INTRODUCTION

THE IMPORTANCE OF INNOVATION IN ORGANIZATIONS

Herbert Simon's (1965) classic book 'Administrative Behaviour' talks of the manager/decision maker who will think of innovations only when the existing practices do not hold promise even for the minimum expected pay off. Things have changed a lot since 1965. In a competitive world of today the decision maker/manager is moved to innovate in a routine manner since any organization can survive only when it maximizes its productivity by volume and quality through cost effective methods and materials. Apart from that when expectations of people keep changing along with growth and development, technology development and resource constraints due to increased population and raising inflation, innovation seems to be the best option for the organizations to survive. No industry is an exception for this.

In the case of building industry, innovations are everyday affair, because building activity is a culmination point where innovations from various industries will have to ultimately reach. This apart, building activity being cost intensive and labour intensive, in general provide a vast scope for innovation. Despite this reality many companies seem to have less ability to innovate (Kaufman, 1971; Vijay Kumar Kaul 1990). Resistance to innovation comes from the classical Weberian bureaucrat (Thompson, 1965). So also companies differ in innovativeness due to ever so many
reasons (Feller and Menzel, 1976). If innovation is a must in the changing industrial scenario then it must be understood through all of its facets.

Definition of Innovation:
Innovation researchers seem to have been debating on the concept of innovation in different ways making the term innovation a muddled parlance in regard to conceptual clarity. At first glance the concept appears to be very simple. An innovation is that useful commodity born out of an invention. But what about when some thing diffuses through the community resulting in few potential adopters adopting the same, for the first time in their life, and use the innovation either in the form of a guiding concept or in the form of a gadget? The literature shows that both of these meanings have been used by innovation researchers. To recapitulate them, we can say that innovation has more than one meaning: a). it is a new idea, product, program or technology b). it is the act of adopting the innovation for the first time as far as the adopter is concerned and the process involved in it. A tremendous volume of work has been carried out on the second meaning of innovation which was some time referred to as diffusion research.

INNOVATION AS A DISTINCT THING
Any technological innovation such as a specific machine, material, chemical, computer system or a set of analytic routine (Yin et al, 1976:4) are few examples of the first type of innovation. Daft (1978) mentioned about the various
organizational activities like procedures for recruitment, resource management and portfolio management under this category. Eveland et al (1977) argued that this definition of innovation as 'a discrete entity' cannot hold good in every situation. An entity is related to n-number of entities. For example, an innovation like a small car made for the purpose of fuel efficiency has other elements like passenger comfort, safety, risk and elements of uncertainty. Any innovation, when it is getting more and more complex, it becomes very difficult to decide whether a particular innovation was innovation at all because of its other attributes.

Barnett (1953) saves us from much of the confusion by his brilliant definition of innovation - "any thought, behaviour, or thing that is new because it is qualitatively different from existing forms". But still the question arises: new to whom? An answer which has the support of many (Zaltman et al, 1973; Becker and Whisler 1967) is: 'new to the adopter'. Some of the definitions which reflect this thinking will include that of Rogers and Shoemaker (1977) - an idea, practice or object perceived as new by an individual; Zaltman et al (1973) - any idea, practice or material artifact perceived to be new by the relevant unit of adoption; Nelson (1968) - a sharp break with established ways of doing things and this essentially creates a new capability; Becker and Whisler (1967) - Innovation is the successful introduction into an applied situation of means and ends that
are new to that situation; Mohr (1969) - makes a explicit separation of invention and innovation - Invention implies bringing something into being; Innovation implies bringing something into use; Zaltman (1964) - adoption as a decision to make full use of new ideas as the best course of action available; Evan and Black (1971) - innovation represents the implementation of something new into the organizational context; Knight (1967) - innovation represents the application of a change which is 'new' to an organization and to the relevant environment; Shepard (1967) - innovation when an organization enacts in a sustained manner something that it did not know how to do something that has done in a sustained way.

Innovation as a process

Under this meaning, innovation is aspected through two different approaches. (a) the activities in innovation like idea generation, development of the product and implementation and diffusion of the same (b) Innovation is viewed only from the view of implementation separating innovation from invention. This means the invention part of innovation is side-lighted. Mohr (1969) says that "invention implies bringing something into being; innovation implies bringing something into use." Some of the popular definition in this regard include that of Thompson (1965) - innovation as the generation, acceptance and implementation of new processes, products or services for the first time within an organization setting; Nelson (1972) - innovation as the
process by which new products and techniques are introduced into the economic system; Schumpeter (1912) - innovation results in the establishment of a new production function - a change in the set of possibilities that defines what can be produced and how; Carroll (1967) - a social process of organizational adoption in contrast to a scientific discovery. In this view organizational innovation represents a major change in the structure and/or procedures (behaviour) or an operating system; Schon (1967) - the process of bringing invention into use.

