and maintained appropriately for it to remain productive and efficient. In fact, if equipment is misused regularly, it may be subject to continual breakdown and be more of a challenge than a help.

Rapid and efficient servicing of equipment is desirable; and it is important that backup equipment or options are available for the most critical equipment used. Equipment must be regularly maintained. It is often the administrative professional's responsibility to coordinate equipment maintenance with the trained professionals involved.

Equipment maintenance involves the following considerations:

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### IN-HOUSE MAINTENANCE (ON PURCHASED EQUIPMENT)

When it is cost-effective, in-house maintenance of equipment can sometimes provide much more rapid response time on repairs in comparison to the response time of external maintenance

providers. Costs to provide in-house service include salaries, benefits, retraining for new equipment and technologies introduced, service department space and related costs.

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### SERVICE CALLS ON A PER-VISIT CHARGE BASIS (BY AN EXTERNAL PARTY, ON PURCHASED EQUIPMENT)

Unless preventive maintenance is provided, this approach may end up being more expensive than other approaches. In addition, it may be more costly (even though it may appear on the surface that service costs may be less).

Service contracts established with the vendor (for purchases and leases)

Most service contracts are established on a yearly basis, and they are generally costly. Routine maintenance and service calls are generally covered under contracts. Small parts may be covered, in addition to labor provided; however, the equipment owner is generally responsible to pay the cost of larger parts.

The following concepts should be considered regarding service contracts:

- Coverage provided (service call time, transportation, maintenance and repair labor costs, and cost of parts)
- Contract cost and specific coverage period
- Specific equipment covered by the contract
- Number of inspections provided during the contract duration
- Renewal conditions and terms
- Restrictions affecting all areas of the contract and the nature of any exclusions
- Options for backup equipment during equipment down-time

### EQUIPMENT REPLACEMENT CONSIDERATIONS

Office equipment must be used properly and maintained appropriately for it to remain productive and efficient. In fact, if equipment is misused regularly, it may be subject to continual breakdown and be more of a challenge than a help.

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Equipment maintenance involves the following considerations:

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#### SERVICE CONTRACTS ESTABLISHED WITH THE VENDOR (FOR PURCHASES AND LEASES)

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- Renewal conditions and terms
- Restrictions affecting all areas of the contract and the nature of any exclusions
- Options for backup equipment during equipment down-time

#### **Equipment Replacement Considerations**

The following considerations apply to equipment replacement:

- The useful life of the equipment (including the amount of use the equipment is expected to receive, equipment depreciation and equipment efficiency)
- Changes in technologies and their impacts on the office
- Projected organisational growth
- Specific office applications and needs

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## SUPPLIES INVENTORYING

Depending on the number of individuals or departments for whom you are responsible to order office equipment and supplies, the inventory process may vary. Supplies inventorying may be as simple as periodically reviewing the amount of supplies on hand, then re-ordering needed items when the inventory becomes low; or, an actual, formal periodic inventory may be taken on a weekly or monthly basis to determine exact inventory counts, per inventory item, after which a replenishment order may be processed.

Strict inventories of supplies and equipment are put in place in cases where organisations are striving to minimize overuse or misuse of these items, because office supplies are often a large expense to organisations. The careful tracking of supplies use, and supplies inventories, may be useful in determining if pilferage is taking place. It is incumbent on administrative professionals that they work to encourage the careful and honest use of business assets.

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## EQUIPMENT INVENTORYING

Inventory control considerations for office equipment include:

Maintaining an accurate equipment inventory listing including the following information:

- Equipment make, model, serial number, and related details
- Assigned inventory control or ID number (if a number different than the equipment serial number)
- Location
- Date of purchase, lease, or rental
- Equipment cost
- Annual depreciation amount
- Expected life expectancy (or lease period)
- Book value
- Servicing cost

Instituting an inventory control system with equipment ID labelling (including company name, location, identifying numbers, etc.)

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## STOCK INVENTORYING

In businesses where products are sold, inventories must be kept of these items (referred to as stock inventories). Support personnel may be involved in these inventories. This involves the processing of receipt and delivery of items to and from the stockroom.

Inventory duties in this area also include:

- Verify that items received have been ordered, that the items received are the same specific items and that the count received matches with the number ordered and fulfilled by the shipper.
- Sign for items delivered.
- Input of receipt of inventory (including specific items, quantities, date of stocking, etc.).
- Input of items taken from inventory (when items contain bar codes, they are scanned so that they are removed from the computer inventory. Items may also be manually selected on a computer system input as removed from Typically, the name of the person obtaining the items, the number of items taken, and the date of removal from inventory are included in the database update).
- Physical counting of inventory (on a periodic basis) is done and compared against the computer inventory of items counted.
- Shipping orders, purchase orders, and invoices are carefully compared to be sure that no errors are made in filling orders or in billing.

## TECHNOLOGY UPDATE

### COMPUTER TYPES

Computers in business come in all shapes and sizes. While the traditional computer was a machine on a desk in an office, computers are now found in police cars, the hands of package delivery personnel, at the grocery checkout, and in the pockets and handbags of millions of people. Some of the most common computer types are described in the following sections.

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#### MICROCOMPUTERS

The most common type of personal computer is the microcomputer. This type of computer system is designed to be used by one person at a time and is often called a desktop computer because the complete system fits on or next to a desk in an office or home. Microcomputers are used extensively in businesses and home offices to prepare correspondence, maintain accounting files, create and respond to customer email, access, and update Web pages, and to complete other office-related tasks. These computers are affordable for both business and home use. These computer systems are also considered modular equipment because they are equipped with components that can be replaced or upgraded easily.

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#### NOTEBOOK COMPUTERS

A notebook computer is a portable microcomputer that is specifically designed to be moved from one place to another. These systems are like the desktop computers in speed, performance, and usage. They are sometimes referred to as laptops because they were originally developed to be used when no desk was available and the computer rested on the user's lap. Notebook computers perform the same functions and contain components that are like those found on a desktop computer, but they are made smaller for ease in transporting. Because of their portability, notebook computers are used by many workers who need to use their computers at remote locations.

Notebook computers typically weigh less than 1-2 kilograms and are about the size of a standard paper notebook. Because these computers are equipped with long-life rechargeable lithium batteries, notebook users can typically work or play remotely for three or four hours at a time. Notebooks have a built-in keyboard, a touchpad, or a pointing stick for input as well as the capability of attaching an external keyboard or mouse. A notebook computer may be a little more expensive than its desktop equivalent, but it provides a great advantage to users who require portability. Notebook computers are popular with salespeople, real estate agents, students, and others whose work requires them to be on the move.

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#### HARDWARE CARE TIPS

- Do not physically harm your hardware by dropping a notebook computer, knocking a piece of hardware off a desk, or jostling the system unit. If you need a more durable computer, you

can purchase one that will withstand much more physical abuse than a conventional computer.

- Use a surge suppressor to protect hardware from damage due to power fluctuations. For a desktop computer, use the surge suppressor with all the powered computer components (including the system unit, monitor, printer, and scanner).
- Safeguard your computer from dust, heat, static and moisture. All of these can be dangerous to a computer. Remove the dust from your computer with a small handheld vacuum. To protect your computer from heat, do not leave it in the direct sunlight and use it in an area that has plenty of ventilation.

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## TABLET PCS

A table PC is a portable or mobile computer. It is smaller and thinner than a notebook computer. The screen can be turned or rotated to allow the user to write or select items using a digital pen designed for the tablet. Although a tablet PC may include a traditional keyboard, more often the user will use handwriting, drawing, or speech recognition tools for data input. Tablet PCs without a dedicated keyboard is often called slates.

Many users find the tablet PC more portable than the traditional notebook computer. The slim and lightweight design makes it easy to carry under your arm like a book. Individuals who lack keyboarding skills find the ability to take handwritten notes and diagrams with a digital pen or stylus more functional. Tablet PCs are used for data entry by hospital staff, home inspectors, engineers, salespeople, and students.

Some users find tablet computers cumbersome. Individuals with excellent keyboarding skills may be unable to input data as quickly when relying on handwriting. Tablet PCs have a higher risk of screen damage because the screen is typically used for input. For many users, the mobility and flexibility of the tablet PC outweigh any potential disadvantages.

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## HANDHELD COMPUTERS

A handheld computer is a computing device about the size of a deck of cards. Typically, handheld computers have a small display screen as well as a small keyboard or touchpad that is used for data input. They were created to provide personal organizer functions, and are sometimes called personal digital assistants or PDAs. The PDA functions include a calendar, appointment book, and address book as well as access to email and Internet services. The capabilities of handheld computers have broadened to include global positioning services, video recording, and use of many programs formerly reserved for traditional desktop computers such as word processing and spread sheets.

Although handheld computers are used by mobile workers in a variety of business occupations, they are often used in other fields including medicine, forestry, meter reading, asset management, surveying, and parking enforcement. Handheld computers for business use have evolved to include

full keyboards or the ability to connect the handheld to a full-size keyboard. Many of the handheld devices use wireless technologies to connect to the Internet, GPS services, or a computer network. For those individuals who use both a handheld and a desktop or portable computer, the ability to share data between the computers is an important feature. For the business user, the ability to synchronize a handheld computer with a personal computer is an important feature so that data is up-to-date on both.

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## SMARTPHONES

A smartphone is a full-featured mobile phone that includes many of the functions of a handheld computer. In addition to the typical telephone features and a built-in camera, smartphone features include a complete email system, Internet access, scheduling software, and contact management capabilities. Additional features such as navigation software and the ability to read business documents may also be available. Some of the newer models of phones include video recording capability and electronic music file downloading and storage capabilities. A variety of accessories are also available for phones, including detachable speakers, printers, and even projectors.

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## MAINFRAME COMPUTERS

These are found in large organizations, government agencies etc. These computers have high processing speeds and large storage. (If you ever get a chance, go, and visit your mainframe room. They are usually in the basement of the business as this is the best place to keep the equipment. Security is a huge issue, and you would need to get permission to visit).

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## SUPERCOMPUTERS

These are computers that will be found in military and large organisations, which are involved in research and development activities that are mathematically intensive e.g. aerospace industry, chemical industry, and weather forecasting.

## INPUT DEVICES

Information is input to a computer in a variety of ways. The basic and most recognized computer input device is the keyboard. Although new input technologies continue to be developed, the keyboard continues to serve as the most widely used input device. Today, most computers are equipped with a keyboard and mouse. Other input devices that may also be used are discussed in the following sections.

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## POINTING DEVICES

A pointing device is a computer hardware component that allows a user to input data or give commands to a computer. The most common pointing device by far is the mouse. Another commonly used pointing device is the trackball. A trackball is a stationary ball that can be rolled in

place to move the cursor on the screen. Trackball rollers are often installed within a keyboard. They may also be attached to the side of a keyboard as a removable accessory.

