

## Information Systems Control and Audit

Previously.. Friends U might be saying.....



**ISCA = ISCA** Subject is **C**omplex **A**bsolutely.

Please... can U give me Opportunity... as..I have...

**ISCA = Idea!** to.. **S**implify **C**ourse **A**together.

- CA. Vipul Dhulla, [ C.A., D.I.S.A ]



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You will surely agree & say that....



**ISCA = It's Scoring Course Actually.**

And shall also have confidence now, as...

**ISCA = It's Simplified Conceptually & Academically**

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Do tell...more on which subject you would like to have a book – more user friendly & exam-oriented.. & its method & source, as we all together share this knowledge and will benefit students community at large.

So feel, free to give YOUR VALUABLE VIEWS at email : [vipul@dhullasir.com](mailto:vipul@dhullasir.com)

- C.A.Vipul V. Dhulla – C.A.,D.I.S.A.[I.C.A.I]

***“Knowledge is Power,  
Sharing it Gains, But Selfishly Storing it Pains”***



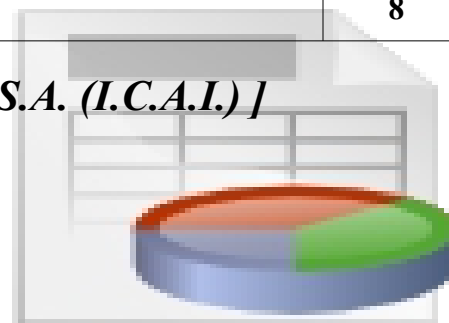


