ICT MANAGEMENT AND ENTREPRENEURSHIP DEVELOPMENT (DCO –608)

I st Sessional Test

UNIT – I

Management, Different Functions of Management: Planning, Organizing, Co-ordination and Control, Information and Communication Technology (ICT), Information Systems (IS), ICT Management, Role of ICT and IS in modern industry, Project Management and Research Methodology, Project Management techniques and tools for managing any type of project, Case studies and live examples to illustrate the problems associated with badly managed projects.

UNIT – II

ICT Infrastructure and Services, methodologies and principles of ICT Service Management, IT Security and Audit, principles and policies governing information protection, Data Integrity and Control in a large installation, Data Centre Management- techniques for maintaining sanity, data currency, and system availability, Modern tools for running a Data Centre for corporate success, Standard for IT Service Management (ISO 20000).

UNIT – III

Concept of ethics, Concept of professionalism, Need for professional ethics, Code of professional ethics, typical problems of professional engineers. Factors determining motivation, Characteristics of motivation, Methods for improving motivation, Incentives, Pay, Promotion, Rewards, Job satisfaction and Job enrichment. Need of leadership, Function of a leader, Factors to be considered for accomplishing effective leadership, Manager as a leader, Types of production, Job, Batch and mass production, E.O.Q. (Economic order quantity), Concept of quality production, Concept of total quality management, JIT (Just in time), ISO-9000 & ISO-14000, Concepts of intellectual property rights & patents.

UNIT – IV

Concept of Entrepreneurship, Importance and need of entrepreneurship in context of prevailing employment conditions in the country, Qualities of successful entrepreneurs, Career options, Scanning of business environment, Small scale sector, Types and forms of entrepreneurs and enterprises, Government assistance, Steps in setting up enterprises, Social responsibility of an entrepreneur. Project identification techniques, Selection of a project, conducting a market survey, Preparation of project report and project appraisal.

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Management - Management is the art of getting things done through people.
(Mary Parker Follett)

→ Management is a process consisting of planning, organising and controlling, performed to determine and accomplished the objectives by use of people and resources.
(George R. Terry)

Functional Areas of Management

The main five essential functions of management are -

(i) Planning
(ii) Organizing
(iii) staffing
(iv) Directing
(v) Controlling

Planning is an executive function that is referred to as a decision making. It involves missions and objectives and the actions to achieve them. This requires decision making, i.e choosing courses of action from available alternatives such as

1) Setting short & long goals for the organisation
2) Selecting objectives, strategies and policies for accomplishing the planned goals.

3) Deciding in advance, what to do, how to do, who has to do, when to do and where to do.

4) Planning bridges the gap from where we are now and to where we want to be in future.

Organizing

It is a part of management that involves in establishing an intentional structure of roles of people to fill in an organization.

To organize a business well, it is required to provide all the useful things for its proper functionings. They are raw materials, tools, capital and personnel.

Staffing

Staffing is considered as one of the most important functions which makes provision for man powers to fill different positions. The main task of staffing are recruiting new staff, selecting, placing, promoting, training the staff to accomplish their task effectively and efficiently.

Staffing involves various activities

1) Finding the right person for the right job
2) Placement, Training and developing new skills required for present and future jobs
3) Creating new jobs.

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Directing

Directing is the process of leading the people towards the defined objectives. Directing involves three sub-functions namely communication, leadership and motivation.

Communication is the process of passing info and understanding.

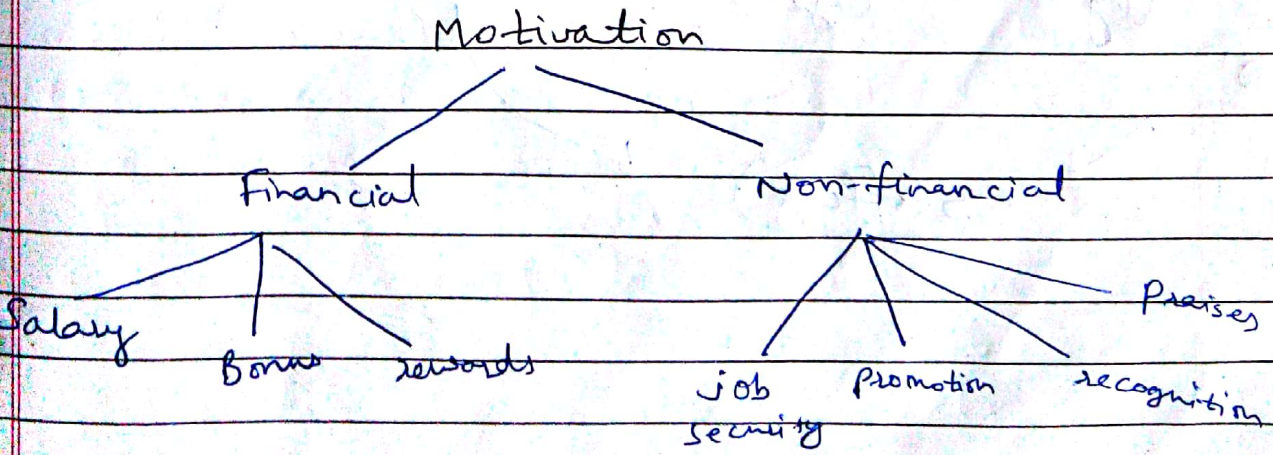
Leadership is the process of which a manager guides and influences the work of his sub-ordinates. Motivation means arousing the desire in the minds of employee in an organisation to perform their task.