The digital pen, also called a stylus or electronic pen, is another pointing device that can be used to select objects, draw, give commands, or write electronically on the screen. This pointing device is used with a touchpad or a touch screen. A touchpad or touch screen senses motion and pressure by the digital pen to control the motion of the onscreen pointer or to enter handwriting. With some touch screens, the individual can use his or her finger to select commands or provide input to the computer.

The most recognizable use of an electronic pen is in retail businesses where it is used to electronically record signatures used to authorize credit card purchases. Touch screens are found in a variety of applications including airports (used as a self-check-in system), restaurants (used as an order entry system), petrol stations (used to select fuel and method of payment), and banking (used to complete banking and financial transactions).

The digital pen is also used with a graphics tablet, which is an input device that allows users to draw images and graphics in much the same way as with a pencil and paper. Using a digital pen, the user creates the image on the tablet and the image is displayed on a computer monitor. Graphics tablets are available in a variety of formats and price ranges and typically connect to a computer through a USB connection.

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## SCANNER

Scanners are commonly used computer input devices. A scanner is used to capture an image in digital form and transfer that information to a computer. Original images can be in the form of a printed document, handwritten document, photograph, drawing, or another graphic image. Once the information is scanned, it can be resized, inserted into other documents, posted on a Web page, sent as an email attachment, printed, or treated like any other digital image.

Some scanners are equipped to work with software programs to perform optical character recognition (OCR). This technology recognizes handwritten or typed characters and converts them to an electronic form as text rather than images. The text can be edited in a word processing program. OCR technology is used by businesses to scan printed documents that need to be edited and revised. Because handwritten text varies widely from individual to individual, it is difficult to accurately translate handwritten information.

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## DIGITAL CAMERAS

Digital cameras allow users to take pictures that are automatically captured as digital files. The software that comes with the camera then takes the pictures from the camera and transfers the files directly to the computer. Most digital cameras are multifunctional in that they allow users to record sound and or video as well as photographs.

When a digital camera is used in conjunction with a computer, users can insert pictures into a variety of software applications where they can be edited, printed, faxed, or included with email messages. In addition, photographs can be incorporated into electronic presentations; posted on Websites; or included in newsletters, reports, or memos. There are also many electronic devices that include digital cameras as a component. For example, many mobile telephones and PDAs contain an internal digital camera. Pictures taken with these devices can be transferred to notebook or personal computers through a USB or wireless connection or sent as an email.

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## SPEECH RECOGNITION

Speech recognition is the process of converting spoken words into digital form. You may have heard of these systems by other names, such as voice input system, voice recognition system, or computer speech recognition. Regardless of the name used, these systems require the use of a microphone or headset as well as an appropriate software package. Although speech recognition technology was originally developed for people who found it difficult to use a keyboard or mouse, it has evolved into a system that is used in a variety of business situations. Some computer operating system programs, such as Office 365 (Cortana), include speech recognition. Application programs, such as Dragon Naturally Speaking®, are also popular with speech recognition users.

Advances in speech recognition continue to make the technology easier to use and more accurate. Programs for recognizing a few isolated words, such as telephone voice navigation systems, work for almost every user. As the accuracy and ease of use have increased, speech recognition systems have increasingly been incorporated into portable PCs, mobile devices, cell phones, and CPS systems to allow hands-free operation. Other similar systems are used to control machines, robots, and other electronic equipment such as that used by doctors during surgical procedures.

Medical and legal transcriptions are the most frequently used speech recognition applications; Speech recognition technology is also used for querying databases and giving commands to computer-based systems. When using continuous speech programs (such as a dictation program) the user must take the time to train the software to recognize his or her speech patterns. Training involves the user reading aloud samples of text. With the growing power of personal computers, the accuracy of speech recognition has improved markedly, making it an important input method.

## DATA STORAGE

As information is created on a computer, it is often saved for future reference or as part of a permanent record of a completed project. Today, a wide variety of computer storage options exist, and there continue to be great advances in this area. Currently the most popular storage systems are:

- Hard drives
- Optical disk systems (CD and DVD Roms)
- Flash memory systems
- Cloud based services e.g. OneDrive, GoogleDrive, Dropbox

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### HARD DRIVES

A hard drive is a device that stores data magnetically on metal disks that are permanently sealed. On many computers, the hard drive continues to serve the two functions for which it was created- storing program information and storing user data. Internal hard drives hold between 80 GB to 1 TB, and that storage capacity is expected to grow.

Although hard drives are typically located inside the computer, external hard drives are also available. These devices are storage mechanisms that operate like an internal hard drive but connect to a computer using a USB port, a FireWire port, or a wireless networking connection. External hard drives can be used to move a large amount of data from one computer to another, as a backup hard drive, or as additional information storage. Because hard drives use magnetic recording, they are susceptible to the effects of minor bumps or careless handling that can affect the integrity of the stored data.

Portable hard drives are small devices used to move information from one computer to another. Typically, these small devices are designed to be used with handheld computers, digital music players, and other portable devices. Hard drives today come with built-in security features, such as fingerprint readers that allow only authorized users to access the information on the drive.

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### OPTICAL DISK SYSTEMS

An optical disk is a thin, lightweight plastic disk that can be used to store and retrieve data with a low-powered laser beam. Many people are familiar with the first generation of optical disk storage, the compact disk (CD). Although CDs were originally created to store music and software, there has been a constant succession of optical disk formats. Second generation optical disk storage includes digital versatile disks (DVDs). This storage medium was created to store large amounts of data, including TV-quality digital video. The main enhancements from the CD to the DVD are that the DVD can be used to store high-quality video and sound data. DVDs resemble CDs in the way they look; They are encoded in a different format and at a much higher density.

CDs and DVDs come in a variety of formats. CD-ROMs (compact disk read-only memory) and DVD-ROMs (digital versatile disk read-only memory) are read-only storage media. This means that they can be read but no data can be added, changed, or erased. This media form typically comes pre-recorded with software programs, clip art, product demos, or music. Most CD-ROM drives can play data and audio CDs; DVD-ROM drives can play data and audio CDs and DVDs.

Recordable disks include CD-R, DVD-R, DVD+R, and DVD+R DL. A recordable disk is one that can be written to, but the disk cannot be erased and reused. Recordable CDs are commonly used for backing up files, sending large files to others, and creating custom music CDs. Recordable DVDs are used for similar purposes or when more storage space is needed such as for large backups or for storing home movies or video files. Rewritable disks are also available. These disks can be recorded on, erased, and overwritten. The most common types of rewritable optical media include CD-RW, DVD-RW, and DVD+ RW disks.

Using a blue laser instead of infrared lasers (CDs) or red lasers (DVDs), the third-generation blue laser disks are designed for storing high-definition video and support larger storage capacities. Although there are a variety of third generation disks still in development, the Blu-ray Disc (BD) and HD- (high density) DVD are two examples of third generation disks currently on the market.

Optical disks offer several advantages over traditional magnetic storage media. First, an optical disk holds much more data. Because there is greater control and focus possible with laser beams, much more data can be written into a smaller space. Also, storage capacity increases with each new generation of optical media. For example, a BD can store five to six times the amount of data than can currently be stored on a DVD; the HD-DVD can store three times the data of a standard DVD. Optical disks are also inexpensive to manufacture, and data stored on them is safe from most environmental threats such as magnetic disturbances and power surges.

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## FLASH MEMORY SYSTEMS

Flash memory is a type of non-volatile memory where data can be electrically stored, retrieved, and erased. Non-volatile memory can retain stored information even when there is no power. What makes flash memory systems different from hard drives and optical disk technology is that they are a solid-state storage system, meaning they have no moving parts. Because of this, flash memory systems require much less power than conventional drives and are resistant to shocks and vibrations.

Flash memory usually takes on one of two forms: cards or drives. Flash memory cards are small cards that are inserted into computers or other portable devices for storage purposes. Flash cards come in a variety of formats. A flash drive is a portable storage device that typically connects to the USB port on a computer. A flash drive, also known as a mini drive, jump drive, keychain drive, pen drive, or thumb drive, is typically the size of a package of gum or smaller.

The small size of flash memory devices makes them an excellent storage medium for digital cameras, digital music players, handheld computers, notebook computers, smartphones, and other portable devices. This small size also makes them an excellent method for transporting data from one place to another in a briefcase or pocket. Flash memory media are rewritable and have a longer expected life than other removable media.

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## CLOUD BASED SERVICES

Data can be stored using a cloud-based service such as OneDrive, GoogleDrive, and Dropbox. The cloud is a network of computers with storage capabilities allowing data to be accessed from anywhere at any time. The advantage of storing data using a cloud-based service not only allows an organisation to access their documents from anywhere, it also save them money and time.

## NETWORKS

In the workplace and in the home office, computers and other devices are commonly linked together to form a computer network. A computer network is two or more computers and other hardware devices connected for the purpose of communicating and sharing resources. There are several advantages to using networks.

- Networks assist in communications. Using a network, individuals can quickly communicate using email, instant messaging, chat rooms, and videoconferencing. Sometimes these communications occur within an organization's network; other times they occur globally over the Internet.
- Networks facilitate sharing information. When using a network, any authorized user can access data and information stored on other computers connected to the network. For example, a university may store student records on a network so that a variety of individuals within the organization could access this information.
- Networks facilitate sharing hardware. Each computer linked to a network can access and use hardware on the network. Many organizations use a network so users can share a printer, scanner, or other device.
- Networks facilitate sharing software. Users can often access software from a network. Many software vendors offer a site license agreement which allows an organization to provide access to software from multiple computers.

Computer networks exist in a variety of sizes and configurations. The following sections will describe the most common network types, the Internet, and the World Wide Web.

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## COMMON NETWORK TYPES

A personal area network (PAN) is a network of personal computing devices for one individual. The devices in a PAN must be physically located close together and connected to share data, hardware,

and/or an Internet connection. For example, a person traveling with a notebook, a personal digital assistant, and a portable printer could connect them and create a PAN. If the devices are connected using wireless technology, the network is called a WPAN (wireless personal area network). WPANs have the added benefit of enabling a group of devices to communicate with each other whenever they are within a certain physical distance of one another without making a physical connection. For example, a PDA would automatically synchronize with a desktop computer when it is within a certain range.

A local area network (LAN) links various types of computer devices within a small geographic area. This area could be a single office, a home office, a building, or several nearby buildings. Today, LANs are common in the workplace and many home offices. One of the main benefits of using a LAN is the ability to share equipment. For example, one or two printers can accommodate everyone on the network. Also, a LAN typically has storage space and software applications that are shared by users. A local area network may serve as few as two or three users or thousands of users.