## C.A.FINAL :- I.S.C.A. [version 4 - Yr. 2014]

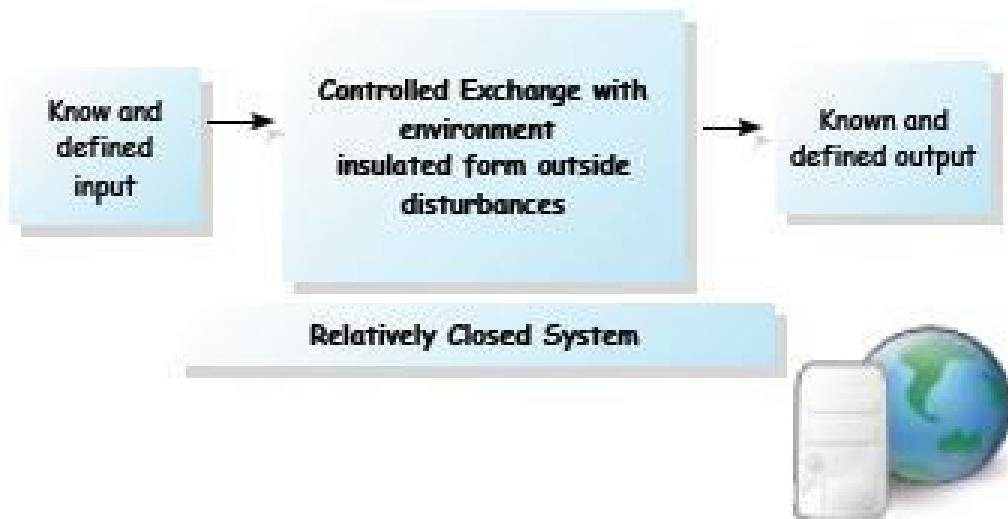


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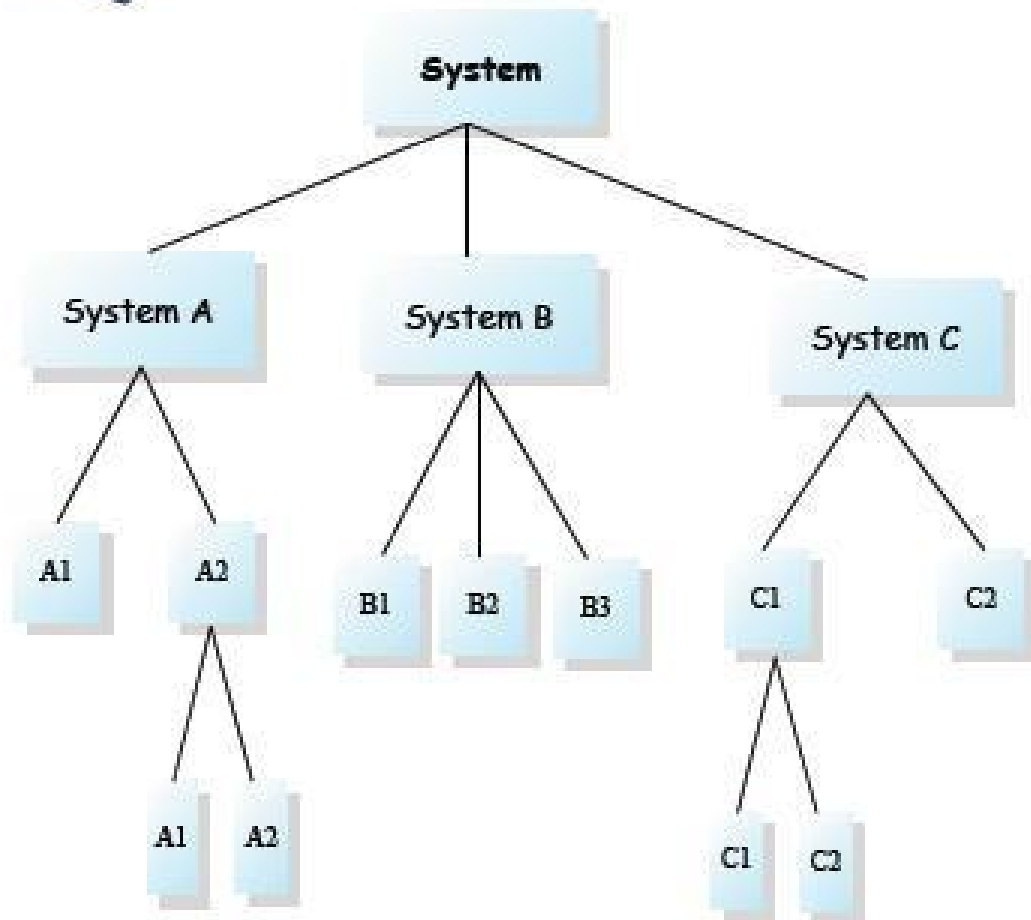
**- by C.A. VIPUL V. DHULLA [C.A., D.I.S.A. (I.C.A.I.) ]**







## BASIC CONCEPT OF SYSTEMS



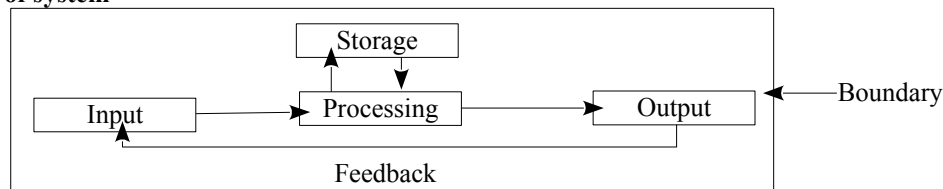




**Definition of a system :-**

- as a set of interrelated elements // that operate collectively // to accomplish some common purpose or goals.
- Human body → living sys.
- Business in sys. → where economics resources ( M4 ) are transformed by organization process into g/s.
- System can be [Types]
  - Base on Elements – Abstract & Physical.
  - Base on Interactive behaviors – Open and Closed.
  - Base on Degree of Human intervention – Manual and Automation.
  - Base on Working / output – Deterministic and Probabilistic.
- Abstract sys. = orderly arrangement of inter dependent ideas or constructs.
- Physical sys. = set of elements which operate together to accomplish an objective.
- e.g. : circulatory sys. ( blood vessels ), transportation sys. ( vehicle ), weapons, school, computer sys., A/c. Sys.