There are two types of motivation

(i) Financial
(ii) Non-financial

Financial motivation are in the form of salary, bonus, rewards etc.

The non-financial motivation are job security promotion praise, recognition etc.



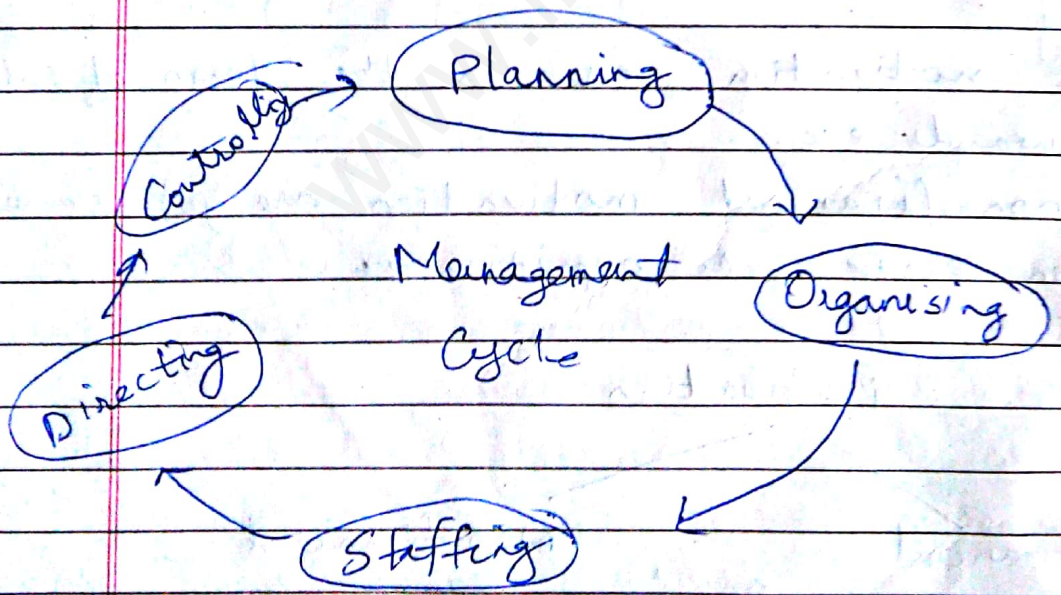
Controlling

Controlling is measuring and correcting act... of superdinates to make sure that the w... is going on as per the plans.

It measures performance against go... and plans, shows were shortfall or deviat... exist and jobs measuring corrective act... to achieve the goal controlling gene... relates to the measurement of achievement.

This involves three elements :-

(i) Establishing standards of performance
(ii) Measuring performance and comparing wi... established standards
(iii) Taking necessary corrective action to meet the set standards.



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ICT (Information & Communications Technology)

It is the infrastructure and the components that enables modern computing. Although there is no single, universal definition of ICT, the term is generally accepted to mean all devices, networking components, applications and systems that combines, allows people & organisations to interact in the digital world (digitally).

ICT is sometimes used to represent a broader more comprehensive list of all the components related computer and IT is called Information technology. The ICT components has a large list but has some common components such as computer, smartphone, digital T.V and robots.

Significance of ICT on Enterprises

For businesses, advances within ICT have broad, tremendous, cost savings, convenience and opportunities. They range from highly automated business processes that have cut cost and various other services which has led the business to grow.