Definition of Innovation for the Present Study
The meaning of innovation as far as the present study is concerned include the notion of adopting something non-traditional, new idea or practice in the field of residential building construction.

DETERMINANTS OF INNOVATION
Three broad categories of variables are found to determine innovation: (a) attributes of an innovator (b). attributes of organization and its membership and (c). attributes of organizational environment.

ATTRIBUTES OF AN INNOVATOR
Hundreds of studies have been carried out in this area which taken together provide a composite picture of who an innovator is. Rogers and Shoemaker (1971) have summarized the findings concerning the attributes of early adopters of
innovation. The frequently observed attributes are:

a. more risk-taking
b. more educated
c. higher in social status
d. less dogmatic
e. less in cultural belief and traditional norms
f. more knowledgeable of innovations
g. greater exposure to mass media communications
h. higher aspiration
i. more favourable attitude towards credit
j. higher in literacy
k. favourable attitudes towards change
l. more active in information seeking
m. opinion leaders
n. more cosmopolitan
b. higher in social standing
d. better equipped to deal with abstraction
g. high in achievement motivation
n. more professional
p. informal contacts with professionals and other organizations

The attributes presented so far show that innovativeness is a personality trait and there are certain psychological correlates of these innovativeness irrespective of the field of innovation. Any organization which want to be innovative should look for these traits when it selects its members. This is all the more important because as present day research shows innovative personality trait cannot be readily
altered by cognitive techniques (Kirton, 1989) and hence the possibility of training the existing organization members may not be feasible. In this context it becomes imperative that innovative personality is understood in all its facets - vital of them being certain basic personality traits which may interact in unique ways with innovativeness.

INNOVATIVE PERSONALITY
A key assumption underlying Adaption-Innovation theory (Kirton, 1976) is that, as a cognitive style, it relates to the individual's cognitive strategies involved in change (ideation made manifest) and therefore also strategies of creativity, problem solving and decision making, which must themselves be overlapping concepts or even facets of the same concept. A second key assumption is that cognitive style is related to numerous aspects (traits) of personality that appear early in life and are particularly stable, as is cognitive style (Kirton, 1989). This style was called by Kirton as Adaption-Innovation style.

The Adaptor and Innovator
When a habitual adaptor confronts a problem, he will do so by utilizing policies and viewpoints which are already tried and found to be successful. In contrast an habitual innovator might view the problem from a totally new angle. The first exposition of adaptors and innovators (Kirton, 1976) contained many descriptive terms that have since been exhaustively tested by many scholars in several countries.
The description is reproduced below.

The Adaptor

"Characterized by precision, reliability, efficiency, methodicalness, prudence, discipline, conformity. Concerned with resolving residual problems thrown up by the current paradigm. Seeks solutions to problems in tried and understood ways. Reduces problems by improvement and greater efficiency, with maximum of continuity and stability. Seen as sound, conforming, safe, dependable. Liable to make goals of means. Seems impervious to boredom, seems able to maintain high accuracy in long spells of detailed work. Is an authority within given structures. Challenges rules rarely, cautiously, when assured of strong support. Tends to high self-doubt. Reacts to criticism by closer outward conformity. Vulnerable to social pressure and authority; compliant. Is essential to the functioning of the institution all the time, but occasionally needs to be 'dug out' of his system" (Kirton, 1989, pp8-9).

The Innovator

"Seen as undisciplined, thinking tangentially, approaching tasks from unsuspected angles. Could be said to search for problems and alternative avenues of solution, cutting across current paradigms. Queries problems' concomitant assumptions: manipulates problems. Is catalyst to settled groups, irreverent of their consensual views; seen as abrasive, creating dissonance. seen as unsound, impractical; often shocks his opposite. In pursuit of goals treats accepted means with little regard. Capable of detailed routine (system-maintenance) work for only short bursts. Tends to take control in unstructured situations. Often challenges rules, has little respect for past custom. Appears to have low self-doubt when generating ideas, not needing consensus to maintain certitude in face of opposition. In the institution is ideal in unscheduled crises, or better still to help avoid them, if he can be controlled" (Kirton, 1989, pp 8-9).