A metropolitan area network (MAN) links LANs and equipment over a distance equal to the size of a city and its surroundings. A college or university that links more than one LAN or several city or regional campuses is an example of a MAN.

A network that connects computing equipment over an area that can include hundreds of thousands of miles is called a wide area network (WAN). WANs are used to connect LANs and other types of networks together so that users and computers in one location can use the computers and systems in other locations. Many WANs are built for one organization and are therefore private. However, there are examples of public WANs as well. In fact, the largest and most widely known example of a WAN is the Internet.

## THE INTERNET

The Internet is the largest and most well-known network linking millions of computers throughout the world. Both individuals and businesses have found uses for this network. Individuals use the Internet to access information, communicate with family and friends, and purchase products and services. Businesses use the Internet to communicate with customers and vendors, sell their products and services, and provide customer support.

The Internet is a vast WAN that connects computers and computer networks through a series of routers. The routers direct Internet traffic in the same way that routers direct phone calls. When you request a Website on the Internet by typing a URL or when you click through to a new site, you are essentially dialling a new number and connecting to another computer or server. Thinking of it in this way will help to visualize how the system works.

The Internet of today grew from seeds planted by the United States government. On December 6, 1967, the Defense Department issued a \$19,800 contract for the purpose of studying the design and

specification of a computer network from that study grew a network called the ARPANET, and from ARPANET emerged the Internet. The original goal of the network was to link the top researchers at universities around the country through their computers. The goal was to increase the ability to share ideas and discoveries. Because of the way the information was transmitted, a side benefit was that this communication network could continue to operate even if a part of it was not working. In the 1990s this network was turned over to commercial providers, and the Internet was created.

How you access the Internet depends on the Internet service provider (ISP) that you select. An ISP is a business or organization that sells access to the Internet and related services. As the Internet has grown, the number of ISPs has grown as well. A variety of technologies are available to connect to the Internet. Cable television companies, phone companies, cell phone companies, and even local computer businesses all sell access to their Internet connection service. You should research the fees, the type of connections that are offered, and the services that are included before deciding on an ISP.

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## THE INTERNET IN SOUTH AFRICA

The Internet in South Africa commenced when the first sustainable e-mail link was established in 1988 between Rhodes University in Grahamstown and a private home in Portland, Oregon. This link was later connected to the Internet. At about the same time the Foundation for Research and Development started the Universities Network (UNINET). Before that, around 1986, there were two networks between South African universities: one between Rhodes University, the University of Cape Town and the University of Natal in the south, and another between Potchefstroom University, Wits, the University of Pretoria and the CSIR in the north. Other universities soon joined because of UNINET and later the two networks were connected to each other. But in 1989 access to the world-wide Internet was restricted because of the political situation in South Africa.

Developments in UNINET and the end of apartheid helped propel South Africa into the top 20 connected countries in the world. At the end of December 2019 South Africa had over 32 million Internet users.

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## THE WORLD WIDE WEB

The most widely used component of the Internet is the World Wide Web (WWW or Web) - a large collection of interlinked pages. Although many people use the terms Internet and WWW interchangeably, they are not the same thing. The Internet is the physical network, and the WWW is one resource available through the Internet. The Web consists of computers called Web servers that can be accessed with an Internet connection. A Web server stores multimedia documents that can contain text, graphics, video, and audio. These documents, called Web pages, are located on a Web server, and linked to other multimedia documents. A group of related Web pages is called a Website. Web page links are called hyperlinks or just links.

Although the Internet became open to the public in the 1980s, the variety of programming languages that were being used and the varied and complicated login sequences made the Internet difficult to use. In 1989, Tim Berners-Lee, a computer consultant and researcher at the Swiss research laboratory CERN, set out to create a common set of computer commands that would help physicists at the laboratory share their research information. To assist in this, Mr. Berners Lee adapted a technology called hypertext (text linked to other text). Mr Berners-Lee is credited with using this technology in May 1990 to create the first Web server, the first Web browser, and the first Web pages.

Today individuals and businesses use Web browsers (a program used to view Web pages) for communications, research, entertainment, and shopping. In addition to being used to display Web pages, most Web browsers offer the ability to search the Web based on keywords, allow users to bookmark favourite sites for later use, and block Web sites identified by the user. Browsers can also be used to perform other Internet tasks such as downloading files, exchanging email, accessing discussion groups, and participating in chat sessions.

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## ACCESSING THE INTERNET

To have internet access, you would require a Local Area Network (LAN) server and you would need to sign up with an Internet Service Provider (ISP) e.g. MWeb, Telkom, Vumatel. You would network with the ISP by means of a modem or ADSL line or 4/5G modem. The ISP in turn will connect to a Global Area Network (GAN) which will give you access to the World Wide Web.

Before a user can consider using the Internet, the computer needs an operating system with a graphical user interface such as Windows. To take full advantage of the World Wide Web a user will also need a browser. Browsers are software programs that enable users to view documents on the Web as they translate HTML-encoded files into text, audio, and video e.g. Microsoft's Internet Explorer.

The browser would link you to a search engine, e.g. Google.co.za, Ask.com, Yahoo.com which enables you to do a search on specific words and bring up all the documents that it finds on the internet related to your search.

Each website has a web address. Each web address is allocated a Uniform Resource Locator (URL). This is a unique name which must be registered with the proper authorities. A whole range of organisations and individuals administer the following domains in South Africa:

- .ac.za for South African research and academic institutions
- .co.za for commercial organisations
- .edu.za for distance learning organisations
- .gov.za for government departments
- .law.za for organisations and individuals involved in the legal profession

- .mil.za for military establishments
- .net.za for the ports on the networks of ISPs and for ISPs' hosts
- .ngo.za for non-government organisations (NGOs)
- .nom.za for individuals
- .org.za for non-commercial organisations, e.g. charities
- .school.za for schools
- .tm.za for legal owners of registered trademarks
- .web.za for individuals or organisations who require namespace only for Web servers

The .za indicates that the web address belongs to a site in South Africa. Other countries can easily be identified in this way e.g. co.uk = United Kingdom, co.au = Australia etc.

## COMPUTER SOFTWARE

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### SYSTEMS SOFTWARE

These programmes includes any instructions or programs that are used to manage and control computer functions. Systems software is an essential part of the computer system because it manages and controls the hardware so that the application software can perform a task. These programs enable the computer to start operation, launch application programs, and facilitate important jobs, such as transferring files, configuring the system to work with a specific brand of printer or monitor, managing files on the hard drive, and protecting the computer system from unauthorized use. Systems software is usually divided into two categories: operating system software and utility programs i.e. programs that carry out a routine function e.g. disk defragmenter, file compression.

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### OPERATING SYSTEM SOFTWARE FOR COMPUTERS

An operating system (OS) is the most important software that runs on a computer. It manages the computer's memory and processes, as well as the software and hardware. It allows you to communicate with the computer without knowing how to speak the computer's language. Without an operating system, a computer is useless.

The OS manages the software and hardware on the computer. Most of the time, there are several different computer programs running at the same time, and they all need to access the computer's central processing unit (CPU), memory, and storage. The OS coordinates all of this to make sure each program gets what it needs.

Operating systems usually come pre-loaded on any computer you buy. Most people use the operating system that comes with their computer. It is possible to upgrade or even change operating systems. Each operating system's graphic user interface (GUI) has a different look and feel. If you switch to a different operating system it may seem unfamiliar at first. Modern operating

systems are designed to be **easy to use**, and the basic principles are the same. The three most common operating systems for personal computers are:

**Microsoft Windows** – Microsoft created the Windows operating system in the mid-1980s. There have been many different versions of Windows, with the most recent one being Windows 10 which was released in 2015). Other versions include Windows 8 (2012), Windows 7 (2009) and Windows Vista (2007). Windows comes pre-loaded on most new PCs which helps to make it the most popular operating system in the world.

**macOS** - macOS (previously called OS X) is a line of operating systems created by Apple. It comes preloaded on all Macintosh computers, or Macs. Some of the specific versions include Mojave (released in 2018), High Sierra (2017), and Sierra (2016).

According to StatCounter Global Stats, macOS users account for less than 10% of global operating systems—much lower than the percentage of Windows users (more than 80%). One reason for this is that Apple computers tend to be more expensive. Many people do prefer the look and feel of macOS over Windows.

**Linux** - Linux (pronounced LINN-ux) is a family of open-source operating systems, which means they can be modified and distributed by anyone around the world. This is different from proprietary software like Windows, which can only be modified by the company that owns it. The advantages of Linux are that it is free, and there are many different distributions—or versions—you can choose from.

According to StatCounter Global Stats, Linux users account for less than 2% of global operating systems. Most **servers** run Linux because it's relatively easy to customize.

Modern operating systems use a **graphical user interface**, or **GUI** (pronounced **gooey**). A GUI lets you use your mouse to click **icons**, **buttons**, and **menus**, and everything is clearly displayed on the screen using a combination of **graphics** and **text**.

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## OPERATING SYSTEMS FOR MOBILE DEVICES

Mobile devices such as phones, tablet computers, and MP3 players are different from desktop and laptop computers, so they run operating systems that are designed specifically for mobile devices. Examples of mobile operating systems include Apple iOS and Google Android.

Operating systems for mobile devices generally are not as fully featured as those made for desktop and laptop computers, and they are not able to run the same software. You can still do a lot of things with them, like watch movies, browse the Web, manage your calendar, and play games.

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## UTILITY PROGRAMS

One of the most widely used utility programs is the antivirus program. A computer virus is a computer program that can copy itself and infect a computer without the knowledge or permission of the user. Some computer viruses can erase or alter data stored on the machine; steal data and send it to someone else; waste computer resources; or interfere with the user's ability to do work by randomly presenting text, video, or music.

Antivirus software can be used to combat the threats and annoyances caused by computer viruses. Antivirus software is a utility program that protects, detects, and removes viruses from a computer's memory or storage devices. Antivirus software will typically scan incoming email messages for hidden threats and alert users to attempts to infect the computer when surfing the Web. Many computers are sold with an antivirus program already installed. Additionally, there are several antivirus programs available for purchase. Because these viruses and computer threats are continually being developed, it is important to keep antivirus software up-to-date. Usually these updates can be completed online by visiting a Website maintained by the software company.

Antivirus packages that are popular today include Microsoft Defender (developed by Microsoft to protect computers running Windows to protect the Operating System), Bitdefender, Norton, McAfee, Kaspersky and Avast.

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## APPLICATIONS SOFTWARE

These are programs that perform a specific function or specific tasks for users.