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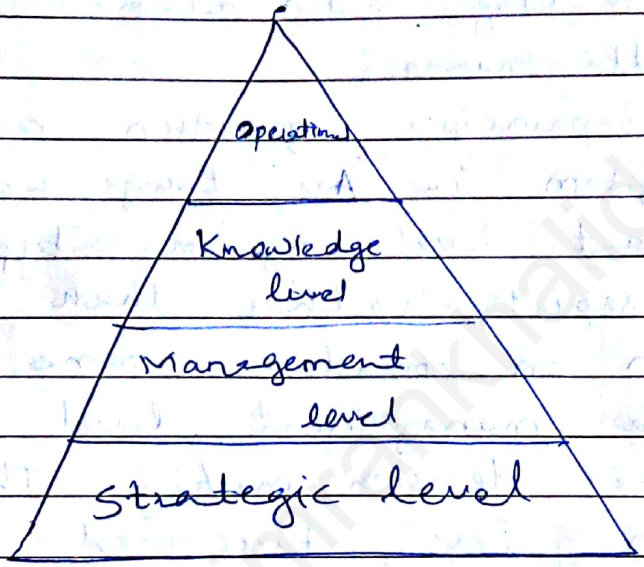
Different Kinds of Systems (Information Systems)

There are 4 main types of systems which serve different

(i) Operational level systems
(ii) Knowledge level
(iii) Management level
(iv) Strategic level



(i) Operational level systems

It supports operational manages by keeping track of the elementary activities and transaction of the organization such as sales, cash receipts, cash deposits, payroll and the basic flow activities in the organisation.

(ii) Knowledge level systems

It supports the organisation's knowledge and data workers. The purpose of knowledge level systems is to help business firms integrate

new knowledge into the business to help the organisation.

Knowledge level systems are among the most widely used applications in business.

(iii) Management level system

It serves the monitoring, controlling, decision making and administrative activities of middle managers.

The principle question addressed by such system is "Are things working well"? Management level systems typically provide periodic reports rather than instant information on operations. ~~Some~~

Some management level systems support non-routine decision making. They tend to focus on less structured decisions for which information requirements are not always clear.

(iv) Strategic level system.

It helps senior ma help tackle and address strategic issues and long term trends, both in the firm and in the external environment.

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ICT

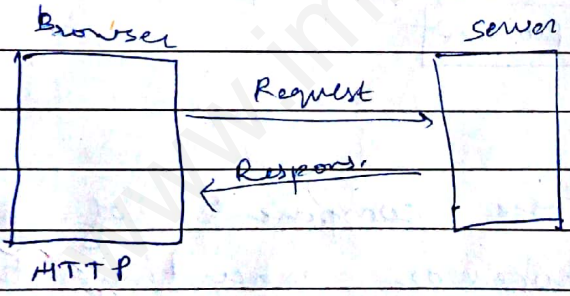
Information
- Storage
- Computation device

communication
- wired / wireless connection

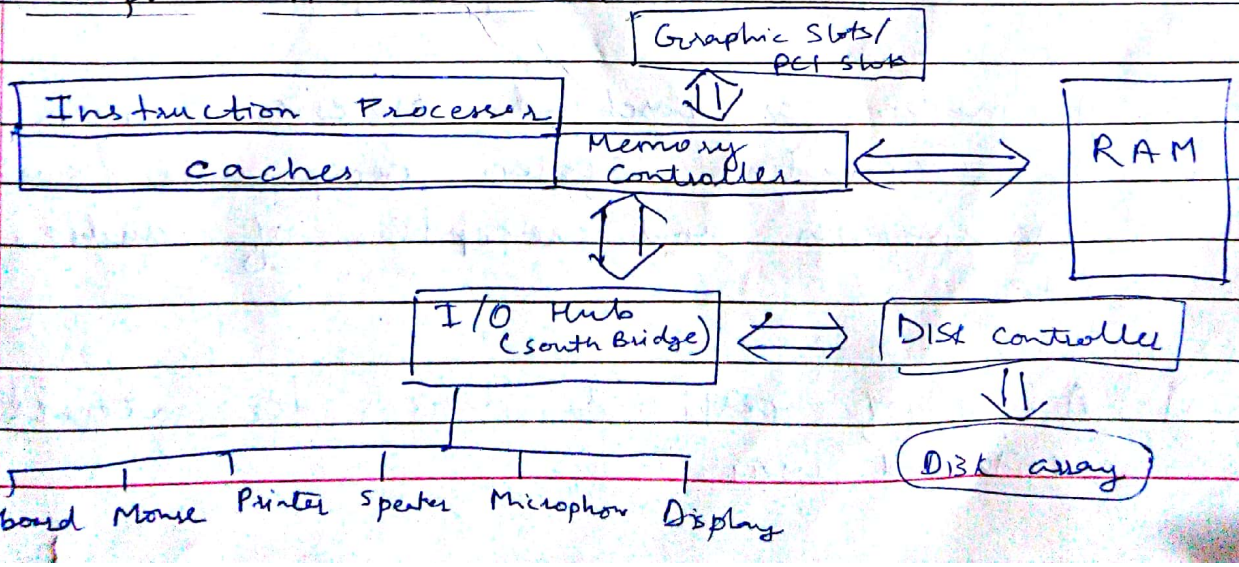
Transport Layer - ~~Host to~~ Process to process delivery
Network Layer - Host to host delivery.

