INTRODUCTION

The term 'Organisation' though historically familiar, continue to be the centre of academic attraction for analysis. This may be because organisations manifest deliberate scientific endeavours intended to fulfill wide band of social aspirations, needs, drives and goals. The emergent stimuli constitute the corner-stone for the design as well as actual operation of cooperative relationships-reciprocal as well as mutual, in a society. Thus the purposes or objectives for whose fulfilment the relationships are evolved tend to be the anchor points in organisations. Again, since there could be more than one strategy to achieve a purpose or objective, scientific selection of a suitable one becomes an important and inevitable criterion. The selected strategy in turn determines the nature of activities and the technology in organisations. Thus, managerial decisions and the processes of making these decisions tend to play catalytic role in organisations.

Satisfactory functional performance in organisations, in turn, depend on the level of clarity in decision situations and by logical implementation of the decisions.

The term, 'decision-making' generally connotes a process by which the particular course of action is chosen from among a number of alternative courses of action. Depending on the nature and complexity of the task at hand, each organisational member is assigned with responsibilities in regards to fulfilling certain task oriented activities. The process of achievement impells decisions on various resource co-ordinates likely to affect achievement. Thus 'performance' and 'decision' can be considered as the two inseparable planes of a task, scheduled for achievement.

Thus the primary determinants of achievement are -

1) decision-making
ii) implementation of decision (performance)

Therefore, analysis of decision-making process and decision implementation processes (performance), the resultant understanding, acquisition of ability to predict, based on the understanding and using the ability to control task situations assume critical importance in organisational success.

Analysis of decision-making involves splitting the process into the following basic dimensions.

i) Level of complexity and significance

ii) The personality characteristics of decision maker

iii) The organisational rationale vis-a-vis the level of hierarchy at which they are made

iv) The organisational environment - both internal and external (both being capable of affecting a decision and in turn are effected by it)

v) The time span during which a decision tends to be valid.

Each of the dimensions cited, though distinct and separate by themselves, are influenced by the factors of responsibility, authority, and accountability incumbent on the individual decision-maker. Viewed from a different angle, decisions at higher reaches of organisational hierarchy tend to be more abstract in implications, encompass wider areas of discretion and are likely to last for longer periods of time compared to decisions made at lower levels of organisation. Thus based on the parameters of frequency repetitiveness and definitiveness in procedures, decisions can also be classified as programmables and non-programmables. In the organisational context, those of the decisions that are complex and non-programmable, are termed as managerial decisions.

Generally managerial decisions are addressed to determination
organisational goals and also to prescription of strategies for resolving the means-ends chain. In the process of making a managerial decision, a manager leader may essentially be concerned with the responsibility of ensuring organisational survival and growth, as well as of maintaining the homeo-static balance of the organisation. The process becomes more complex especially when viewed in the context of individual need matrix, i.e., the needs for whose fulfilment an individual enters organisation. The characteristics of the matrix in turn are shaped by the social group of whose membership he enjoys, and also by the organisation structure.

Human behaviour being unpredictable by nature, it's response to the rapid changes in technologies and the ever changing external environment merely accentuate the complexity of a decision situation. Management strives to maintain an equilibrium between the organisational environment which is ever changing, the individual behaviour in organisation - the rest of interacting influences in the group, of which the individual may be a member and also the compatibility between the external environment and the organisation. A manager by virtue of his membership in the work group in the organisation - wields certain influences on the various intrinsic issues of a decision situation and in the process may be open to reciprocal influence by the same. The above process is cyclic in nature and continuous in reality on one hand and replete with cognitive limitations on the other. As such, systematic structuring of decision situation may not be possible. In consequence, a manager may not be certain about the desirability of, and the characteristics required to create the state of dynamic equilibrium in the organisation and may eventually be equally uncertain about the outcomes of his decision.