Applications for desktop or laptop computers are called desktop applications while those for mobile devices are called mobile apps.

When you open an application, it runs inside the operating system until you close it. Most of the time you will have more than one application open at the same time, which is known as multi-tasking.

App is a common term for an application, especially for simple applications that can be downloaded inexpensively or even for free.

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## DESKTOP APPLICATIONS

There are countless desktop applications which fall into several categories. Some are full featured e.g. Microsoft Word, while others may do only one or two things e.g. clock or calendar. This type of software is called productivity software because it allows people to become more efficient and productive while performing daily activities.

Examples of applications you may use:

- **Productivity software e.g. MS Office** – to write a letter, design a flyer and create many other types of documents.
- **Web browser** – to access the internet. Most computers come with a web browser pre-installed. Browsers such as Microsoft Edge, Mozilla Firefox and Google Chrome can be downloaded.
- **Media players** – to listen to music or watch a movie e.g. Windows Media Player, iTunes

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## MOBILE APPS

Desktop and laptop computers are not the only devices that can run applications. You can download apps for mobile devices like smartphones and tables using the Playstore on the device. Examples of mobile apps would be Gmail, Instagram, Facebook,

## SECURITY THREATS

Computer viruses are a security issue that users need to recognize and attempt to avoid. A computer virus is a program that infects data files or software programs with which it comes in contact. Because of this, viruses are often transmitted when you retrieve an infected file from secondary storage or by sharing infected files across a network. Other threats exist that can wreak havoc on your computer system or data.

A worm is a malicious, self-replicating program specifically designed to cause damage. Unlike a computer virus, a computer worm does not infect computer files to spread. In other words, worms affect the network whereas viruses typically affect computer files and data. A worm makes copies of itself and sends those copies to other computers through a network. The first worms were sent as email attachments. When an infected attachment was opened, the worm inflicted its damage and then sent copies of itself to other computers. Newer worms do not require any action by the users. Instead, the worm is activated when an email message is read or spreads itself automatically through the Internet. Unfortunately, worms are not limited to email programs alone. Worms can also be acquired through instant messaging programs, chat rooms, and shared network folders. Worms can delete files, transmit data, overload primary storage, or create a secret electronic entrance into a network.

Another computer threat is the Trojan horse. A Trojan horse is malicious software designed to look like something useful. Trojan horses may appear to be useful or interesting programs (or at the very least harmless) to an unsuspecting user, but they are harmful when executed. Like viruses, Trojan horses are most often spread through email attachments. Trojan horses can erase, corrupt, or overwrite data on a computer, upload and download files, log keystrokes for the purpose of stealing information (such as passwords) or allow remote access to a computer.

Other common types of viruses include:

- Macro viruses – executable functions inside programs. Duplicates through email attachments and can delete files
- File infecting viruses – erase the hard drive
- Script viruses – overwrite .jpg (picture files) and .mp3 files (music files)

Beware of the many emails that are circulating telling you that you are going to get or have got a virus.

An additional computer security threat appears in the form of **unauthorized access**. Although unauthorized access can take place in several ways, the most common type is perpetrated by a computer hacker or cracker.

A hacker is an individual who uses his or her computer knowledge to break into personal or business computer systems to delete, steal, or alter files. The motivation for hacking is to steal information, sabotage a computer, or perform some other type of illegal act. Hacking is a crime, and the government has authority to prosecute individuals participating in hacking activities and increases the penalties for this crime. In general, hackers gain entry to computer systems simply to find out how they work, and the perpetrator gains personal satisfaction from knowing that he fooled the system. It relatively seldom happens that a hacker damages the system and often simply plants a ‘flag’ in the computer system to show that he had been there.

Crackers are perpetrators who do not simply intend to gain entry to a computer system but have ulterior motives when accessing the online system. These perpetrators will bring a computer system to a grinding halt or will make copies of sensitive information for use in an unlawful manner.

Computer viruses have the “virus” name because they resemble illnesses in the way they infect a system. Doctors can usually diagnose a virus based on symptoms exhibited by the body. IT professionals can do the same with computers. Typical signs of computer virus infections include:

- Ongoing crashes and blue screen errors
- Slow performance
- Missing files
- Low storage
- Unexpected behaviour
- Constant browser pop-ups
- Unidentifiable programs
- Increased network activity
- Disabled security software

## SECURITY SOLUTIONS

As so much information is created and stored on a computer or network, it is important to have a system that will maintain the security and confidentiality of that data. This can be done in a variety of ways.

- Back up and carefully store important information. A backup of information may help protect data from the threat of computer viruses, worms, or Trojan horses.
- Protect hardware and data by assigning effective passwords.
- Create passwords that are at least eight characters in length
- Use both lowercase and capital letters
- Use a combination of letters, numbers, and special characters
- Use different passwords on different systems
- Do not use passwords that are based on personal information that can be easily accessed or guessed
- Do not use words that can be found in any dictionary of any language
- Develop a mnemonic for remembering complex passwords i.e. choose the title of your favourite song and use the first letter of each word for a password
- Log off the computer or network when away from your desk. This prevents unauthorized users from accessing information inappropriately.

Because individual passwords are not always as secure as they should be, many organizations use other forms of verification in addition to passwords. One method used is two-factor authentication, where an individual is required to provide a password and an additional item such as a smart card, security badge, fingerprint, or retinal scan for identification purposes.

To protect your computer from threats including viruses, worms, and Trojan horses, adhere to the following guidelines:

- Protect yourself against malicious email attachments. Do not open attachments from people you do not know.
- Make sure the settings on your email program do not open attachments automatically.
- Be cautious even when opening attachments from people you do know because worms can automatically send to individuals listed in an address book.
- Install an antivirus program on all computers and run virus scans regularly.
- Obtain virus software updates regularly to protect equipment from new threats.
- Check downloaded programs for viruses, worms, or Trojan horses. New threats come out every day and equipment are vulnerable when security software is not up-to-date.
- Back up files regularly. Scan the backup program before archiving disks and files.

Another way to protect your computer and data from security threats is to install and maintain a firewall. A firewall is a software program that monitors information as it enters and leaves a computer. A firewall provides protection from outside attackers by shielding your computer or network from malicious or unnecessary Internet traffic. Firewalls can be configured to prevent

random attacks by outsiders on your computer while still allowing relevant and necessary data through. For example, a firewall allows individuals to access the Internet, but blocks other computers from accessing any information that is stored on your system. Firewall software operates in a manner like a two-way mirror: You can see out, but no one else can see in! Firewall software is especially important to businesses that maintain personal and private information, such as physicians, police agencies, and universities.

## PRIVACY

Today, more information about a person's daily computer activities is collected and stored in databases. Data is collected about items purchased online. When someone uses a credit card or membership card, information about the purchase may be collected as well. The fact that the information is being collected is not necessarily a concern, but what happens to that collected information does present some unique questions.

When you browse the Internet and visit a Website, a small text file (or cookie) may be installed on your computer. A cookie will store information about how you use the site. This information might be general information about your computer, such as the IP address, or it might be more specific information, such as the last time you visited a Website. Most cookies are harmless and are used to remember information so that your next visit to the site will be more productive or tailored to your needs. For example, if you visit a Website for a book seller, information about the type of books you view, or purchase may be recorded. The next time you visit that site, a list of recommended books that relate to the same topics may be presented to you.

There are programs like a cookie that work in a malicious way. **Spyware** is a software program that runs on a computer without the permission of its user to gather personal information, often through an Internet connection. Unlike viruses and worms, spyware does not self-replicate. Instead, the goal of spyware is to exploit infected computers for commercial gain. Most spyware is installed without the user's knowledge. It can be hidden in a piece of desirable software (such as shareware or music CDs), installed through trickery (like a Trojan horse), or installed through security holes in a Web browser or other software. The information gathered by spyware, such as email addresses or credit card numbers, is transmitted in the background to someone who may use it for illegal purposes.

**Adware** is also software that runs on a computer without the owner's consent. Instead of taking information from the user, this software typically runs in the background and displays random or targeted pop-up advertisements. In many cases, the ad slows the computer down, and it may also cause software conflicts.

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## PRIVACY SOLUTIONS

With increased use of the Internet, email instant messaging, and e-commerce, a new category of software has evolved. Privacy software was developed to protect the privacy of its users. One way to

protect information is through encryption which is a method of scrambling data or email messages so that they are unreadable if intercepted by an unauthorized user. An encrypted document is scrambled and remains unreadable until received and decrypted or unscrambled. Data, files, instant messages, and email can all be encrypted before they are sent over the Internet. Websites also use encryption so that sensitive data (such as identification numbers or credit card numbers) are protected as they travel over the Internet.

As described under security solutions, a firewall can protect information stored on a computer. Firewalls can protect the security and privacy of personal information. A firewall, however, does not protect against the installation of malicious programs like spyware. Nor does it prevent security threats such as viruses, worms, or Trojan horses from infecting your computer. The best way to avoid threats of spyware is to prevent it from being installed on your computer.

- Do not click on links within pop-up windows or within the window itself. To close a pop-up window, click the Close button for the window.
- Choose No or Cancel when asked any unexpected questions while browsing.
- Be wary of free downloadable software. You may be exposing your computer to spyware by downloading free programs.
- Do not follow email links claiming to offer anti-spyware software. Like email viruses, the links may serve the opposite purpose and install the spyware they claim to be eliminating.

Even with diligent efforts, spyware can be installed without your knowledge. When that happens, you need to find ways to remove it. Because some antivirus programs can locate and remove spyware programs, running antivirus programs on a regular basis is important. Antivirus programs do not find all instances of spyware. Therefore, you should install anti-spyware software and use it regularly to scan your computer. This software may be more effective than your antivirus program in finding and deleting spyware.

Conducting business online and connecting to networks can improve productivity. The benefits of working online come with risks. Do research to make sure that the Websites you are visiting are secure. Secure Websites use firewalls, incorporate data encryption software, and may also use password protection.

## SOFTWARE SECURITY

It is of utmost importance to ensure that there is sufficient security in place for your software and that all changes made are recorded by the Systems Administrator.

The following factors and tools would be considered:

- Systems and application software security
- **Anti-virus software and Firewall software** – these should always be active and regularly updated. There are dozens of new viruses created every day to cripple systems.