The above description contains basic trait factors which Kirton terms as Originality, Weberinian, and Mertonian.
Orginality: By orginality he means, "a person has original ideas. He is a stimulant to others. He copes with several new ideas at the same time. He would quickly create than improve. He proliferates ideas and will always think something new when struck. He has fresh perspectives on old problems. He often risks doing things differently and likes to vary set routines at the moments' notice. He prefers to work on one problem at a time and can stand out in disagreement against groups. He needs the stimulation of frequent change". (Kirton, 1976).

Weberian: "Prefers change occurring gradually. He thoroughly masters all details painstakingly. He is methodical and systematic. Enjoys detailed work. He is consistent". (Kirton, 1976).

Mertonian: "He imposes strict order on matters within own control. He fits readily into the system. He is a conformist. He readily agrees with the team at work. He never seeks to bend or break rules. He never acts without proper authority. He is prudent when dealing with authority. He likes the protection of precise instructions. He is predictable. He prefers colleagues who never "rock the boat". He likes bosses and work patterns which are consistent. Works without deviation in a prescribed way. He holds back ideas until obviously needed". (Kirton, 1976).
Personality Correlates of Innovativeness
A number of studies have been conducted correlating measures of personality with KAI scores (for detail description please vide review of literature).

OTHER RELATED PERSONALITY VARIABLES
Adaption-Innovation theory has been conceived as a theory of basic personality, after these results stated coming consistently. This leads encouragement to the thinking that innovative personality be related to several other personality variables that are not studied so far. Some of the important ones are self confidence, locus of control, interpersonal trust and values. Prima-face, these variables seem to be related to innovative personality. These variables are briefly described for the purpose of drawing some parallels between each one of them with KAI.

SELF-CONFIDENCE
Self-confidence as conceived here is a phenomenological construct. It is a characteristic or an aspect of self-concept, and not the self-concept itself. It is an attribute of perceived self (Basavanna, 1975). Basavanna says in general terms, self-confidence refers to an individual's perceived ability to act effectively in a situation to overcome obstacles and get things to go alright. Basavanna (1976) defined a self-confident person as one who perceive himself as socially competent, emotionally mature, intellectually adequate, successful, satisfied, decisive,
optimistic, independent, self-reliant, self-assured, forward moving, fairly assertive having leadership qualities, in general as having positive and constructive self-feeling and evaluation.

LOCUS OF CONTROL

In putting forth the idea of Locus of Control, Rotter (1966) suggested that people differ in their expectations for controlling outcomes. He gave the term locus of control to the place (or locus) where the person sees control as residing. Internals perceive that events or outcomes are contingent on their own actions ("when I make plans, I am almost certain that I can make them work"). Externals, on the other hand, perceive event or outcomes as caused by luck, chance, fate, or powerful others ("It is not always wise to plan too far ahead, because many things turn out to be a matter of good or bad fortunes anyway"). The orientation to one’s outcomes are theoretically applicable to both good and bad outcomes. That is, an internal orientation sometimes implies self-congratulation, and sometimes self-blame. An external orientation means not only lack of credit for success but also lack of fault for failures. Rotter believed that these orientations are very general; they apply to many different kinds of experiences.

It is not necessary to mean that internals are more competent or better adjusted than externals. Internals along with taking credit for success may take self-blame for failures. Thus, an extremely internal person who is failing may be more
upset than a person who is extremely external. This view is complicated by two additional considerations. First, internals should be more likely to try to help themselves when they are down than should externals. Second, helping oneself isn't always easy. This hold out the potential for further self-blame on the part of internals if they are unsuccessful in changing things.

The fact that internals perceive outcomes as dependent on their own effort suggests that, they should be more resistant to interpersonal influence than externals. This has proved to be the case in both conformity research and persuasion research. Internals seem to prefer to make up their own minds rather than being manipulated, even subtly by others. This is consistent with their preference for skill-based activities, as opposed to activities whose outcomes is dictated by change.