UDP - Connectionless, Non-reliable
TCP - Connection ful, Reliable.

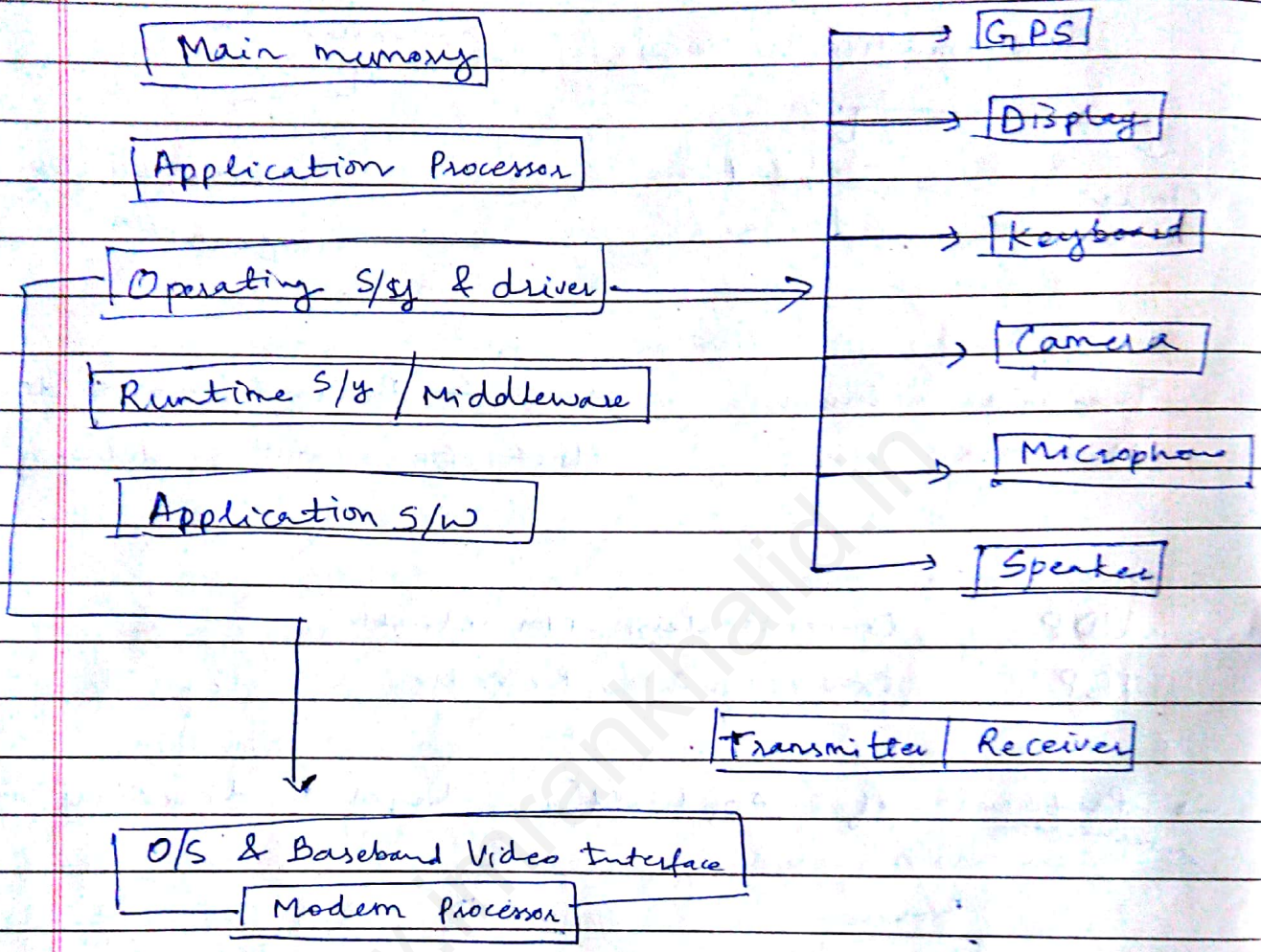
→ Protocol of Application layer directly to communicate to user.