- **Controlled access to software and databases** – this would be monitored by the System Administrator who would be able to give certain access to software to certain users.
- **Data encryption and decryption** – encryption is the process of taking all the data that one computer is sending to another and encoding it into a form that only the other computer will be able to decode. Authentication is the process of verifying that information is coming from a trusted source. The Microsoft Office 2007 has this functionality. When a document is encrypted, it is changed into a list of numbers which cannot be deciphered until a code is inserted by the correct receiver.
- **Digital signatures** – A **digital signature** is basically a way to ensure that an electronic document (e-mail, spread sheet, text file, etc.) is **authentic**. Authentic means that you know who created the document and you know that it has not been altered in any way since that person created it.
- **Software change-control procedures** – when changes are made to the software e.g. upgrades, users added / deleted on a system, the Systems Administrator would be responsible for keeping a log of the changes that are made.
- System and data access control through **electronic signatures, user IDs and passwords, biometric controls**. (We've all seen movies in which a character has a retinal scan to prove his or her identity before walking into a top-secret installation. That is an example of a biometric system. In general, **biometrics** is a collection of measures of human physiology and behaviour. A biometric system could scan a person's fingerprint or analyse the way he or she types on a keyboard. The purpose of most biometric systems is to authenticate a person's claimed identity.)
- Alternate local area network services to reduce system fault tolerance (mirroring and duplexing).

Lock and key to a local computer!

## ETHICS

### VALUES, MORALS, AND CHARACTER

**Values**, or personal beliefs about what is right and wrong, are derived from several sources beginning with parents and other family members. Other influences include religious groups, education, and the media. For example, students are punished if they turn in assignments late, so they learn the value of punctuality.

**Culture** affects values. For example, if you belong to a culture that considers the development of personal relationships important, you tend to try to establish such relationships with customers and with fellow employees. If, on the other hand, you belong to a culture in which people tend to keep others at a distance, you may be more reserved and less likely to attempt to form close associations on the job.

When people enter the workforce, they bring with them their value system and integrate it into the company value system as well as the rules and policies of their employer. As situations arise that need judgment, employees rely on their sense of right and wrong and choose how to react. These decisions continue to shape their values.

Morals are similar in meaning to values and are principles or rules for behaving in the right manner. **Character** refers to a combination of personal standards of behaviour or traits, such as integrity and moral strength. Character implies consistency of behaviour traits. Strong character is what people want in their leaders.

**Core values** are long term attributes. They do not change from day to day or situation to situation. Because each person has different educational and life experiences, core values are not the same for everyone.

Businesses and organisations (and professions) also have core values, which form the cornerstone of the institution's ethics program. These values are reflected in communications and in the way employees, customers and other stakeholders are treated.

Whole Foods Market, which consistently ranks among the top 100 companies to work for as reported by Fortune magazine, is an example of a business with core values. Those values include satisfying and delighting customers, creating wealth through profits and growth, supporting team member happiness and excellence, and caring about communities and environment.

Many organisations (and professions) also have a code of ethics, a written pledge to make responsible, moral decisions. Employees are expected to respect their company's code of ethics and its values and ethical policies when conducting business for the company.

### LAWS AND ETHICAL STANDARDS

Many laws have the origins in the ethical beliefs of a society. For instance, most people believe that it is wrong to steal or to cause physical harm to others. When many people in a community, state, or nation agree on ethical principles, it is often made into law.

But while laws and ethical standards may be similar, they are not the same. For example, it is illegal to jaywalk or cross the street in a reckless and irresponsible way, but there is nothing unethical about this behaviour. Similarly, it is not illegal, but it is unethical, to take credit for work that someone else has done. Sometimes laws are not ethical and sometimes ethical behaviour is against the law.

## CHARACTERISTICS OF ETHICAL ORGANISATIONS

Employees are more likely to enjoy going to work each day when they know they will be treated fairly, that they will not be harassed and that other workers will play by the rules. A strong ethical climate helps ensure that employees, who have a personal stake in the company, are respected. Stakeholders include employees, owners, customers, suppliers, distributors, and the community. Employees for example, expect to be paid well and to be treated fairly. Companies that do not pay their employees a fair wage or treat them fairly can expect to have a high turnover rate, which adversely affects the business. Owners, including shareholders, have an interest in the company showing a profit. Investors expect the company to be open and honest about its financial condition. Customers who buy the company's products and services provide the financial resources for it to make a profit. Pleasing its customers, with an excellent product or service, is top priority for successful business. You can see that maintaining an ethical climate is always in the best interests of a business or organisation.

Several characteristics distinguish ethical organisations. They include being environmentally responsible, promoting diversity within the organisation, providing a safe environment for workers, offering fair and equitable pay, being socially responsible and respecting the law.

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### ENVIRONMENTALLY RESPONSIBLE

Ethical organisations work to preserve the environment for future generations by reducing the impact of their operations on the environment. For example, many companies recycle paper, plastics, electronics, and other items. Some companies have adopted alternative energy sources, such as solar, wind or methane. Some use hybrid or electric vehicles in their fleets.

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### DIVERSE WORKFORCE

A diverse workforce benefits companies in several ways. It helps them meet the needs of their global customers and an increasing diverse population. Studies have shown that groups and teams with diverse members are more creative and make better decisions. Diversity also helps a company attract and retain talented employees.

All organisations must comply with laws that promote equal treatment and prohibit discrimination. Ethical organisations, however, go further than the law requires. They make hiring decisions based on merit and are committed to providing equal employment opportunities. They create environments that are attractive to all employees. They are intolerant of discrimination, provide diversity training for their employees and hold managers accountable for consistently supporting and ensuring diversity.

Diversity at work encompasses several differences. They include race and ethnicity, physical ability, age, sexual orientation, and gender.

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## WORKERS' RIGHTS

Workers are entitled to a safe and healthy working environment. The Occupational Safety and Health Administration (OSHA) set and enforce standards for safe and healthy working conditions. An ethical organisation takes these requirements very seriously. For example, it may provide extensive training and state of the art equipment. It may also use ergonomics in designing work areas and purchasing equipment so that employees can work not only safely, but comfortably and in a pleasant environment.

There are laws that set standards for minimum wages and require equal pay for equal work. If employees are unionised, an organisation is legally required to bargain in good faith for wages, benefits and working conditions.

An ethical organisation offers its employees fair and equitable pay. This attitude coincides with the best interest of the company. Most employers compete for the best workforce. To retain highly qualified individuals, they must pay the market or above the market price. An ethical organisation wants its employees to be pleased with their pay and benefits as well as their working conditions. A good compensation plan attracts capable employees, motivates employees to perform effectively and helps retain capable employees.

There are laws that protect workers from being discriminated against because of their age, a disability, gender, race or ethnicity, religion, or pregnancy. These rights are guaranteed for hiring, promotion, firing and pay. In addition to complying with the laws, ethical organisations, as noted above, do not tolerate any type of discrimination. They uphold clearly stated policies and procedures committed to equal employment. They publish grievance policies that are also clearly stated and are distributed to all employees.

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## SOCIALLY RESPONSIBLE

Social responsibility refers to the obligation of a business to contribute to the greater good of the community. Communities rely on the support of local companies for financial stability and growth. Businesses have a legal and ethical obligation not to harm the citizens of the community. This

includes properly disposing of harmful wastes and using pollution controls for factories. An ethical company is a good neighbour.

Businesses make choices about pollution, employee health and safety, the sponsorship of charitable endeavours and employee volunteer programs and other issues and needs. They may, for example, choose to give employees time off for volunteering or a convenient way to financially support worthy causes.

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## RESPECT FOR THE LAW

An ethical company has respect for the law. It abides by all state and local laws. If it is an international company, it also abides by the laws of the country or countries in which it does business. Numerous laws affect businesses, including hiring, firing, trade, taxes, fair competition, and EPA requirements. In addition to abiding by the law itself, an ethical company makes sure its employees know, understand, and follow the laws that affect its business.

## MAKING ETHICAL CHOICES

At work you will face many ethical choices. Some of these choices will be easy to make. The right or wrong answer will be clear. For others, the answer will not be so easy. To make good ethical decisions at work, you can rely on your own personal values, guidance from your employer, and a four-step process for working through an ethical problem and finding a solution.

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## PERSONAL VALUES

People rely on their personal values when making ethical decisions. While each person has his or her own core values, some values are widely shared. Five of the common values are honesty, fairness, respect, responsibility, and compassion.

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## HONESTY

Be honest – do not deceive, cheat, or steal. Consider how you feel when someone lies to you. Being honest not only means telling the truth, but also giving the relevant information. Hiding information from others is also being dishonest.

---

## FAIRNESS

Being fair means acting without prejudice or favouritism. Be fair in your dealings with co-workers, customers, and supervisors. Listen to others. Do not blame others and do not take advantage of them.

---

## RESPECT

Respect others. Respect cultural differences and diversity in the workplace. Try to understand differences in opinions and find common ground and consensus in decision making. Respect also means listening with an open mind to the opinions of others. Learning to be tactful is important in showing respect. The more respectful you are toward others, the more respect they will show toward you. It is possible to have disagreements without disrespecting each other. There will be more people at work that you like more than others, but you must be respectful to everyone.

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## RESPONSIBILITY

Take responsibility and be accountable for your duties and actions. Always try to do your best. When you make a mistake, own up to it and correct it.

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## COMPASSION

Be kind and considerate toward others. Use your manners. Show understanding and caring for your co-workers. Send thank you notes, sympathy notes and congratulation notes when appropriate. Try to put yourself in another person's situation to understand how that person might act and feel.

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## ETHICS TRAINING

Whether your employer provides ethical training or not, you should make yourself aware of your company's ethical standards. They may be formally stated in a code of ethics, core values, an ethics policy, or a code of conduct. They may also be less formally reflected in the workplace culture and in the business' actions. In addition, you should be aware of procedures your company expects you to follow when you are confronted with an ethical issue.

## A FOUR-STEP PROCESS

For some ethical problems, the right choice is not immediately clear. Suppose, for instance, that your manager, whom you like and respect, has a problem with alcohol that is affecting her work. You may have to choose between telling the company and protecting your manager.

When you are in situations like this, you can follow a set of steps (like problem solving and decision making), to help you reach a good decision:

- Evaluate the problem and understand the options
- Know the stakeholders – the consequences will affect them
- Strive to do the right thing. Do not be driven by the desire for immediate gratification
- Be in harmony with your employer's values

Ethical training teaches that limiting oneself to either/or choices is a mistake. There may be other choices available that will allow a more ethical way to proceed. In this example, you might investigate the company's policies regarding substance abuse. It may turn out that your company works with the employee to address the problem rather than dismissing that person. You might

choose to disclose the information to someone in authority at the company whose judgment you trust. You may think about your relationship with your manager and decide that you can talk with her about the problem and suggest that she seeks help.

## AN ETHICAL CHARACTER

Making ethical decisions in your personal life will help you make ethical decisions in your professional life. Ethical and unethical behaviours tend to be consistent. In addition, ethics can and do become better and stronger with repeated ethical decisions and actions. Being around people who have good values and seeing ethical actions take place, make people stronger and more willing to take ethical actions.