**General Model of system**

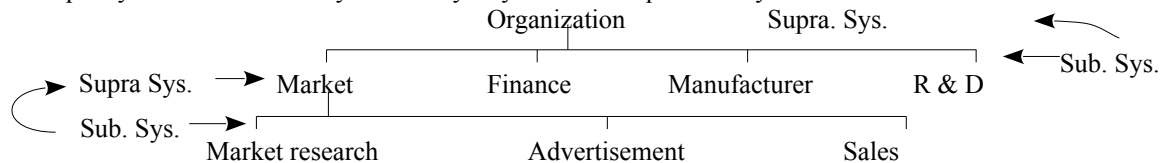


Sys. is inside Boundary & environment is outside.

Illness in system is called **Entropy**. Entropy can be reduced by maintenance, that is by negative entropy.

**Sys. Environment :-**

- All sys. functions within some sort of environment
- Environment like the sys. is a collection of elements
- There are many types of sys. & environment
- The features that define & delineate a sys. form its boundary
- A sub.sys. is a part of large sys.
- Each sys. has sub.sys., which in turn made of sub.sys. being delineated by its boundaries.
- A Supra sys. refers to the entity formed by a sys. & other equivalent sys. with which it interacts.



**Characteristics of a Business System [ Hey! This was in old version, but we continue the same]**

- Business is also System – (as seen in above diagram of Organization)
  1. All systems work for predetermined objectives & it is designed and developed accordingly.
  2. It has a number of interrelated & interdependent sub.sys. / components - cannot function in isolation.
  3. If one sub.sys /component – fails = whole sys fail. However, it depends on how they are interrelated.
  4. The way a sub.sys. works with another subsys. is called interaction. This is to achieve the goal of the system
  5. The work done by individual subsystems is integrated to achieve the central goal of the system. The goal of individual subsystem is of lower priority than the goal of the entire system.

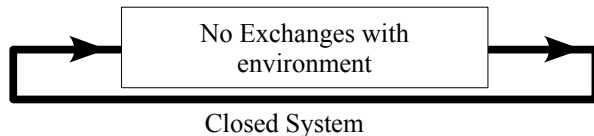
**Nature and Type of System**

Sys can be Manual sys [ - absolutely by human efforts ] or Automated system. Computer-based sys helps in business functions is a better cost-performance ratio compared to that of traditional labour intensive manual systems.

**Types of System**

i) Deterministic	probabilistic
* given nature of input we can reasonably predict output. e.g. A/c. Sys.	* given nature of input, we cannot predict output. e.g. Inventory sys. are average demand & time for replenishment

**ii ) Closed systems**



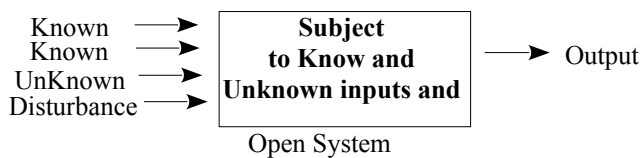
- it is self contained & does not interaction
- no feedback
- tend to deteriorate

**iii) Relatively Closed systems**



- Mfg. Process can operate without disturbance from supplier. Etc.
- Effective.
- E.g. :Computer sys.
- It is require to preserve their identity & autonomy.
- They may ignore many opportunities so as to maintain their core-competence

**iv ) Open Sys.**



- Interact with other sys., get random & undefined inputs
- It tend to have form & structure to allow them to adopt to change in their external environment for survival & growth

**v) Sub. Sys.**

- ➔ IPO
- ➔ Boundaries
- ➔ Entropy
- ➔ Stress
- ➔ + Interface

- It is a small workable Module of a sys.
- It has all char. of sys. in addition it has interface to interconnect two sub.sys. [ \* ref. Module given next ]

**Decomposition :-**

- A complex sys. is difficult to comprehend when considered as a whole
- Therefore sys. is decomposed or factored into sub.sys.
- Boundaries & interface are defined, so that the sum of sub.sys. constitutes the entire sys.
- Process of decomposition is continued with sub.sys. divided into smaller sub.sys, until the smallest sub.sys. are of manageable size.
- If the task is to design & prog. a new sys., the sub.sys. is major application
- Decomposition into sub.sys is used to analyze an exiting sys & to design & implement a new sys

**Simplification :-**

- The process of decomposition could lead to a large no. of sub.sys interface to define
- No. of inter connection =  $\frac{1}{2} [ n ( n - 1 ) ]$  , where n = no. of sub.sys.
- Some method of simplification :-
  - Clusters of sub.sys. are established which interact with each other, then a single interface path is defined form the cluster to other sub.sys. or clusters of sub.sys.  
e.g. Database , which is accessed by many prog., but the inter connection is only through a database management interface.