Managerial behaviour thus is conditioned and shaped by individual expectations, motives, values, perceptions, responsibilities, authority, communicative abilities and adaptive learning capabilities. These are the same factors
which act as the determinants of managerial attitude to risk, the govern
Element in decision-making process. Presented below is the cascade mo
of relationship between the elements cited.

\[

definitions

i) Individual motivation = f (Individual values , Situation

ii) Individual ability = f (Individual knowledge , Individual

iii) Individual behaviour = f (Individual motivation , Individual

iv) Organisational behaviour = f (Individual behaviour , Organisational Resources).

In servicing the objectives of creating and maintaining, a dynamic
equilibrium between various elements such as the environment, the organisation
the individual employee in the organisation and the production technology.
every manager requires to make decisions, whose outcomes are always
clothed in uncertainty. Reduction of uncertainty of decision outcomes, stipulates
availability of comprehensive information on all the issues relevant to
problem at decision centre. The information may include a broad statement of
the situation itself, data and its interpretation, conveniently classified
for being used in making a decision. Thus, information aids in reducing uncertainty in the outcomes of decisions and, at the same time help in increasing
organisational effectiveness by facilitating the desirable state of dynamic equilibrium in the organisation. The information so required and obtained by managers in making organisational choices is known as managerial information.

HISTORICAL DEVELOPMENT:

Information theory was propounded by Norbert Weiner, a well known
mathematician as a result of his study on cybernetics. According to him
"any organisation is held together by the possession of means for acquisition use, retention and transmission of information". Claude E. Shannon of Bell Laboratories followed the cue and developed detailed concepts on the complexity of designing appropriate communication systems. His pioneering studies have helped the emergence of information theory developed primarily as a mathematical theory of communication.

Management information system in some form or other to aid management and managerial personnel in decision-making existed even before the advent of modern techniques and has been one of the main organisational resources since the emergence of corporate forms of business.

The emergence of large organisations in late 1800s triggered the need for evolving information systems much more scientific and elaborate than the ones existing earlier. Managerial control of earlier times focussed on simple cost accounting and budgeting but sophisticated use of cost control and business budgeting, developed during 1920s and 1930s. Simple calculation of costs in early 19th century did not lend to the type of quality of support which the modern managerial decision making assumes as given. During 1930s, extensive theoretical research was undertaken to evolve models for decision making. The research resulted in better methods of cost analysis and better reporting methods. The emergent reporting systems in organisations mirror the importance of linking the elements of responsibility, authority and accountability. They also assist in identification of variations from planned performances and the reasons for variation. In step with the rise in the hierarchical level of management, information tends to become abstract and general, indicating broad problem areas and probable causes. The subject of managerial accounting can be seen as an information system oriented towards internal management and control. The development of concepts such as systemic approach to prob...
solving, use of mathematical models, techniques for optimisation, complements the role of management information systems in the modern practices of the science of management. Since human intellectual abilities are subject to wide band of limitations, the idea of optimisation of resources gradually changes to satisficing achievement of objective. Other contributing factors being the behavioural and motivational consequences of organisational structure. Modern computer helps both in analysing the applications of management techniques by facilitating unprecedented miniaturisation in storage space and rapid processing of large quantities of data with equally rapid retrieval facilities. In mathematical theory of communication, information has been defined as "the average number of binary digits which must be transmitted to identify a given message from the set of all possible messages to which it belongs."

While the value of information system is beyond any doubt, the system itself is vulnerable to certain problems and they can be analysed on the following three levels.

(1) Technical

(2) Semantic; and

(3) Effectiveness

The Technical level pertains to analysis of methods, processes and modes for transmission of information accurately and without distortion and reduced levels of noise. Semantic level pertains to maintenance of accuracy and precision in the transmission of symbols to convey the desired meaning. The effectiveness level revolves around problems of application of the information as a motivating element for human action.