People's decisions influence their actions. Their decisions and actions become habits and their habits contribute to their reputation. All these combined make up their character. The more often people make ethical decisions, the easier they are to make. The reverse is unfortunately also true. The more often people make unethical decisions, the easier it is to make them again. They also become habits and build a bad character.

In Stephen Covey's book *The 7 Habits of Highly Effective People* the second habit is "Begin with the end in mind". Think about how your daily decisions and actions will build your reputation. At the end – your retirement – what will people say about your career? You might want them to say that you were competent at your job, were fair, honest, and compassionate in your relationships with customers and colleagues. That you were of great value to the organisation and that you will be missed.

## WORKING ETHICALLY

Most people want to work ethically. They want to do the jobs they have been hired to do and to live up to the expectations of their supervisors, colleagues, and customers. When things are going well, working ethically can be easy. It is when circumstances are not ideal that the temptation to lie, cut corners or cover up can arise. As an administrative professional, you will sometimes be overworked.

You will be under pressure to meet deadlines and produce results. You will experience stress from your job or your personal life. These situations occur for everyone and they will also occur for you. You need to prepare yourself, so you can handle them without losing your sense of perspective or taking actions that you will regret.

---

## HONESTY

Dishonesty at work is a common ethical problem. Dishonesty means not only lying but also withholding information or misrepresenting the truth. These actions are always unethical – they are also sometimes illegal. Be honest with your manager, colleagues, and clients. When you make a

mistake that your manager needs to know about, tell your manager even if you think it makes you look bad. If patients are waiting for their appointments and you know there will be a delay – say so.

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## CONFIDENTIALITY

As an Administrative Professional, you will work with private and sensitive information. Working ethically means protecting the confidentiality of that information. Protecting confidentiality is also sometimes a legal requirement. If you work in a health care facility, you will be required to comply with certain laws that prohibit communication of a patient's medical and billing information, except for certain purposes, without the patient's written consent. Similar protections exist for client information in legal offices and for company information and personal and financial data of employees and clients in many other types of businesses.

While breaches of confidentiality are sometimes intentional, they can also occur through ignorance and carelessness. Take the time to make yourself thoroughly aware of the way in which confidentiality needs to be protected in your office. Learn the requirements of the law and always follow standard company procedures for storing, maintaining, and releasing confidential data.

Working ethically also means maintaining confidentiality of information that is not formally protected but that people assume is private. Forwarding someone's e-mail to another reader without first getting permission from the writer is an example of unethical behaviour.

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## TAKING CREDIT FOR OTHERS' WORK

Working ethically also means not taking credit for work that is not one's own. When this is done with respect to another person's words or ideas - that is known as plagiarism. Like breaches of confidentiality, plagiarism is sometimes intentional, but it can also occur through carelessness or lack of understanding. It is easy, when you have a lot of work to do or are under a deadline, to hastily write down material from a source and to forget to note that it is a quotation. Many people are often not aware, for instance, which copying and pasting material from the Internet is plagiarism and is also a violation of copyright laws. Always provide the source for the following kinds of information, regardless of the medium in which it is provided:

- Direct quotations
- Paraphrasing or restating material in your own words
- Information that is not widely available or generally known

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## RESPECTING THE EMPLOYER'S RESOURCES

Most people would never consider stealing something from a friend. Yet taking from an employer – taking home office supplies, running personal errands on company time, or taking a sick day to go to the amusement park – is a common ethical problem.

- **Petty theft** – employee theft costs companies thousands each year. For retailers, losses from employee theft exceed those from shoplifting. Taking home notebooks, copy paper, staplers and other office supplies is also stealing. So is using an office copier for personal copying. Duplicating company software to use at home is illegal and unethical. Using the company mail system to mail personal packages is stealing from the company and is highly unethical.
- **Misuse of time** – surfing the Internet, reading, or writing personal e-mails, browsing through catalogues, and reading the newspaper should be done in time away from work. It is appropriate to have a little communication on matters that are not related to work with other employees. Occasional personal phone calls are usually permissible. Abuse of that privilege is unethical.
- **Calling in sick when one is not**, is a common unethical practice. Attendance is extremely important. When employees are not at work, their work does not get done. Other people may need to do it for them. Employee absences affect co-workers and managers. Coming in late and leaving early can become a habit – a bad habit, as can taking long breaks or lunch hours.

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## SUBSTANCE ABUSE

Drug and alcohol abuse in the workplace are not tolerated. Employees, who abuse drugs and/or alcohol use more sick days, are late more often than other employees, are more likely to be injured on the job or injure someone else and cause low employee morale. Some companies have mandatory drug testing prior to employment. If there is an accident on the job, a drug test may be required.

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## PERSONAL BEHAVIOUR OUTSIDE WORK

Unethical behaviour outside work can wreak havoc on one's professional life. Be warned against posting inappropriate personal information on social networking sites. Some job recruiters search for applicant's names on these sites and the Internet at large. In some cases, applicants are not hired, and employees are fired for what they have posted. A mayor was fired for posting a provocative picture of herself. A young woman who posted comments about how boring her job was soon found herself out of a job.

Employees can also be fired for doing something illegal in their personal lives. Examples are getting caught with illegal drugs or receiving a citation from the police for driving while intoxicated.

For the most part, companies do not try to dictate what the employees do in their personal lives. A few companies, citing rising health care costs, forbid their employees from smoking, drinking, and using drugs not only in the workplace but outside it. These companies do blood tests to detect any violations of their policies regarding drugs. Such companies usually have a policy about drinking, smoking or drug use that prospective employees know before they accept a position with the company.

## ETHICAL CODES

Having an ethical code is a way in which a business can gain a competitive advantage in an honest and fair manner. The need for managerial skills in handling ethical questions is enormous and it begins with the willingness of top management to make ethics a part of its strategic planning programme. In this way, ethics will be embedded in the vision and mission statement of the business.

The aim of the ethical code is to:

- Discourage management and employees from acting unethically
- Prevent the authorities (the State) from having to intervene by passing laws, ordinances, or regulations
- Communicate the intentions of the enterprise to all stakeholders

The following principles may be considered when drawing up an ethical code for an organisation:

- **The Golden Rule is universally acceptable:** This rule states “Do unto others as you would have them do unto you”. This provides for more than ample grounds for a generally accepted, fair and justifiable ethical practice. Management must also allow for individuals with religious convictions to contribute to the drawing up of an ethical code.
- **Confidentiality:** Confidentiality may be viewed as a uniquely professional work related or role based ethical principle. For example, a clear indication must be given of how disclosure (whistle blowing) should be affected.
- **Equal opportunities:** An indication must be given of the stance taken about discrimination. This will therefore deal with race, colour, religion, gender, and similar issues.
- **Development:** The code must explain the policy to be followed in respect of the development of personnel (and of other individuals in the community). More specifically, the way in which training in ethical skills will be affected, must be explained.
- **The environment:** The business should specify its commitment to the environment and sustainable business practices and adopt a clear stance on the way environmental problems will be dealt with.
- **Honesty:** The ethical code must stipulate that the business will always expect management and employees to behave honestly, irrespective of the consequences. This also includes accurate reporting of financial details (as contained in the annual statements).
- **Regulatory:** The code must be regulatory. There should be distinctions between clauses that represent ideals and those that stipulate punitive measures.
- **Public interest:** The code must serve the interests of the public. A code, serving only the interests of the business but not the interests of the community, has a slim chance of succeeding.
- **Honest advice and guidance:** The code must entrench the rights of employees, as part of the business, to honest advice and guidance in their development. The business must undertake to obtain outside assistance if management is incompetent or unable to handle certain problems satisfactorily on its own.
- **Dignity:** Irrespective of the conditions, the dignity of people must be respected.
- **Fair transactions:** The business must clearly indicate what practices are considered fair, and which undesirable.

- **Social responsibility:** In the ethical code, the business must explain that maximising profits at all costs is not its sole aim, and that business should preferably be conducted in such a way that the community also benefits from profits.
- **Professional behaviour:** According to this principle, the business expects that all its members will respect the professional codes of conduct of the activities in which they become involved. If the enterprise participates in the organised world of business, the codes of relevant professional institutions must be honoured.
- **Integrity:** Members of the enterprise must, always, act in accordance with the ethical code of business. Where a conflict of interest does arise, a solution, which will in no way affect or harm the ethical code, must be sought through consultation and negotiation.

## FINANCE FOR NON-FINANCIALS

### UNDERSTANDING FINANCE BASICS

People can spend a lifetime studying the principles of finance in the business world. The financial situation of an organisation is impacted by every decision made and every action taken. You could argue that everything a business does is somehow a financial activity. For example, you lose a customer, and it impacts revenue. You spend money on a marketing campaign that has a huge return and you have made a positive financial investment. If team members are not doing their job, you are effectively wasting company resources. You could argue that everything a business does is somehow a financial activity.

Non-financial managers in an organisation can still benefit from understanding finance as they will be aware of how their decisions impact the overall financial health of the organisation. They can become more conscientious about their decision making and their operations to help the organisation's bottom line. If you are a small business or an independent entrepreneur, understanding the basic principles of finance could mean the difference between your business surviving and thriving or failing. You need to understand how to read a budget, create a budget, and to invest your resources to get the maximum benefit that you can.

### THREE BASIC FINANCE PRINCIPLES

If you want to be financially aware, even as a non-finance manager, you must be able to look at your actions and the actions of your team in terms of basic financial principles. You do not have to assign a random value to every activity, but you should think about how your decisions will impact the financial well-being of the business.

There are both direct and indirect impacts on the organisation's finances. For example, you might deny a customer a credit on their bill that they feel they deserve because you are saving money for the organisation. But if that customer leaves your organisation for the competition, you have indirectly impacted the company's finances in a negative manner because you have lost the future revenue that the customer would have provided.

There are three basic principles that form the framework for all corporate finance:

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#### THE INVESTMENT PRINCIPLE

Every business invests assets and incurs debts of some sort, even if the debt is in the form of equity owned by the owner or a partner.

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#### THE FINANCING PRINCIPLE

Businesses can finance their operations with a mixture of tools that include investments in assets or borrowing money such as through loans or bonds. Or they could sell stock if they are publicly traded. This mixture can depend on several things such as legal issues, the business' willingness to take on risk, and the capital available versus the capital needed.

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## THE DIVIDEND PRINCIPLE

A successful business will eventually need to return some money to its investors. This could be the owner taking some cash out of the till or it could be in the form of stock dividends. Again, it depends on many characteristics of the business such as legal form and requirements, size, and what those receiving the dividends prefer.

The way an organization manages its finances is guided by these three principles. The way in which the principles are applied will vary greatly from organization to organization.