Recently, the attribution that people make and the locus of control that they perceive have emerged as important explanations of work motivation. Unlike the other motivation theories, attribution theory is more a theory of the relationship between personal perception and interpersonal behaviour than a theory of individual motivation (Luthans, 1989). Kelly (1973) stressed that it is concerned mainly with the cognitive processes by which an individual interprets behaviour as being caused by (or attributed to) certain parts of the relevant environment. It is concerned with the 'way' questions of motivation and behaviour. Since
most causes, attributes and 'whys' are not directly observable, the theory says that people must depend upon cognitions, particularly perception. The attribution theorists assume that humans are rational and are motivated to identify and understand the causal structure of their relevant environment. Using locus of control, work behaviour may be explained by whether employees perceive their outcomes as controlled internally or externally. Employees who perceive internal control feel that they can personally influence their outcomes through their own ability, skills or effort. Employees who perceive externals control feel that their outcomes are beyond their own control; they feel that external forces control their outcomes.

VALUES
Values are concerned with modes of conduct. They refer to end states of existence. They connote enduring beliefs that a specific mode of conduct is personally and socially preferable to others choices available to the individual (Rokeach, 1968). Once internalized, values become a standard or orientation for the individual to regulate his conduct. Value is a concept accepted in philosophy, ethics and sociology and characterizing the personalized meaning for individuals of certain realities. Values further serve as guiding principles for developing and maintaining attitudes towards relevant objects and situations, judging self and others and comparing oneself with others (Galbriel, 1963; Raths, et al, 1966).
Value orientation is a way of life whereby an individual would differentiate objects by their significance. It is due to value orientations that individuals develop personalized meanings. Value orientation is learned by assimilating social experience and is manifested in personal goals, ideals, convictions, interests and other individual traits. Within the structure of human activity, value orientation is closely connected with cognitive and volitional aspects. They form the essence of personality orientations and express inner foundation of individual attitudes to reality (Petrovsky & Yanoshevsy, 1987).

Values being the link between needs and actions, serve to allocate attention and effort to various needs and also as the basis for emotions. Values exist at different levels with moral values being most fundamental. At a more basic level, values may involve tastes in food, clothing, music etc. (Rand, 1964). Values are regarded as an intervening variable mediating between the antecedent conditions and consequent cognition and action both at personal and social levels. Values are influenced both by the properties of the individual who is engaged in valuing and the characteristics of the objects being valued (Feather, 1975).

Rokeach assumes that the number of values relating to goals or 'end states of existence' (the terminal values) is likely to be very small, while the number relating to means or 'modes of conduct' (the instrumental values) is likely to be rather larger but still much less than the many thousands of
specific attitudes and beliefs that a person has at any one time. Terminal and Instrumental values occupy central positions in the vital system of a person's beliefs and attitudes and changes in them are likely to have widespread effects throughout the system and behaviour. Allport et.al (1960), attempted to classify individuals based on values into personality types as originally suggested by Spranger. They have endeavored to assess the relative strength of six values types viz., Theoretical, Aesthetic, Social, Political and Religious types. The economic -- interested in what is useful and practical; the aesthetic -- his highest values lie in harmony and individuality, pomp and power; the theoretical -- chiefly interested in the discovery of truth for its own sake, in diversity and rationality; the social -- loves people; other persons are ends; he is kind, sympathetic, and unselfish; the political -- interested primarily in power, wants personal power, influence or renown; the religious -- his highest value is the greatest spiritual and absolutely satisfying experience; he is ascetic and looks for experience through self-denial and mediation.

Spranger stresses that one very seldom encounters a 'pure' example of any one of these types; almost all persons are mixtures of all of them in varying degrees. But the components that dominate will have an important effect on a man's decision making.

Values also play a predominant role in all projection about the future. Values reflect our collective priorities, what
we cherish and seek to preserve. Quite often one is unaware of his/her own values and unable to assess objectively how much they influence their behaviour. They are like fish, unable to understand the concept of water because they are immersed in it. It is only when they sense a change in values or encounter people with different values, they become more conscious of their powerful influence.

Changing organizations or theory to reflect new values is no simple matter. Current structures cling securely to the values of the past as little attention is paid to the problem of energy conservation, the environment and human needs. We are reluctant to accept the severity of these crises, and our policy decisions indicate little respect for the true causes of our problems. Scott fears that large organizations may have reached a point where they are capable of generating values of their own, values which perpetuate the status quo, threaten individual freedom, and preserve elite power for managers and owners (William Scott, 1979).