**Managerial Information-Structure: The Basic Framework of Study:***

*Formal Organisation* being the result of combining structure with technology, also constitutes the prescriptive framework for performance o
managerial functions. Thus, it's constituents, structure along with the operant technology therein, need to be in tune and harmony, with the environment to facilitate the exchange process in reality. The effectiveness of exchange would be dependent on the built-in facilities for generation and transfer of appropriate and adequate information throughout the organisation. The communication channels through which the requisite information circulates throughout the organisational structure, emerge as vital links connecting decision centres with action points. Further the communication patterns built in an organisation provide each member of the group a definite and clear cut understanding on assumptions, goals and attitudes and managerial philosophy of the organisation, in the context of organisation, managerial performance involves translation of organisational objectives into concrete goal-sets and actually guiding the organisation in moving through the environment, in the process of achieving its goals. This is done by structuring the organisation through scientific fragmentation of job, guided by technology into tasks, specialisations, fixation of responsibilities, setting standards for role-performance and co-ordinating by communication. And while maintaining the dynamic equilibrium, a manager plans, organises, directs and controls all organisational activities by taking various decisions with respect to each functional area. However as said already by virtue of being a member of the commensurate social group within the organisation, a leader is also influenced reciprocally by those same forces on which he wields influence. Leadership behaviour thus, becomes the consequence of inter-acting factors of personality, perceptions, values and need for authority and achievement which impel the incumbent to evolve or to adapt to a particular pattern of leadership behaviour considered appropriate to the situation. However decision-making being an all pervasive phenomenon, it is possible and even probable to assume that leader behaviour being an important variabl
in decision-making process, positively - influences the process of decision making in all facets of management in totality.

Consequently decision-making can be viewed as an organisational process, the focus of which includes access to, as well as availability of appropriate information, engineered through formal relationships and subject to catalytic influences of individuals and groups. Systems view of organisation clarifies Management information as one of the important inputs in the process of decision-making. The concept of systems is presented below. Fig. P. 1

Heuristic attempts at understanding the intrinsic elements of decision-making including the intra dynamics, can bring out the importance of information and the essential prerequisites of effective information system, to enable a manager to arrive at a scientific definition of his total operating system. The very prospect of information availability turns him confident to take up decisions of more complex issues. Thus, management information system aids management in making, implementing and controlling organisational activity through appropriate decisions. Viewed on a wider perspective, management information system relates the organisation and the human resource in a reciprocal configuration to facilitate rational decisions.

Information for decision-making may need to be searched, obtained, processed and stored to facilitate retrieval and distribution at appropriate times. In this process, organisation structure plays the role of a filter by facilitating transmission of relevant and timely information to decision-makers, thus determining effectiveness of the organisation itself. The role of transmission channels as vital links in binding the organisational structure, is easily discernible in this context. Management information system can be conceived as multi-level, multi-lateral interface encompassing all the levels of management, appropriately aiding it both by identifying the current states
SYSTEMS CONCEPT-INFLUENCING FACTORS ON INFORMATION

INDIVIDUAL
NEEDS
DRIVES
TENSIONS
EXPECTATIONS
AND
VALUES

GROUP
TRADITIONS
CUSTOMS
MORES
INTERACTIONS
SENTIMENTS
NORMS
ROLES Etc.

ENVIRONMENTAL
SOCIAL
ECONOMIC
POLITICAL
TECHNOLOGICAL

DECISION SITUATIONS

IMPLICATIONS ON DECISIONS

INDIVIDUAL
COMPLIANCE
MOTIVATION

GROUP
ACCEPTABILITY
MORALE

ORGANISATIONAL
EFFICIENCY
EFFECTIVENESS
of resource availability and utilisation, and by indicating rational approaches for optimisation of resource utilisation. Such a dual role ensures appropriate resource inputs for correcting behavioural patterns for obtaining decisions to cover the present and the future, with reasonable degree of probability. Evidently as comprehensive information base, reduces uncertainty condition, it also has the potential to change or modify behaviour and thus can directly influence decisions. Value of information can be seen from the value of change it can effect in the expected outcome of a decision.