Computer Hardware Architecture :-



Smartphone Architecture



The main three components of smartphone

1) Application Processor executing the end user application software with assistance from middleware and Operating system.

2) A modem or baseband processor with its own operating system components such as transmission and reception of audio, video etc.

3) A no. of peripheral devices for interaction with end users.

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Unit - IV

Entrepreneurship

- Entrepreneurship is a trade / property of Entrepreneur. Entrepreneur is an innovator, who carries out new combination in ever changing environment to initiate and accelerate the process of economics, social and technological development.

- "An entrepeneur is one who always searches for changes, responds to it and exploit it as an opportunity."

~~- Peter. F~~

- Peter F. Druker

- Entrepreneurs are people who have the ability to see and evaluate business opportunities ~~togethe~~ to gather the necessary resources to take advantage of them and to initiate appropriate action to ensure success. Entrepeneurs are action oriented, highly ~~ent~~ motivated individuals who take risk to achieve goals.

- Entrepreneurship is a dynamic activity which helps the entrepreneur to bring changes in the process of production, innovations in business, new ideas and usage of resources, establishing

new markets.

Model of Entrepreneurship

Business → Enterprise → Individual → Entrepreneur

Initiation
Controlling
Organizer
Manager
Risk taking
Innovator
Collects Resources

Characteristics of Entrepreneur

(iii) Accept responsibility with enthusiasm
(iv) Self confidence, dedicated & self discipline
(v) Thinker & doer
(vi) Planner & worker
(vii) Future vision, intelligent & imaginative

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Qualities of an Entrepreneur

The important qualities of an Enterpreneurs

(i) Success and achievement
(ii) Risk bearer i.e he takes risk, understand and manages risk.
(iii) Opportunity explorer
(iv) Planner
(v) Stress taker
(vi) Self confident
(vii) Motivator.

Rewards & Penalties of an Enterpreneurs

Rewards

(i) Freedom to work
(ii) Satisfaction of being own boss.
(iii) Power to do things as he likes
(iv) Rewards of ownership and retirement assurance.
(v) Respect of Family & friends

Penalties.

(i) Constraint of finance, labours, customers and supplies.
(ii) Frustration due to availability of limited capital and other resources
(iii) Social and family life is affected due to long working hours
(iv) Frustation due to non-achievement of targeted objectives
(v) Risk of failure.

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Function of an Entrepreneur

An Entrepreneur performs all the necessary functions that are essential for establishing and developing the enterprise.

The functions that are broadly classified into three groups

(i) Primary functions
(ii) Other function
(iii) Functions important for developing country

(i) Primary function
a) Planning
b) Organizing
c) Decision making
d) Management
e) Innovation
f) Risk bearing
g) Leading
h) Controlling

ii) Other functions
a) Expansion of the enterprise
b) Maintaing cordial employer and employee relation.
c) Taking level problems
d) Coordination with outside agencies

(iii) Functions important for developing country

a) Management of scarce resources
b) Dealing with public
c) New product development
d) Parallel opportunities
e) Customer relation

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Concept of Entrepreneurship

- Entrepreneurship lies more in the ability to minimise the use of resources and input them to in maximum advantage.

- Entrepreneurship is the process of identifying opportunities, arranging the resources required to pursue these opportunities and taking the resources to exploit the opportunities for better gains/profit.

Managers v/s Entrepreneurs

Difference between manager and entrepreneur on the basis of following characteristics

	Enterpreneur	Manager
1)	Goal management - Independent, starts new venture and leads direct involvement.	Deligates and supervises more than direct involvement.
2)	Status - Not concerned about status	Concerned about status symbol
3)	Risk - Bears all risk and uncertainity	Bears no risk
4)	Rewards - There is a huge chance of large profit.	Works for salary for fixed salary for his services.
5)	Innovation - very innovative	Need not to be innovative.

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Stages in Entrepreneur

This process have five stages :-

1) Identification of opportunities.
This may be in the form of idea from his own and external sources. Consumers are the best source of ideas for a new venture who spells out the need of product or a service

2) Evaluation of the opportunities :-
The opportunities identified by using either input from customers, business associates and technical persons must be carefully screened and evaluated. This evaluation is perhaps the most critical elements of the Entrepreneurial as it allows entrepreneurs to assess whether the specific product or service provides sufficient return / investment.
A business plan is undertaken which includes the following.
a) Description of product or service
b) Agreement of opportunities
c) Assessment of entrepreneur & his team.
d) Resources needed ~~about of source &~~
e) About source & needed
f)

3) Development of a business plan
A well defined business plan needs to be developed. A business plan should contain the following in order
a) Title of project,
Table of content & executive summary
b) Description of business & industry
c) Technology plan, Financial plan
d) ~~Financial~~ Production & Operation plan
e) Marketing & Distribution plan
f) Summary of plan

4) Determination and Organizing the resource
Assessment of present resources and care must be taken not to use large amount of natural resources. The risk involved in insufficient or incorrect resource should be calculated.