**Decoupling :-**

- If 2 diff subsys are connected very tightly, very close coordination between them is required.
- For e.g. , if the raw material is put directly into production the moment it arrives at the factory..

**Entropy :-**

- Desire of sys. to get into disorder stage ( rundown, decay, etc. ) is in sys. terminology called ENTROPY
- Entropy can be reduced by maintenance i.e. by negative entropy

**Stress & Sys. Change :-**

- Pressure on / within i.e. Source -> internal / external
- A stress is a force transmitted by a sys's supra sys. - that cause a sys. to change, so that supra sys. can better achieve its goals.
- Types of Stress + [ how to cope ] :-
  - 1) A change in goal set of sys. [ implement new sys. ]
  - 2) Change in achievement level desired for existing goals [ modify the existing sys.]

Process of adaptation → change can be → structural change ( i.e. For more sharing terminal ) / Process change ( i.e. Change method of data sorting )

**Modules :-**

- Break large prog in small module:decomposition e.g. In A/c.sys. & its module:sales, purchase,etc.
- Because it increase the efficiency ( we find – removal of element which reduce efficiency & then we integrate )
- Result into simple sys. - which is more efficient.

**Consequence of stress :-**

When supra.sys. exerts stress on a sys. - then sys. will change to accommodate the stress, or it will become pathological; that is, it will decay & terminate.

**CHARACTERISTICS (ATTRIBUTES) OF INFORMATION**

**Information** : processed data – has a surprise value for the user – it is necessary for mgt. - in Decision Making (DM) & survival of an entity → depends on Right decision at right time based on right information available. It's Characteristics are :-

**1. Availability (Timeliness) :**

- There is a saying ' Justice delayed is Justice denied ' same can be converted to ' Information delayed is Information denied', as only timely information will generate effective decision.

**2. Purpose :**

- Information must have an objective to which it is addressed – as people have variety purpose. The basic purpose is to inform, evaluate, persuade, & organize – It must help create new concepts, identifying problems, solving problems, DM, Planning , initialing & controlling ( *think : POSCORD ...hummm...* )

**3. Mode & format :**

- Business Information can be presented as visual, verbal or written information
- The selection of format shall be based on the purpose for which the information is being used. Use of table, graphs, reports for information communication need to be evaluated based on purpose of DM
- Relevance to problem must be only their &/ or highlighted like in Audit report : entire detail is required – but variance & deviation are highlighted.

**4. Decay & Redundancy :**

- Fresh or live data to be used as far as possible. [ Decay ]
- It means excess of information carried per unit of data. [ Redundancy ]
- E.g. 75% of letter used in phrase are usually redundant. However, in business situation redundancy may sometime necessary to safeguard against error in the communication process.  
For e.g. the correspondence, in contract may carry figure like '4' followed by (FOUR)

**5. Rate of transfer :**

- Means the transmission / receipt rate of information.
- It is generally denoted as character per second
- Speed depends upon the communication media, lines & acceptance speed of receiver.

**6. Frequency :**

- The Frequency with which information is transmitted or received affects its value.
- The periodicity for generation of information. For e.g. Internal audits are usually done monthly / bi-monthly or quarterly
- Frequency directly linked to level of mgt.,i.e. the information is being send to whom.

**7. Completeness :**

- Purpose of information is to help DM : no missing link. E.g. Not just give ROI & NPV but also give mean, standard deviation, shape of distribution of ROI & NPV ( Hartz's model of investment ) → this will help in DM.