INTERPERSONAL TRUST

Rotter (1954, 1967), based on his social learning theory defines interpersonal trust as the expectancy that the word, promise, verbal or written statement of an individual or group can be relied on. This definition excludes subjective elements such as attraction and to focus on credibility and expectancy. Credibility is to be considered exclusively to refer to, will a person do what he says he will do?
Expectancy implies an estimate of the probability of occurrence of an act, based on past experience. According to social learning theory, a person is seen to develop expectancies for a given behaviour to lead to a particular positive or negative outcomes, and each individual has different expectancies for reinforcement in interaction involving trust. After many experiences with different agents in varying situations, a person builds up generalized expectancies.

Mutual secrets and trust are important in structuring relationships and setting them apart from the rest of society (Simmel 1950). Rempel, Holmes and Zanna (1985) argue that predictability, dependability and faith are important components of trust. Predictability: whether the person behaves in a very consistent manner, dependability: whether the person keeps the promises, faith: whether the person react in a positive way when weakness is exposed.

Interpersonal trust and levels of need for social approval seems to be related. Similarly feeling of trust are related to feeling of control over one's own life. This may be due to the fact that an individual who feels powerless in the phase of events around him, he is also less able to trust others. Similarly, individuals who feels that they are controlled by outside forces seem to have less interpersonal trust (Rotter 1966).
So far we have been concentrating on individual innovator. First, we had discussed about the skills of an innovator. Secondly, we have seen certain psychological qualities of an innovative dissemble from the studies on innovation in various fields. Thirdly, we focused our attention on the basic personality of an innovator. Now it is time for concentrating on the characteristics of organization which are found to facilitate or stultify innovation.

ATTRIBUTES OF ORGANIZATIONS AND ITS MEMBERSHIPS

THE STRUCTURE
It has been argued from the past that bureaucratic organizations stultify innovations (Thompson, 1965). In a very broad sense, innovation is inhibited because of rigid rules, hierarchy, specialization and mechanistic controls. Whereas in an organic organization, creativity and give and take between members are encouraged. The members are not tied down by rules. They take risks which bureaucratic members will not.

As stated, an 'organic' organization will be better able to adapt to environment change through innovation. An organic organization is characterized by high horizontal complexity (the number of sub-units or task specialization in the organization), low vertical differentiation (flat hierarchy/few layers of authority, low formalization (few written rules), and decentralized decision making (Burns and Stalker, 1961).
According to Stephen Robbins (1984), organization structure can be differentiated into three parts: complexity, formalization and centralization. Complexity considers how much differentiation there is in the organization. The more division of labour, the more vertical levels in the hierarchy and the more geographically dispersed the organization units the more difficult it is to coordinate people and their activities. The degree to which an organization relies on rules and procedure to direct the behaviour of employees is formalization. Some organization operate with a minimum of such standard guidelines and some, even quite small in size, have all kinds of regulations instructing employees in what they can and cannot do. The more rules and regulations in an organization, the more formalized the organization structure. Centralization considers where the decision-making authority lies. In centralized organization, problems flow upward where senior executive choose the appropriate action. In decentralized organization, the decisions are passed down to lower levels in the organization.

**Complexity**

According to Aiken et al., (1980), increased horizontal complexity provides a diversity of expertise, leading to identification of a wide range of problems and innovation; cross fertilization of ideas (Aiken and Hage, 1971), constructive conflicts (Lawrence and Lorsch, 1967; Thompson, 1955), and a diversity of incentives/goals (Wilson, 1966; Zald and Denton, 1963). Burns and Stalker (1961); Gordon et.
al (1974); Baldridge and Burnham (1975); Moch and Morse (1971); Cohn and Turyn (1980); Hage (1980) have found a positive relation between horizontal complexity and innovation, though studies of Aiken et al (1980) have failed to confirm the relationship.

With increased structural complexity there is an increase in specialists who handle specialized sub-tasks and initiate search procedures for more efficient techniques to accomplish their goals (March and Simon, 1958). This diversity results in conflict over resources and goals which must be resolved by integrative mechanisms, such as hierarchical decision making or joint policy making by coordinating committees. Both differentiation (in terms of coordinating mechanisms) help to promote innovation. Differentiation seek new solution by creating specialists and integration provide mechanisms to overcome conflict (Lawrence and Lorsh (1967). Thus, there is an increase in the quantity and solution in response to perceived unique problems, as there is an increase in the number of differentiated sub-units.