5) Management of Enterprise
After resources are required, the enterprise must use them to implement the business plan. The operational problems of the growing enterprise must also be examined and the management of the enterprise include organizing, staffing, controlling directing.

Intellectual Property Rights

Intellectual Property Rights (IPR) are set of rights associated with creations of human mind. An output of the human mind may be attributed with intellectual property rights. These are like any other property, and the law allows the owner to use the same to economically profit from the intellectual work.

The word intellectual means relating to the ability to think and understand ideas at a high level, or involving ideas.

The establishment of the World Intellectual Property Organization (WIPO) has established the significance of IPR for the economic growth of nations in the knowledge economy.

IPR covers literacy, artistic and scientific works; performances of performing artists, phonograms and broadcasts, inventions in all fields of human endeavours.

Different types of IPRs :-

(i) **Patents** - Patents are a set of exclusive rights granted by a sovereign state to an inventor. These rights are granted for a limited period of time, usually about twenty years. The granting of these rights is in return of public disclosure of the invention.

Copyrights -

Copyrights as the name suggests, is a kind of right that protects the 'expressions' of some ideas, but not the idea itself.

It gives the creator of an original work exclusively rights to it, usually for a time. Copyright may apply to a wide range of creative, intellectual, or artistic forms or "works".

Trademarks -

A trademark is a recognizable symbol, sign, expression, design or the like which is used to identify and differentiate one product or service emanting from a particular source against one emanating from another source. The association of a trademark with an entity may take many forms, and could be visible on packaging, labels, advertisements etc.

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Leadership

Leadership is a process by which a person influences others to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent.

In other words, it is a process whereby an individual influences, a group of individuals to achieve a common goal.

The attributes required for leadership are beliefs, values, ethics and characters.

Four primary factors of leadership

(i) Leader - You must have an honest understanding of who you are, what you know and what you can do. To be successful, you have to convince your followers.

(ii) Followers - Different people require different styles of leadership. You must know your people whom you want to be your followers.

(iii) Communication - You should have good communication - What and how you communicate either builds or harms the relation between you and your followers.

(iv) Situation - We have to face different situations. We must use our judgement to decide the best course of action.

Management and Leadership

Management's main function is to produce order and consistency through processes, such as planning, organizing, staffing, problem solving

While Leadership's main function is to produce movement and constructive or adaptive change through aligning people, motivating and inspiring.

Total Quality Management

It describes a management approach to long-term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving processes, products, services and the the culture they work.

There are 8 principles of TQM:-

(i) Customer-focused - The customer ultimately determines the level of quality. So product should be accordingly.

(ii) total employee involvement - All employees should be participated in working towards common goals.

(iii) Process-centered - A fundamental part of TQM is a focus on process thinking. The process from input of supplies to output should be defined, continuously monitored.

(iv) Strategic and systematic approach - It includes the formulation of a strategic plan that integrates quality as a core component.

(v) Integrated System - An integrated system connects business improvement elements in attempt to continually improve the expectations of employees & customers.

(vi) Continual improvement - There should be continuous improvement in accordance to the quality, Price in competition to others in market.

(vii) Fact-based decision making - TQM requires that an organization continually collect and analyze data in order to improve decision making accuracy.

(viii) Communications - Effective communication plays a large part in maintaining morale and motivating employees.

ISO 20000

It is a global standard that describes the requirement for an information technology Service Management (ITSM) system. The standard was developed to mirror the best practices describes with in the IT infrastructure Library (ITIL) framework. ISO 20000 also supports other frameworks, such as microsoft's operation framework.

ISO 20000 is composed of two parts:

a specification for IT Service Management (ISO 20000-1) and a code of practice of Service management (ISO 2000-2).

Principles of ISO 20000

(i) ISO 20000 is a certification scheme for organization.

(ii) ISO 20000 is a international standard that sets out service management requirement for IT organization.

(iii) A certification according to the ISO 20000 standard means there has been an objective assessment.

Characteristics

(i) Services design
(ii) Transition delivery
(iii) Improvement of service
(iv) It describes the requirement of ITSM
(v) It supports other frameworks as Microsoft framework.