**8. Reliability :**

- Confidence level of information must be indicated, so as to help user ( Internal / External ) - : always check & survey error rate

**9. Validity :**

- If it does not reveal directly what we want to know for DM, its not transparent.

**10. Quality :**

- Information not be spoiled by personal bias.
- No error : use Internal control, etc...
- Accuracy should not be made a fetish for e.g. Sale forecast for group of product can well be rounded off to thousands of rupees.

**11. Transparency :**

- If information does not reveal directly what we want to know for decision making, it is not transparent

**12. Value of Information :**

- Given a set of possible decision, a decision maker may select on on basis of such information in hand.
- Value of New Information = Outcome of New decision – Outcome of old decision – cost of obtaining information.

**13. Adequacy :**

- To be useful, information need to be adequate to take desire action & it must flow in different directions within the org. and to & from its environment.

**14. Current/Updated :**

- Information need to be refresh time to time.

**15. Cost benefit analysis :**

- Benefit to be justify with cost
- For cost : use of cost sheet but Benefit ( tangible + intangible ) : however to analysis it – all managerial statement into categories on degrees of importance
  1. Absolute st. : → cannot be discontinue whatever be cost of preparing it.
  2. Necessary st. : → may have high cost but may be discontinue in very stringent circumstance
  3. Normal st. : → they can be discontinued / replaced if their cost is high.
  4. Extra st. : → which are prepared only if benefit arising out of them is substantially high.

**key word:**



1. Real Purpose of Completing format with high freq rate - is that quality cost analysis is available without decay for better transparency & validity – to make it adequately valuable currently.
2. Real Time Purpose of Quality Male / Female is – currently complete work Frequency by Redundancy – at Valid Rate – to get adequately Valuable Cost benefit with Transparency
3. R.T.P. M/F (mode & format ) of Ca Final 2R Cost effective, Valuable, Transparent, Updated & Very Qualitative & adequate.

Keyword 1	
Real	Reliability
Purpose	Purpose
of Completing	Completeness
Format	Mode & format
with high	--
freq	Frequency

Keyword 2	
Real	Reliability
time	Timeliness
purpose	Purpose
of Quality	Quality
Male/Female	Mode & format
is	--
Currently	Current/update

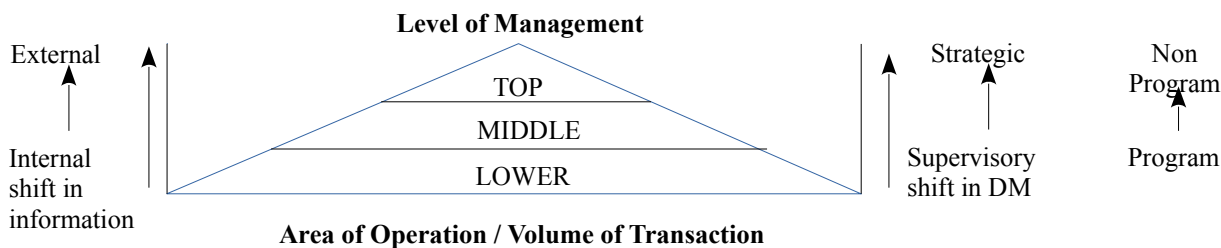
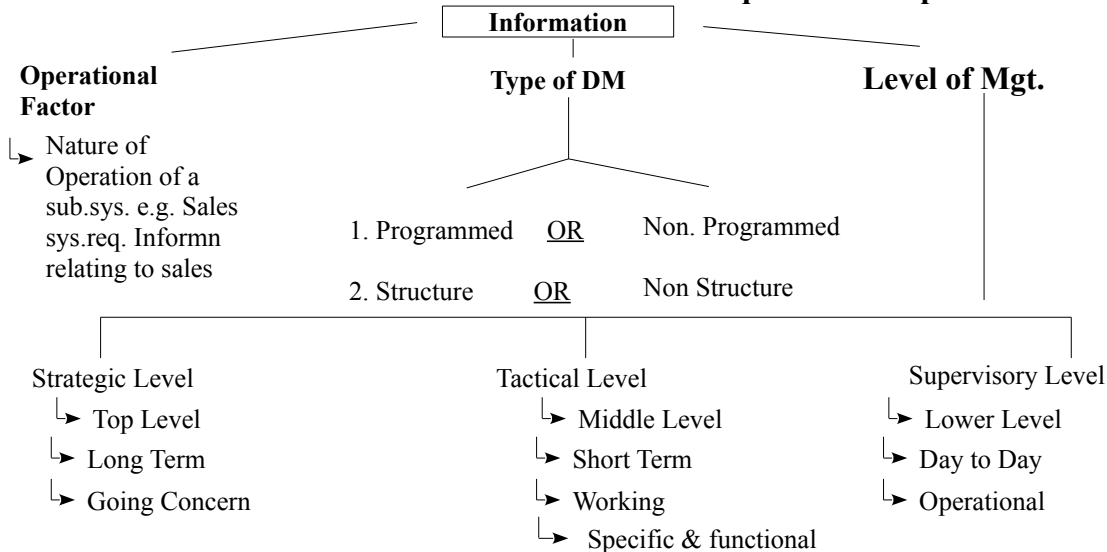
Keyword 3	
R	Reliability
T	Timeliness
P	Purpose
M/F	Mode & format
Of	--
Ca	Completeness
Final	Frequency