Management information needs to be conceived in a systemic framework, because of its usefulness in evolving and developing dynamic interfaces between functional areas, positional responsibilities and accountability, to generate appropriate decisions. In systemic terminology it can be defined as a group of people, a set of manuals and data processing equipment to be used in selecting, storing, processing and retrieving the data, to reduce uncertainty in decision making by yielding information to managers at appropriate times, they can most efficiently and effectively use it.

SCOPE OF THE STUDY:

The rise in importance of the subject of management information has been rather progressive and now it occupies a significant niche in the science of management wherein, it is treated on par with the other primary organisational resource inputs. Such rise in importance overlays the element of decision-making which in turn tends to be an integral part of managerial functions as well as performance. Thus, management information systems aids a manager in his attempts to arrive at appropriate decisions, to counter the sea of uncertainty in the operant environment.

In this attempt to remove uncertainty Management Information System combines the following three heterogeneous elements: (1) The decision maker;
The organisation comprising of individuals, groups and technology and the operant environment. The combination operates as a triad and the decision maker is elevated to a higher plane so that he can see not only the existing operating system in the present context with its problems and uncertainties, along with the past and impending problems arising out of exchanges between environment and organisation. It enables him to visualise the external environment as a supra system with which his organisation enmeshes and also the internal subsystems of his own organisational system—all in the process of balancing and maintaining systemic equilibrium. Further, the continuous interaction between the three systems tends to mitigate the subjectivity in perceptions arising out of individual personality factors. As the learning process continues it may become possible for a decision maker to acquire a more objective view of problems.

The case for appropriate information, both in terms of time and adequacy, in organisations evidently occupies a very important position for various reasons. Decisions and decision-making can be considered as the backbone of organisational activity ranging from routine consequences to matters of utmost importance. Depending upon perceptual profile of the decision-maker on the issue at hand coupled with his personality factors and leadership style, the decision-maker seeks information. Decisions may be routine and programmable or they may be non-routine and thus non-programmable. Again, decision-making may involve the exercise of the choice of an individual or through group consensus. In each case, the demands on information systems tend to be divergent.

The scope of study is confined to analysing information needs, characteristics, origins and probable sources of emergent influences on decisions of unstructured and non-programmable nature. The concept of an open decision
model as an instrument to develop accurate appraisals and judgements for satisfactory solution is also examined.

The basic framework to encompass information generation, storage and transmission along with identification and analysis of various parameters and concepts and their inter-relatedness with decision-making processes are also brought into focus for evolving a descriptive model of Management Information System for decision-making.

With a view to structure a model of information system to aid a decision-maker an empirical survey involving administration of a questionnaire on decision-making processes and the demands for information in various situations of non-programmable nature, was undertaken. The methodology of the empirical survey was limited to administering a questionnaire in addition to interviewing a cross section of decision-makers to obtain a comprehensive understanding of the dynamics of non-programmable decision-making. The systemic practices so observed were compared with the expected descriptive model. As non-programmable decisions in organisations by and large tend to be few as well as common to organisations with some purpose, the field study was enlarged to study decision-making processes in three organisations. These include

1) A medium scale Engineering Industry - Org.A
2) A large scale high technology oriented industry - Org.B
3) A medium scale process oriented industry - Org.C

where necessary, observations were complemented with information obtained with the assistance of individual managers. The field study provided a broad overview of some of the essential elements, which need to be synchronised eventually to bring an information system closer to decision-making situations and processes.

The existing information systems intended to aid managers on unstruc-
tured and non-programmable decisions provide only a partial understanding and prove incomplete in their approach in tackling changing situations. A modest attempt has been made through this study to bridge the gap.

HYPOTHESES:

In tune with scope of the objectives of the study, the following hypotheses were formulated.

1) Unstructured and Non-programmable decision-making is a cyclic process beginning from identification of problem to decision implementation and feedback. The process, synergic by nature generates reciprocal influences between manager - the decision maker, organisation - the canvas for decision implementation and environment - the modifier.