Principles of ICT Service Management

The principles ~~and~~ we designed to help us to deliver better, more cost effective, flexible and timely ICT sol^{n}. They are there to guide our day to day decisions, the projects we undertake and the investment we make.

(i) Utility Computing
(ii) Reuse
(iii) Single Identity
(iv) Personalisation.
(v) Open Standards
(vi) Risk based approach.
(vii) Any user device.

Concept of Ethics & Professionalism

Ethics

Ethics or moral philosophy is a branch of philosophy that involves systematizing defending and recommending concepts of right and wrong conduct.

An area of study that deals with idea about what is good and bad behaviours.

There are three areas:-

(i) Meta ethics - It is a branch of ethics that seeks to understand the nature of ethical properties, statements attitudes and judgements.

(ii) Nosmative ethics - It is the study of ethical action. It investigates the set of questions that arise when considering how one ought to act, morally speaking.

(iii) Applied ethics - It is concerned with the analysis of particular moral issues in private and public life.

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Professionalism

ICT professionalism have specialised knowledge and often have positions with authority and respect in the community. Their professionalism activity spans the management, development and operation of all kind of applications.

(i) Develop a socially responsible culture within work which nurtures moral individual action.

(ii) Consider and support the well being of all stakeholders.

(iii) Account for global common values and local cultural difference.

(iv) Be proactive rather than reactive

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Production System

The methods, proceduse or assangement which includes all function required to accumulate the input, process or reprocess the input and delives the marketable output.

Production system utilizes materials, fund, infrastructure and labour to produce the required output in form of goods.

Production system consists of three main components

(i) Input (Materials, machines and paperwork)
(ii) Conversion process (include operation may be either manual or mechanical)
(iii) Output (include finished products & services)

Types of production System

① Intermittent Production System.

→ Intermittent means something that starts and stop at irregular intervals.
→ In Intermittent production system, goods are produced based on customer's order.
→ These goods are produced on a small scale.

Three types of intermittent production system.
(a) Project production flow
(b) Jobbing production flow
(c) Batch production flow.

(2) Continuous Production System.

→ Continuous production system means something that operates constantly without any irregularities or frequent halts.

→ In CPS, goods are produced constantly as per demand forecast.

→ Goods are produced on a large scale for stocking and selling.

There are two types of continuous production system.
(a) Mass production flow
(b) Process production flow.

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ISO 9000

→ ISO 9000 is a family of quality management system. Standards is designed to help organizations ensure that they meet the need of customess and other stake holders while meeting statutory and regulatory requirements related to a product or service.

→ They are not specific to any one in industry and can be applied to organizations of any size.

→ The goal of ISO 9000 is to embed a quality management system within an organization, increasing productivity, reducing unnecessary costs and ensuring quality of processes and products.

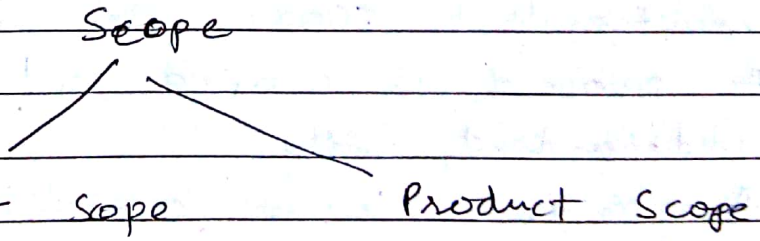
Project management

It is a practice of initiating, planning, executing, controlling and closing the work of a team to achieve specific goals and meet specific success criteria at the specific time.

Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives.

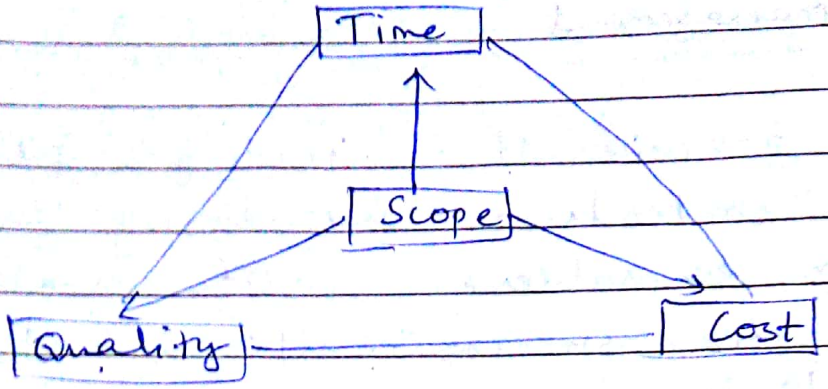
The primary challenge of project management is to achieve all the project goals within the given constraints. The primary constraints are scope, time, quality and budget. The secondary and more ambitious challenge is to optimize the allocation of necessary inputs and apply them to meet predefined objectives.