rate	Rate
is that quality	Quality
cost analysis	Cost benefit analysis
is available	Available
without decay	Decay
for better	--
Transparency	Transparency
& validity	Valid
- to make it	--
Adequately	Adequacy
Valuable	Value
Currently	Current/updated

Complete	Completeness
work	--
Frequency	Frequency
by	--
Redundancy	Redundancy
at	--
Valid	Validity
Rate	Rate of transfer
to	--
adequately	Adequacy
get	--
Valuable	Valuable
Cost benefit	Cost benefit analysis
with	--
Transparency	Transparency

2:R	Redundancy
R:R	Rate of transfer
Cost effective	Cost benefit analysis
Valuable,	Valuable
Transparent,	Transparency
Updated &	Current/update
&	--
Very	Validity
Qualitative	Quality
&	--
Adequate	Adequacy

**Factors on which Information Requirement Depends**



**Operational Function :-**

The grouping or clustering of several functional units on the basis of related activities into a sub.sys. is termed as operational fun. e.g. Marketing is an operational fun.

The information requirement of different operating function vary not only in content but all in characteristics

There is no unanimity over the number of mgt levels. 3 levels based is carried out to distinguish the type of tasks, extent of authority and degree of accountability within hierarchy.

External	Internal
<b>1. Top Level (strategic level)</b>	
Competitive activities, customer preference style, changes in eco.trends, technological changes, legal rulings.	Historical, sales, cost, profit, cash flow,divisional income, sales, expense, Financial % ratio, interest, credit o/s., Long Term Debt, Delinquent A/c., project's reports and cost updates.
<b>2. Middle Level ( tactical level)</b>	
Price changes, shortages, demand & supply, credit condition.	Descriptive information (happenings) current performance indicators, over-under budgets, historical profits, sales, income.
<b>3. Supervisory level ( operation level )</b>	
Sensitive changes affecting material supplies & sales	Unit sale & expense current performance shortage & bottle necks operating efficiencies & in-efficiencies input-output ratios, maintenance reports.

**Components of Computer-based I S.**

\* Hardware, software, Data, Procedure & People.