Formalization

Formalization refers to the degree to which a codified body of rules, procedures or behaviour prescription is developed to handle decisions and work processing (Pierce and Delbecq, 1977). It is a blue print of the ways activities should be accomplished. Typically, it is represented by a printed chart and is set forth in organization manuals, policies, position descriptions and other formalized documents.
The informal organization refers to those patterns of relationships that are not planned explicitly but arise spontaneously out of the activities and interactions of the participants. Informal relationship are vital for the effective functioning of the organization. Frequently, groups develop new means for dealing with important activities. The formal organization is slow in responding to external and internal forces, whereas informal relationships develop to deal with problems (French et al., 1985).

Shepard (1967) indicates that low formalization permits openness in the system and that his openness is a necessary precondition for idea initiation. Knight (1967) argues that routine activities do not induce creative problem solving for those who directed by formalized role prescriptions.

Evan and Black (1967), Mohr, (1969) and Corwin (1969) suggest that proposals are more likely to be adopted and implemented in systems where there are high degree of formalization.

Centralization

Centralized decision making and complex vertical structure impede innovation. The more people who must approve the innovative idea, the less chance it will have of reaching the top (Dunning and Sincoff, 1980). And decentralized authority is thought to give people more of a stake in adaptability and continued strength of the organization (Hage and Aiken, 1967; Burns and Stalker 1961; Cohn and Turyn, 1980). Hage and Aiken (1967) found a positive relationship
between decentralization (participation) and the rate of program change, and a negative relation between innovation and hierarchy of authority (close hierarchy supervision).

According to Wilson's (1966) notion on the relation between decentralization and adoption "... the adoption phase is a political activity and necessitates bargaining. When many high-power groups are engaged in the process, there is a strong tendency that there will be difficulty in reaching an accord, in which case adoption and implementation are not facilitated.

With respect to decentralization and innovation, there are several hypotheses. Decentralization may enhance adaptiveness since local decision makers may react to environmental changes without waiting for decision by their superiors (Hage, 1965; Price, 1968). Blau and Schoenherr (1977) argue that centralization may be conducive to adaptiveness because change depends on a small group (top management group) and depends less on obtaining consensus among large number of people.

Size
Size, greatly affects innovations, not only by promoting complexity (Blau, 1970), but by creating problems of coordination, control and management which in themselves, demand innovative practices. Increased size produces critical masses for certain problems that stimulate the adoption of innovation to handle them. Increased size
expands the possibilities for interacting with the environment and multiply the number of interested outsiders making their special demands. Baldridge and Burnham (1967); Corwin (1975); Moch and Morse (1977); Hage and Aiken (1967); Mohr (1969); Mansfield (1963); Kaluzny et al. (1974); Blau and McKinley (1979); Aiken and Hage (1971); Bingham (1975); Nathanson and Morlock (1980); Debresson (1984); Asc and Audretsch (1987, 1988), found larger organizations to be more innovative.

Galbraith (1956) suggests that larger organizations are more innovative because they bear the cost; they have more resources. Empirical studies have provided some support for this theory (Perry and Kraemer, 1980; Bingham, 1975; Mohr, 1965). Resource availability was not deciding conditions. It only speeds up the innovation. Some studies (Lambright, 1975; Eveland et al. 1977) of innovation have found that resource availability was not a key to eventual adoption. Instead extra resources simply speeded up the innovation process.

Baldridge and Burnham (1975) claim that size promotes adoption of innovation. Size permits specialization and creates 'the critical mass' which facilitates the power base for coalitions which achieve adoption.

The Work Culture
The concept work-culture as defined and understood here is relevant to innovation because innovation needs certain
situation at the physical and psychological level. Work culture can either facilitate or stultify innovation. Hence a brief consideration of the topic is attempted here.

Organization differ in their customs and traditions, in what is valued, in the way they feel to us, and in the way they operate. It is hard to describe the various differences between two organizations, but we can know that they are different. Some of these differences are evaluated as favourable or unfavourable. But there appear to be patterns of organizational characteristics that might be referred as part of organizational culture.

Edgar Schein (1985), who has done considerable research and writing on the concept, has defined organizational culture as:

"a pattern of basic assumption - invented, discovered, or developed by a given group as it learns to cope with its problems or external adaptation and internal integration - that has worked well enough to be considered valuable and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems."