## BASIC FINANCE TERMS

Finance has its own "language." Some of the most used terms in corporate finance are:

**Assets:** Items owned by the business (see Capital Assets, Current Assets and Fixed Assets)

**Bonds:** Certificates of debt which are issued by an organization to raise funding. The bond holder earns a fixed rate of interest (usually) and the bond must be repaid by a specific date.

**Capital:** Assets available to be invested with the intention of creating new assets.

**Capital assets:** Tangible property that is not easily converted into cash. Capital assets are usually held long-term and include things like buildings, equipment, and other owned items.

**Capital budget:** The plan a company must finance existing or new capital assets. Organizations usually have a capital budget and an operating budget.

**Current assets:** The company's total of cash, accounts receivable, and other assets that could be converted into cash within a year. This is the money usually used for day-to-day operations.

**Debt financing:** Creating capital by incurring debt such as by selling bonds or notes.

**Equity:** 1) The total of a company's assets minus its liabilities; 2) Ownership interest in a corporation in the form of stock

**Expenses:** Any cost of operating the business

**Fixed assets:** Long-term, tangible assets that are used by the business and that the organization does not plan to convert to cash in the current or next fiscal year.

**Liabilities:** A financial obligation such as debts, claims, or losses

**Operating budget:** A projection of estimated income and expenses during a specific period. An operating budget is short-term, usually for one year, while a capital budget is long-term.

**Revenue:** Income generated as part of the operations of the organization before liabilities are subtracted.

## FINANCIAL INFORMATION EVERY ORGANISATION NEEDS

Since the goal of all businesses is to maximize profits, the management team needs information to help them navigate financial decisions. All businesses produce financial statements that provide different information about the organization's financial health. The senior managers use that information to make important decisions regarding the organization's future. The three main financial statements that are produced are:

- The Balance Sheet (also called a Statement of Financial Condition or Statement of Financial Position)
- The Income Statement (also called a Profit and Loss Statement, Statement of Operations, or Statement of Earnings)
- The Cash Flow Statement

You will want to be familiar with these documents so that you can read and interpret the information. Then you can apply that information to operating your own division or department. None of these financial statements can be created without information from your organization's accounting or bookkeeping information.

## BOOKKEEPING (ACCOUNTING)

Bookkeeping is the act of keeping up with the changes in an organization's accounts. Every time your organization performs a transaction of any kind, the accounts (books) change. For example, if you operate a retail establishment and you make a sale, the inventory of that item or items decreases and the amount of your cash increases. Various ledgers and journals are used to track these changes. Those ledgers and journals are then used to create the financial statements listed above.

Accounting has one very fundamental equation:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Equity}$$

In either version of the equation, what will happen when a transaction occurs? At least two of the factors will change for any transaction. So, for example, if your equity increases, your assets must have increased, or your liabilities must have decreased – or both. Accounting is the process of tracking all these changes in the financial equation. The accountant or bookkeeper must then be able

to record the information and report the information in ways that are helpful for those that are making decisions about the operations and direction of the organization.

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## CHART OF ACCOUNTS

The tool used to track the changes described above is the Chart of Accounts. A business has specific accounts within their chart which correspond to the assets and liabilities that the organization has. For example, some accounts in the chart of accounts for a temporary agency might be:

### Assets:

- Cash
- Accounts Receivable
- Equipment

### Liabilities:

- Salaries
- Benefits
- Advertising
- Accounts Payable

There are usually dozens – if not hundreds – of accounts under both assets and liabilities. It depends on how the organization tracks all their finances. For example, if you work for a large corporation with multiple departments, you will have more accounts in your Chart of Accounts than if you are a one-man consulting firm.

In conventional accounting, all the accounts the company uses are grouped together by categories and then are numbered according to a standard format. The conventional numbering system is:

- Assets 101–199
- Liabilities 200–299
- Equity 300–399
- Revenue 400–499
- Expenses 500–599

Some organizations might use 600s for expenses. And an organization can also add account identifiers to further subdivide an account. For example, you could have an expense account 501 for “utilities” and add identifiers for each utility so that it might look like this:

- 501001 – Gas
- 501002 – Power
- 501003 – Water
- 501004 – Waste Disposal

An organization with multiple departments that also budgets and tracks expenses by departments could use sub-identifiers to denote an expense for each department. So, for example, perhaps all utilities for the organization start with a 501, then all the Marketing department utility expenses add a sub-identifier of 001, followed by another sub-identifier to denote the actual expense. So, let us imagine you are looking at all the charges for waste disposal across multiple locations. It could look like this:

- Marketing: 501004-001
- IT: 501004-002
- Training: 501004-003

Another way of dividing the chart of accounts is to have the first part of the account number identify the source of the fund that is used to pay for the expense or the destination fund of where the revenue will be going. You see this when an organization has regulations that limit or define how revenue needs to be used. For example, if your organization has received a government grant, you may have to use that grant only for specific activities. You can use your chart of accounts to help you track the expenses you use that grant money for, which will make your life easier if you have to demonstrate your use of the grant funds.

### THE GENERAL JOURNAL (ORIGINAL BOOK OF ENTRY)

The General Journal is used to record transactions that occur. Today, this is usually done electronically with financial software, but of course it used to be done in a large written journal. To record transactions correctly, you need to know the rules accountants used called “transaction analysis.” The two rules are:

- Asset and Expense accounts increase with a debit and decrease with a credit.
- Liability, Equity, and Revenue accounts increase with a credit and decrease with a debit.

Imagine that you purchase a computer with R6000.00 in cash and R12000.00 store credit. An example of a General Journal entry for this transaction is shown below.

Notice that the purchase of one item required an entry for three different accounts. You can see the name of each account under “description” and the number of the account under column ‘F’. The General Journal is kept in chronological order, which can be helpful if you need to look back over the history of your transactions.

There is one glaring piece of information that is missing on the General Journal. You do not see any information about the balance in each account that you have impacted. For example, just by looking at the General Journal, you do not have any idea how much cash you have left after the purchase of the computer. To track the changes in account balances, your accounting team uses a General Ledger.

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## GENERAL JOURNAL

FY20XX      Description

Nov      22      Equipment

                    Cash

                    Accounts Payable

                    Purchase of Computer with R6,000 cash and R12,000 store credit

## THE GENERAL LEDGER

The General Ledger is organized by ledger accounts. There is one ledger account for each account in your Chart of Accounts. The accountant will take the information from the General Journal and post it to each of the General Ledger accounts that were affected by the transaction. Again, this is normally done electronically today, with software that automatically posts to the ledger accounts each time you enter a transaction in the General Journal. But just to be sure you understand how the information is posted, let us look at an example of how we would post to the ledger accounts from the General Journal entry in our example above.

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## GENERAL JOURNAL

FY20XX      Description

Nov      22      Equipment

                    Cash

                    Accounts Payable

                    Purchase of Computer with R6,000 cash and R12,000 store credit

You are going to want to post to three accounts:

- Equipment (144)
- Cash (101)

- Accounts Payable (200)

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**GENERAL LEDGER**

Equipment Account #144

FY20XX		Description	F	Debit	Credit
Oct	31				
Nov	22	Computer	J2	18,000	

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**GENERAL LEDGER**

Cash Account #101

FY20XX		Description	F	Debit	Credit
Oct	31				
Nov	22	Computer	J2		6,000

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**GENERAL LEDGER**

Accounts Payable Account #200

FY20XX		Description	F	Debit	Credit
Oct	31				
Nov	22	Computer	J2		12,000

To read the entries, here is an interpretation of the information:

- The first entry in each ledger shows the balance from the previous month
- In Column F, the reference is to the page in the General Journal (J for Journal, 2 for the page number) where the item was recorded.

Now that the information is posted, the financial statements that need the information can be prepared.

## THE BALANCE SHEET

Now you have seen how the day-to-day recording of transactional information is recorded. But how do you put it into a format that can help you see the financial state of the organization? This is where the Balance Sheet comes in. It is a 'snapshot' of the finances of the business at one given time. The information given includes what the business owns and what it owes.

There are three sections to the Balance Sheet:

- **Assets** – the items of value owned by the company
- **Liabilities** – the company's obligations, whether to pay for or provide goods or services at a future date
- **Equity** – the amount of net assets (assets – liabilities)

A Balance Sheet gets its name from the fact that the total of the assets listed must equal the total of the liabilities and equity – in other words, the two sides of the sheet must balance. For an example of a Balance Sheet, see the figure below. It is a relatively simple example, since most businesses will have many more accounts under their assets, liabilities, and equity categories on their Chart of Accounts. But you can get the basic idea for how the information is shared via the Balance Sheet.

### What a Balance Sheet Tells You

There is good information on the Balance Sheet, such as:

- A summary of the organization's assets and the claims against those assets as of a specific date.
- Information about the organization's current ability to pay its current debts. You can only tell now, for the liabilities that the accounting team has already entered into the financial system. If a large liability were to be incurred tomorrow, the financial picture could shift significantly.
- The information shows how the organization is positioned to keep going with the day to day business operations. For example, the assets listed give you some idea of what you have available right now to keep trying to generate new assets (new revenue).
- The Balance Sheet also shows what claim the owners have against the business' assets. Of course, this is conditional on the other liabilities being satisfied.

ABC Enterprises

Balance Sheet

As of November 30, 20XX

Assets		Liabilities	
Cash	8,500	Bank Loan	
Inventory	14,000	Accounts Payable	
Accounts Receivable	2,200	Total Liabilities	
Equipment	4,600		
		Equity	
		Paid in Capital	
		Retained Earnings	
		Total Equity	
Total Assets	29,300	Total Liabilities & Equity	

#### What the Balance Sheet Does not Tell You

There are several parts of the financial picture that are not included in the Balance Sheet. For example, the Balance Sheet does not tell you:

- How any profits were made. For that information, you would need to look at the Income Statement.
- Which assets creditors have claims against. For example, if you are financing equipment, your creditor has a claim against that equipment until it is paid.
- What kind of capital investment was made. You might assume that we are talking about cash, but instead, the owner or owners might have purchased a building that is not necessarily convertible back to cash (at least not immediately).

- What value the business would have on the market place. For example, if the owner purchased that building for R50,000 10 years ago, it might be worth twice that now. Or, it could even be worth less if the real estate market has suffered since then.

## THE INCOME STATEMENT

During the fiscal year, any organisation will have changes in its finances. The changes could be positive, or they could be negative. But the senior management of an organisation will want to know the answers to questions like:

- How well are we doing financially?
- Are we earning a profit?
- Are we running at a loss?
- How is our profit in comparison to the competition?
- Are we likely to continue earning profit?