**Major areas of computer-based applications [ or say sub sys ]**

in Earlier syllabus "Management Information & Control System" it was indicated as "FMPP - [ Finance, Marketing, Production & Personal ] in chapter 4 [ for more on Material Resource Planning, 6 sub.sys of Personal sys, etc do refer chapter 4 -'System Approach & Decision Making']

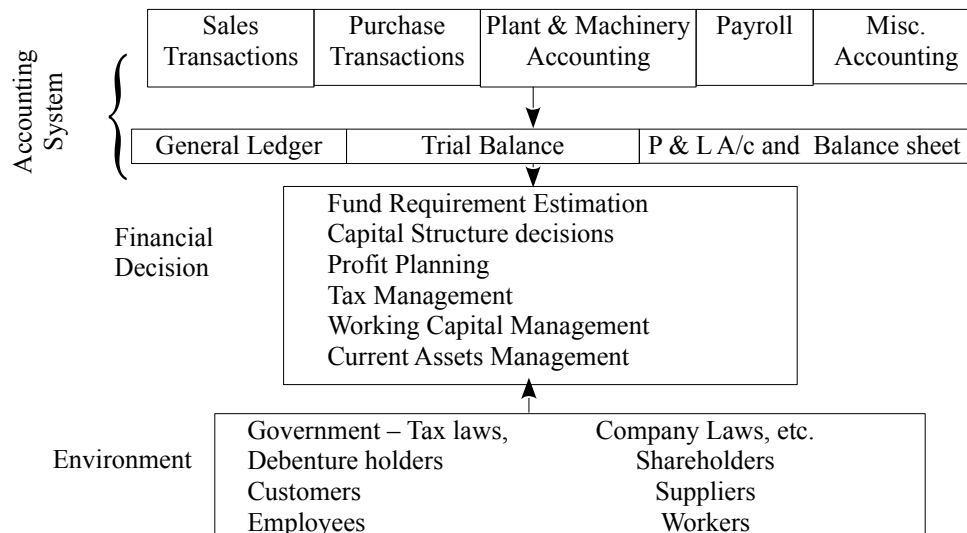


( keyword : FMPP : note .. this will be used again and again.)

**1. Finance and Accounting**

The main goal - ensure financial viability of the organization, enforce financial discipline and plan and monitor the financial budget.

- Accounting cover – classification of financial transaction & summarization into standard financial statement.
- Finance sys ensures adequate organization financing at a low cost as to maximise return to Share Holder.
- Two imp. Aspects. :  
 1. Procurement of Fund and 2. Effective utilisation of fund.



*Flow of information for making financial decision*

✂	<i>BEFORE START AHEAD PLEASE UNDERSTAND WHAT QUESTION U HAVE TO ASK YOURSELF SO THAT ALL OTHER FUNCTION ARE KNOWN EASILY</i>
🔑	
🧠	QUESTION + HINT:
📖	1. Objective, Meaning, Definition, Required for what analysis ?
📝	2. How information need of Manager are satisfied
📅	3. How its useful + W5 [ Why, When, Where, What and Who ]
📚	4. source of information & interface (so u will need 🔑 <b>Keyword: ICE ←, GIFT ( GEFT) + F-CICI 😊hmm...got it .</b> )

**2. Marketing and Sales**

- Aim - running a business successfully in a competitive environment.
- Objective - to maximize sales and ensure customer satisfaction.
- It facilitates the chances of order procurement by marketing the products of the company, creating new customers and advertising the products.
- They may use an order processing system to keep status and track of orders.
- It may also generate bills for the orders executed and delivered to the customer.
- Warrant period service requires huge d/b.
- Analyzing the sales data by category - region, product, salesman, etc. Also help in providing commission.

**3. Production or Manufacturing**

- Objective - to optimally deploy [ M3] man, machine and material to maximize production or service.
- The system generates production schedules and schedules of material requirements, monitors the product quality, plans for replacement or overhauling the machinery.
- It also helps in overhead cost control and waste control.
- A whole new discipline – Computer Aided Design and Computer Aided Manufacturing
- (CAD / CAM) has evolved due to application of IT and using this technology quick change in design and manufacturing process is possible to examine the possibilities of various alternatives.

**4. Inventory / Stores Mgt**

- Raw material is major cost. Delay may create problem, so also excess may create additional cost. Hence require Inventory sys to maintain optimum level.
- Its is designed with a view to keeping track of materials in the stores.
- The system is used to regulate the maximum and minimum level of stocks, raise alarm at danger level stock of any material, give timely alert for re-ordering of materials with optimal re-order quantity and facilitate various queries about inventory like total inventory value at any time, identification of important items in terms stock value (ABC analysis), identification most frequently moving items (XYZ analysis) etc.
- Similarly well-designed inventory management system for finished goods and semi-finished goods provides important information for production schedule and marketing/sales strategy.