2) Management information system to be effective needs to be sensitive to the dynamics of organisational structure, technology, individual, group and situation.

3) Managerial response to information tends to be proportional to the information system's potential to clarify the decision situation.

4) Managerial decisions establish a state of dynamic equilibrium between various systems of the organisation and its environment through management information system.

LIMITATIONS:

1) Although attempts were made to make a comprehensive study of decision situation as perceived in the study, the researcher could not totally succeed in the endeavour because of busy work schedules and nature of work of the respondents in the sample.

2) In view of the complexity of the sample, the researcher had to rely on his personal experiences whenever necessary.
3) As a rule, the Board Meetings were not open to researcher and as such he had no access to observe the respondents in that situation.

LITERATURE SURVEY:

In the survey of literature for the study, attempts were made to acquire a broad understanding of the role and scope of information in addition to the principles pertaining to management functions of planning, organising, directing and control. This was supplemented by study of contributions of H.A. Simon & C.I. Barnard. These were followed by studies on organisational behaviour, individual and social psychologies. Subsequently, the survey focus shifted to study at understanding various concepts pertaining to leadership and leadership styles, values and their scope in management situation.

Conceptual as well as empirical studies pertaining to decision making situations, and decision-making processes in organisational context were reviewed in the next phase of the survey. During this phase the attention was focussed on the process of making non-programmable non-routine decisions and the theoretical dimensions of decision-making process and the role of managers in the process.

Subsequently studies pertaining to management of data processing and information systems, various characteristics and role of management information in decision-making were surveyed. These were followed by studies on systems approach to management including systems planning and development. Literature pertaining to the mechanics of evolving management systems to assist managers in their decision making, was studied in the next phase.

While the importance of information remains unquestionable, the transmission of it to various decision centers becomes equally important. Yet the transmission itself becomes subject to many tangible as well as intangible bottle-necks preempting its utility. As such the next phase of research was
focussed on the processes of communications in organisation.

Organisation structure being the result of decisions pertaining to task structure, technology being considered in tandem with individual and groups, task fragmentation, specialisation, responsibility, accountability, authority and communications tend to support the organisational structure. Such a support very often tends to be mutual and reciprocal. Information generation depends on the dynamic processes within the structure. Accordingly the literature survey was extended to include of organisational structures and processes.

CHAPTERISATION:

CHAPTER I : ORGANISATIONS - A CONCEPTUAL OVERVIEW:

Organisations are systems composed of numerous subsystems operating in a maze of multiple environments. Management forms one of the most important subsystems designed to integrate and to maintain inter systemic equilibrium through managerial decisions and implementation. Stimuli for a decision may emanate either from the internal environment or from external or at times, from both. These may be distinct and separate from the ones flowing in the wake of decision implementation. Thus organisational structure needs to be conceived as the milieu in which both aspects of decision i.e., the process of making a decision as well as implementing it, take place. As such any effort in developing information system, which by implication is intended to operate as a subsystem within the super system, the organisation, involves adequate perspective study of organisations - concepts, theories and problems. Thus, organisation as a basic matrix for managerial activity is presented in the first chapter.

The other perspectives centering around organisations involve, the influences of environment, technology and the processes of organisation
such as power and its distribution in organisations, motivation, communication, leadership and decision-making. Along with these issues, discussed in this chapter are, formal organisation, characteristics and need, viability of organisation and contingency view of organisation, as these issues are important in identifying the state of dynamic balance between the organisation and the environment. The information need of organisation and the role of decision-makers in facilitating the flow is also analysed in this chapter.

CHAPTER - II : ORGANISATIONS - THE INFORMATION INFRASTRUCTURE:

Information reaches decision points or decision-makers and also across various systemic boundaries through various channels of organisational structure. Information pertaining to implementation of decision are equally structured to reach action points. Further, information regarding the State of implementation, needs to be transmitted back to decision-making centers in order to introduce adequate corrections or reinforcers, which in general parlance is known as feedback. Thus the communication channels for information flow become the integrating factors within the organisation. The variety of barriers to communication flow and the consequent distortions reduce the effectiveness of the element. As such the role of communication channels, information flow therein and the connection between the two elements and their role in facilitating rational decisions, is focussed in this chapter.