Scope - It involves getting information required to start a project and the features of the product.



Project scope - The work that needs to be accomplished to deliver a product, service or result.

Product scope - The features and functions that characterize product, service or result.



These are five stages of project

1) Initiating
2) Planning
3) Executing
4) Monitoring and Controlling
5) Closing.

Characteristics of Projects

i) A project contains a well-defined objective
ii) A project has to be achieved in definite constraints (scope, time, quality, budget)
iii) A project is carried out via set of independent tasks.
iv) A project is a one time or unique endeavour.
v) It uses many resources
vi) It has a definite start date and expected completion date.

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Information Security Principles

1) Information should be classified according to an appropriate level of confidentiality, integrity and availability and in accordance with respective legislative, regulatory and contractual
2) All users under this policy must handle information appropriately.
3) Information should be both secure and available to those with a legitimate need for access in accordance with classification level.
4) Information will be protected against unauthorized access.
5) Breaches of this policy must be reported.

IS Policy in India

The IT Act (2000) was introduced with Section 43A in 2008. This section provides compensation in the case where the body corporate that possesses, deals or handles any sensitive ~~posi~~ personal data or information in a computer resource.

In 2011, Govt. of India prescribed the IT rules 2011. These rules require a body corporate to provide a privacy policy for handling or dealing in personal

information including personal data or information.

The privacy policy should consist

(1) Clearly and easily accessible statements of its practices and policies
(2) Type of personal or sensitive personal data or information collected
(3) Purpose or usage of such information.
(4) Disclosure of information including sensitive personal data.
(5) Reasonable security practice and policies.

The privacy policy should be published on the website of the body corporate.

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Just-in-Time (JIT)

A just in time stock control system just involves keeping stock levels to a minimum in a retail outlet and rendering only when new supplies are needed.

The aim is to ensure that new stock arrives just as the existing stock is about to run out.

To operate a just in time system, a retailer must operate an automatic stock control system that is linked to the supplies computer system.

Information Audit

Audit means an independent examination of a software product or processes to assess compliance with specifications, standards, contractual agreements.

Audit can of

(i) Software Quality Assurance, where the software is audited for quality

(ii) A software licensing Audit, where a use of software is audited for licence compliance.

(iii) A physical Configuration Audit (PCA) is the formal examination to verify the configuration item's product baseline.

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Objectives of Audit

The aim of a conducting software audit is to provide an independent evaluation of the software products and processes to applicable standards, guidelines, plans and procedures against compliance.

Audit is beneficial ~~to~~

→ For Owner and ~~Stockholders~~ Shareholders

→ For the Management

→ For the Government

→ For the Creditors.

Economic Order Quantity (EOQ)

It is the number of units that a company should add to inventory with each order to minimize the total costs of inventory - such as holding costs, order costs and shortage costs.

EOQ is used as a part of a continuous review inventory system in which the level of inventory is monitored at all times and a fixed quantity is ordered each

time the inventory level reaches a specific reorder point.

EOQ provides a model for calculating the appropriate reorder point and the optimal reorder quantity to ensure the instantaneous replenishment of inventory with no shortages.

It can be a valuable tool for small business owners who need to make decisions about how much inventory to keep on hand, how many items to order each time, and how often to reorder to incur the lowest possible costs.

Data Center

A data center is a facility used to house computer system and associated components such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communication, connection.

The main purpose of a data center is running the IT systems applications that handle the core business and operational data of the organization.

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Government assistance in Enterprises

There are many schemes launched by the Ministry of Micro, Small and Medium Enterprises, Govt. of India which are supporting small and medium enterprises.

1) Marketing support under the Marketing Assistance scheme.

It is given for organising exhibitions abroad and participation in international exhibitions, co-sponsoring of exhibitions organised by other industry/organisations.

The financial assistance of upto 95% of the airfare and space rent for entrepreneurs. And for co-sponsoring will be 40% of total expenditure.

2) Credit Guarantee Scheme

The existing and new enterprise can apply for this. In this scheme, collateral free loans upto a limit of Rs 50 lakhs are given for individual MSEs.

3) ISO 9000 Certification Reimbursement Scheme

The Govt. of India gives reimbursement of charges of ISO 9000 / ISO-14001 certifications to the extent of 75% of expenditure

4) National Awards (for individual MSEs)

Those enterprises who are registered are given national awards on state-wise distribution.

5) National Manufacturing Competitiveness Programme

Several competitions are organised by Govt. for MSEs to motivate them