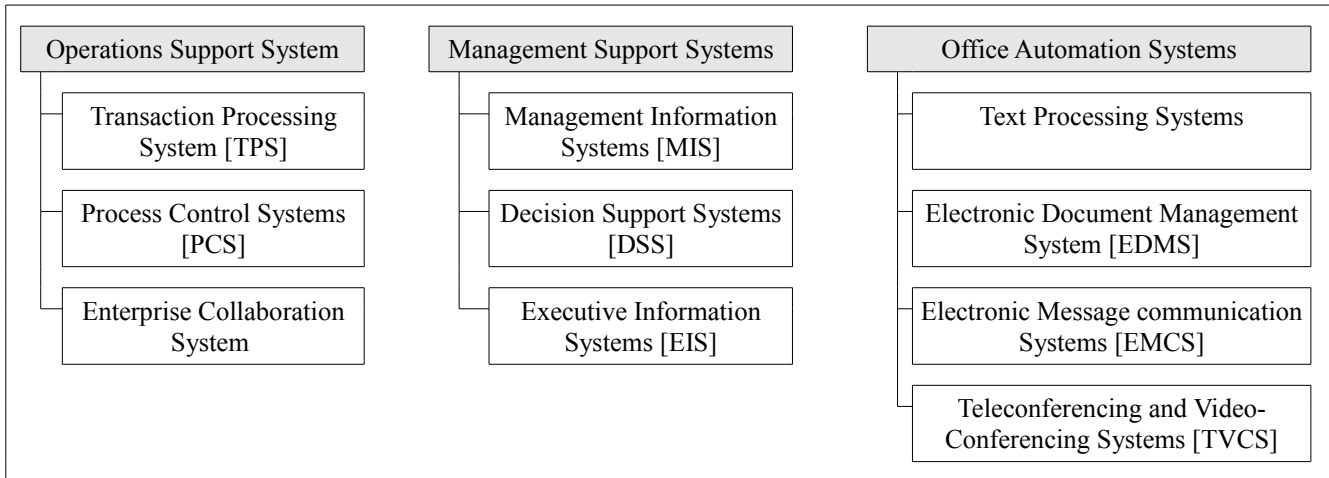
**5. Human resource mgt.**

- Human resource = most valuable asset for an org. Utilization of this resource in most effective and efficient way is an important function for any enterprise. Less disputes, right utilization of manpower and quiet environment in this functional area will ensure smooth sailing in business.
- Skill database maintained in HRM system, with details of qualifications, training, experience, interests etc helps management for allocating manpower to right activity at the time of need or starting a new project.
- This system also keeps track of employees' output or efficiency.
- An HRM system may have the following modules [ e.g. peoplesoft ]
 

- Personnel administration	- Recruitment mgt	- Travel mgt
- Benefit administration	- Salary administration	- Promotion mgt

An ideal HR development emphasizes an optimal utilization of human resource by introducing a consistent and coherent policy aiming at promoting commitment to the enterprise. The HRM system assists to achieving this goal.

**Type of Information System.**



Internal Data = TPS ;  
 TPS + .... Process ... = MIS ;  
 MIS + External data = DSS ;  
 DSS + utilities = EIS

***Some are explain now & Some are complete chapter you will learn soon.***

Operating Support System [OSS]: - aim to support operational efficiency.

Management Support System [MSS] – focus on managerial use of IS for planning, DM, etc.-includes DSS, EIS, Expert sys.

Process Control System : Computer is used to control ongoing physical processes. Computer take decisions, e.g. the assembly lines of the automated factories.

Enterprise Collaboration Systems : These systems uses a variety of technologies to help people work together. It supports collaboration to communicate ideas, share resources and co-ordinate cooperative work efforts. Its objective is to use IT to enhance the productivity and creativity of teams in enterprises. Like MS-sharepoint, weboffice, etc.