To answer these and similar questions, you can use an Income Statement.

### Elements of the Income Statement

The Balance Sheet offers a snapshot of an organisation's finances at one given point in time, the Income Statement looks at incoming revenue and outgoing expenses over a period. For the Income Statement we use the following definitions:

- **Revenue** – incoming assets in return for sold goods or services (cash or accounts receivable, for example).
- **Expenses** – outgoing assets or liabilities incurred (accounts payable, inventory sold, or supplies used, for example).
- **Net Income** – the difference between Revenue and Expenses.

With all this information, the Balance Sheet shows you whether you are generating a profit, or you are operating at a loss.

Widget Works, Inc.

Income Statement

For the Month Ended February 28, 20XX

Revenue

Sales Revenue	9,700
Consulting Revenue	2,000
Investment Revenue	550
Expenses	
Salaries	3,800
Benefits	400
Rent	800
Utilities	325
Supplies	675
Inventory	2,000
Depreciation	875
Total Expenses	8875
Net Income	R3,375

The bottom figure on the above chart is the Net Income. This is the difference between the organisation's assets and its liabilities. It is the amount by which the equity of the organisation increases or decreases in each period. This amount would also be recorded in an equity account, also called a Retained Earnings account, depending on the type of organization yours is. This takes us back to the Balance Sheet. Remember the sample Balance Sheet created for ABC Enterprises in the previous section? Here it is again. Notice where the Retained Earnings amount is listed.

ABC Enterprises

Balance Sheet

As of November 30, 20XX

Assets		Liabilities	
Cash	8,500	Bank Loan	
Inventory	14,000	Accounts Payable	
Accounts Receivable	2,200	Total Liabilities	
Equipment	4,600		
		Equity	
		Paid in Capital	
		Retained Earnings	
		Total Equity	
Total Assets	29,300	Total Liabilities & Equity	

It is important to realize that just because the organisation has a positive Net Income for the month, which does not mean that they have that amount in cash available. Income can include more than just cash, such as interest earned from investments or financing could also be included as Retained Earnings. To know exactly what cash is still available at the end of the month, you would create a Cash Flow Statement.

### What an Income Statement Tells You

The income statement tells you:

- The main sources of income earned
- Secondary sources of income earned
- Some information about the organisation based on the categories of revenue that are listed. For example, “Sales Revenue” tells you that the organisation sells a product or service, while “Fees Earned” would tell you that the organisation is a professional service provider of some kind.

- What items have no value left for the company because they are expenses– they will not generate any new income for the organisation
- Whether or not the organisation is operating with a loss or if they are operating with balanced revenues and expenses

#### What an Income Statement Does Not Tell You

An income statement does not tell you:

- **Any prediction for future net income.** The Income Statement is a historical document in the sense that it tells you what has already happened. It cannot be relied upon as a predictor of what will happen in future accounting periods.
- **The exact amount of net income that was generated during the period the Income Statement covers.** Even if the statement is very well prepared by the best accountants, it is impossible to accurately account for everything. For example, imagine that you spend R2,000 on a telephone marketing campaign to tell your clients or customers about an upcoming special you are offering. If you generate R8,000 in sales the next month, you cannot say that the marketing campaign generated that R8,000 in total. You may have some customers who would have come to you anyway– who might not have even seen the advertisement. Or, you might have customers that received the advertisement, but did not buy from you until the second or third month after the advertisement. The revenue for those sales would be attributed to the months in which they occurred, even if it were generated by efforts made several months before.
- **Actual profit.** Since revenues are not able to be fully, accurately reported in the accounting period, neither can profit be calculated to 100 percent accuracy. Plus, you also cannot calculate what is called True Profit. This is the difference between what expenses the organization has incurred and what assets have been invested
- **The amount of cash on hand.** As we mentioned before, Net Income does not mean cash. It only means the excess revenue over expenses in a specific period. Remember that incoming cash could be used for more investments or to buy more assets, or it could be received in a month other than when it was generated.

#### THE CASH FLOW STATEMENT

The Cash Flow Statement is where we track cash coming into and going out of the business. Again, this is done for a specific period. To understand the Cash Flow Statement, we first need to introduce a few more finance terms.

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#### CASH-BASED ACCOUNTING

In cash-based accounting, all transactions are recorded when the cash is received or spent. You would include payments or received funds in the form of cash, check credit card payments, debit

card payments, electronic transfers, or any other means of payment. For tracking cash-flow, this is the easier of the two accounting systems.

### ACCRUAL-BASED ACCOUNTING

With accrual-based accounting, you record all transactions when they occur, even if no cash has changed hands. For example, if you were to sell something to a customer on store credit, you would give the customer the product immediately, but you wouldn't receive payment for the item until they make it at a later date. This system is not good for tracking actual cash flow. For example, you could make thousands of rands of sales so that you have a great deal of money showing as revenue on your Income Statement, but you could have zero dollars in the bank! If your organization uses accrual-based accounting, creating the Cash Flow Statement is more complicated. It will require that you look at your Net Income and determine what portion of it was cash. Then you will have to add and sub out the changes in accounts that do not have an impact on cash, such as depreciation.

### DEPRECIATION

Considered a non-cash expense, depreciation is the reduction in value of an asset that occurs over time. Depreciation could be due from use, wear and tear, age, or irrelevance. For example, the computer you buy today will not be worth what you paid for it in five years. Instead, it will gradually depreciate until it either reaches the end of its life or it becomes completely useless for the operation of the business. Depreciation must be included in financial statements as a cost to represent the true value of the organisation's assets.

### CASH FLOW CATEGORIES

The Cash Flow Statement typically analyzes cash flow in three different categories:

- Operations
- Financing
- Investing

The table below demonstrates the main sources of incoming cash and the common uses for cash income.

Forms of Cash (source)	Common Use(s) of Cash
Operations	Cash Dividends
New loans	Loan Repayment

New stock issues or owner investment

Stock repurchase

Property or equipment sale

Property or equipment purchase

Sale of capital or long-term asset

Purchase of capital or long-term asset

### Preparing the Cash Flow Statement

To prepare the Cash Flow Statement, you will need to look at the difference between the Balance Sheets from the beginning and the end of the accounting period. You will also need to look at the Net Income from the same period. The table below shows a sample of a Cash Flow Statement with a twist –the fourth column tells you where the information came from.

AnyCom

AnyCom

### Statement of Cash Flow

For the month ending January, 20XX

#### Cash Flow from Operations

Net Income R6,700

Both from the Income Statement

Depreciation 250

Increase in Accounts Receivable -400

Decrease in Inventory 1,500

From the differences between the December and January Balance Sheets

Decrease in Accounts Payable -625

Net Cash Flow from Operations R7,425

Cash Flow from Investing

Equipment Purchase	-	The difference between the equipment entry in December 31 and January 31 minus equipment depreciation for the month.
	R2,200	The negative entry indicates an equipment purchase of \$2,200.

Net Cash Flow from Investing - R2,200

Cash Flow from Financing

Loan Payments	-R800	From the difference between the December and January Balance Sheets
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Net Cash Flow from Financing -R800

Net Increase (Decrease) in Cash R1,200

Cash in the Beginning of Period R4,400

Cash at the End of the Period R6,600 Equals the amount on the January 31st Balance Sheet

The amount given for the increase in cash is, at least partly, due to the conversion of accrual accounts into actual cash value.

At this point, you should be able to understand where the amounts in the financial statements come from and how to read the statements. You should also realize that it can take years to learn and fully understand accounting and bookkeeping processes. As you get more practice reading (and possibly creating) these statements, you will find it easier to do.

## UNDERSTANDING BUDGETS

You may be required to develop and submit a budget proposal for your own department or division. When you are determining how to create your budget, there are three common practices:

1. Take last year's budget and, depending on orders or your subjective view of the year to come, either add to it or cut from it to arrive at a satisfactory budget for the new year. This is a rather random method, since it is not informed by what you hope to achieve in the coming year as far as the growth of your organisation.
2. Use the coming year's predicted sales as the basis for the budget. In this case, businesses may have already determined that your division receives a set percentage of the sales goal for the year. However, doing so means that the organisation is relatively confident that its sales predictions are correct. If you are basing them on last year, and last year was a slow year, then you might end up with less funds than you need in order to keep up with the sales that actually occur. If last year was a banner year, then you might end up with more budgeted costs than actual sales. In either case, the accurate prediction of your future sales is important for using this method.
3. The third common method is called 'blank-page' budgeting. This is usually considered to be the best approach by budget professionals because it allows you to start from nothing and use your identified objectives and priorities as the basis for the budget you create. In this scenario, you look at the coming year's objectives and then you examine what you will need in your budget to achieve those objectives.

No matter what method you choose, you will probably have to propose your budget to management to get approval. It is a good idea to give management a few options. So, you should create a minimum budget, a target budget, and a stretch budget.

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### MINIMUM BUDGET

This is the essentials, rock-bottom amount that you can see being required to achieve the lowest level of your objectives. It is important that you truly define what you will be able to do with this budget, and more importantly, what you will NOT be able to do. This makes it clear to management what level of risk they are taking if they only agree to fund your budget at the minimum level.

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### TARGET BUDGET

This is the level of a budget that you feel is the bare minimum to fully support the established objectives for the coming year. You are saying with this budget that you can commit to helping achieve the stated objectives if you have this amount of funding. Again, you need to clearly delineate what you would be able to provide at this level. Make it realistic, achievable, and as accurate as possible because if you get the full target budget, you will be held to what you have promised.

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#### STRETCH BUDGET

In this funding scenario, you are itemizing what additional level of objectives you can meet if you have this higher level of budget. Do not be surprised if you do not receive this level of budgeting – it is entirely possible that the rest of the organization simply could not handle a higher level of performance than what the stated objectives will provide. For example, if you stated that you could increase sales by 10% with your stretch budget, that would mean that everyone involved in supporting the sales team would need to be able to handle that additional 10% of customers, as would customer service, shipping and delivery, or any other departments that interact with customers.

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#### READING THE BUDGET

A budget provides information on planned expenses and revenues over a given period, usually one year. As you read the budget, you will see that:

- It is broken into categories corresponding to your Chart of Accounts. Each account will be represented by a line or lines on the budget, which is why they are called “budget line items.”
- There is a column for the amounts that were budgeted for each line item
- There is a column for the amounts that were spent (or earned) for each line item
- It might show the budget deviation in another column
- It might show the previous years’ budget information for each line item

Budget deviation is important because it helps you to determine how accurate your budgeting was. The larger the deviation, the more you need to reevaluate your budget. For example, if you expected to earn R10,000 in one month but you only earned R8,000, you might have to readjust your budget for future months. Especially if significant deviation continues to occur.