CHAPTER - III : MANAGEMENT - LEADERSHIP PROFILES:

The study cognizes the need for a manager to become a leader, assigned with making non-programmable and unstructured decisions - complex in nature, needing perceptive, judgemental, creative and receptive or adaptive abilities. These may include setting goals, building an efficient structure of roles and authority to facilitate goal attainment. Managerial performance in this context depends upon built-in facilities for obtaining information required
for making a decision. Personal values, perspectives, personality traits, determine the attitudinal disposition which in turn greatly affects information analyses. Further, every manager carries the onus of guiding the organisation through and with the efforts of other organisational members. Leadership style, is a natural determinant of the effectiveness in managerial performance. Performance again can be construed as the end product of managerial decisions. As such prevailing concepts on leadership, leadership styles and finally the dynamics of leading, assume great importance in determining the utility of information system, and its philosophy. Hence chapter IV is devoted to discussing the theory and practice of leadership.

CHAPTER IV : MANAGEMENT - DECISION MAKING - SYSTEMS OVERVIEW:

Individual behaviour may be the result of conscious or unconscious selection of a specific course of action from a variety of possible courses of action. Rationality both in decision and behaviour leading to it, becomes a matter of utmost importance if they are to be aligned to achieving specific goals. Limitations on rationality required of the decision maker may be due to a variety of factors such as values, knowledge, perceptual flexibility of decision maker as well as the instrumental value of the decision itself. Decision behaviour may generally follow a stimulus - Response pattern rather than objective rationality i.e., the psychological and social environment of individual tends to screen objective rationality. Further stimuli to the process can emanate both from the internal environment of organisation as well as from the external environment or from both, in the form of energetic exchange through the organisational boundaries. The timing and level of compatibility of information and mode of presentation in conformity with personality of decision maker, tends to be very important. The intra-elemental relationship comes out clearly when conceptualised in a systemic configuration and therefore this
chapter focusses on systemic aspects of the relationship.

CHAPTER - V : DECISION-MAKING - INFORMATION SYSTEMS - INTEGRATION:

The quality of information in terms of adequacy with respect to decision-maker and relevance to the situation by and large, facilitate rationality in decision-making. Thus every user requires to know the mechanisms of maintaining quality of information. Information for a decision-maker shall conform to these two factors and based on the equation, an information system needs to be designed in tune with the technology. Hence the chapter is aimed at the technological bases of information system. The chapter includes analysis of information characteristics, the processes of information search, gathering, and retrieval. These are followed by a discussion of different approaches for design and implementation of information system in organisations.

CHAPTER - VI : EMPIRICAL SURVEY: STATISTICAL ANALYSIS:

The study so far limited itself to theoretical assumptions only. It was considered necessary to study and analyse organisational decision-making processes in practice. The empirical survey was aimed at understanding the entire decision-making process including the supporting information system in practice. The empirical survey involved, administration of a questionnaire on decision-making processes and on the associated organisational situation. The supporting information system was also studied through the questionnaire, closely followed by a study of demands for information and the actual yield to the decision-maker. The empirical study encompassed three organisations. Views of various heads of departments who have actually helped and later actually made non-programmable decisions and decision situations were collected. The unstructured interview method was also adopted deliberately, since opinions solicited are delicate in nature and also reflective of personality of decision makers. The observed processes and information system supporting it were
compared as a measure of validation. Based on empirical survey as well as the theoretical understanding a modest attempt is made to facilitate scientific approach in formulating an organisational frame-work for information system. Thus the empirical survey forms the core of this chapter.

CHAPTER VII: CONCLUSIONS: PROFILES PROBLEMS AND PROSPECTS