An organization can be perceived as a system of norms and values, with shared symbols and shared belief that tie members together and form a common organizational culture (Aygyris, 1964; Katz and Kahn, 1978; Likert, 1961). Jay (1971; 183) said that an organization resembles a tribe and proposed that "A good way to find the central faith of a tribe is to get its members to see who can formulate the biggest blasphemy'. Norms are internalized standardized conduct that
create regularities in behaviour, and values channel perceptions. As Wieland and Ullrich (1976; 260) indicated, 'supportive behaviour on the part of a superior may be interpreted as an indication of weakness in a power-ridden work culture. Identical behaviour may be viewed as a sign of strength' in a participative work culture. Katz and Kahn (1978; 389) argued that:

'Group norms and ideology are influential in affecting the behaviour of members not only because of conformity and affiliation needs but also because the ideology of the system gears into the very functions in which individuals are engaged and invests them with a significance and meaning they would not otherwise possess'.

A culture typically is created by a founder or top level manager who forms a core group that shares a common vision. This group acts in concert to create the cultural values, norms and climate necessary to carry to this vision. In maintaining this culture Richard Pascale, (1985) developed several steps such as the following: careful selection of entry-level candidates; on-the-job experiences to familiarize the personnel with the organization's culture; mastery of one's job; meticulous attention to measuring operational results and to rewarding individual performance; careful adherence to the organization's most important values; a reinforcing of organizational stories and folklore; and finally recognition and promotion of individuals who have done their job well and who can serve as a role models to new personnel in the organization.
In the present study, the concept of work culture is used in a very limited manner. The principal of the firm were asked to give their response for the following two questions, "How do you define a successful project?" and "What do you aim for at your work?"

These two questions were expected to elicit responses from the principals ranging from pure economic reasons to religious reasons. The pattern of reasoning by any firm should be differentiating it from yet another. A cluster analysis of these response will identify by the firms with similar patterns. A cultural tenor running through each pattern could be suitably labeled and matched to innovative and non-innovative organizations. Standardized measures of organization culture with inputs on individual initiative, risk tolerance, direction, integration, management support, control, identity, reward system, conflict tolerance, communication pattern and other items are available (Glaser et al, 1987). But in the present study only two questions (Blau and McKinley, 1979) were used in view of the limited use of the concept of organizational culture. The term work culture is used in continuation of the word work-motif used by Blau and McKinley (1979).

ATTIBUTES OF ORGANIZATIONS ENVIRONMENT

The concept of environment is fundamental to a system view of organizations. All living systems including complex organization, are embedded in a network of relationships
involving other systems. The organization depends on the environment for resources and support and the environment depends on the organization for outputs and jobs.

Environment has been defined as "the aggregate of all the external conditions and influences affecting the life and development of an organism" (Webster's New Collegiate Dictionary). The aim, then, with either individual organisms or communities, is to distinguish between factors arising from outside the system and factors inherent in the system itself.

The concept of environment is so broad that has little practical value. In a literal sense, environment is everything outside the organizations boundaries (Robey, 1982). A smaller set, called the task environment is narrowed from the concept of environment by some early research (Williman Dill, 1958). The task environment refers to those conditions external to the system that have immediate impact on internal functioning. An organizations task environment is composed of suppliers, consumers, competitors, regulatory bodies, labour markets, the scientific or technical reference groups and other relevant units (Thompson, 1967; Lawrence and Lorsch, 1967; Robey, 1982).

The environment of the organization appears to be extremely important in two ways. An organization may be more likely to innovate when its environment is rapidly changing than when
it is steady. In this sense, "environment" includes such factors as market conditions, technological changes, clientele needs and demands, and the labour market (Burns and Stalker, 1961). In addition, innovation should also be more likely when the social environment to which an organization (or an individual) belongs has norms that favour change than when its norms do not favour change (Rogers, 1962).

In summary it can be said that, organizations do not exist in isolation, they are open in interaction with their environment. Many environmental factors affect organizations and the behaviour of people in them. Example, even the general level of education in the outside population determines the types of skill available and also affects the personalities, aspiration, and abilities of individuals within organizations.

THE RATIONALE FOR THE PRESENT STUDY

The concept innovative personality as has been explained elsewhere seem to be relevant to innovativeness of the organization. Innovative person is one who is characterized as a tangential thinker who may approach a task in an unexpected angle. He is a problem seeker in order to challenge the concomitant assumption. He can make the group to break with the past. In the context of the present study an innovator would be expected to try new methods, designs, practice and styles in constructing residential buildings.

Examining the definitions of the concept self-confidence, it
is expected to have a good relation with innovation. A self-confident person is one who perceive himself socially competent, emotionally mature, intellectually adequate, successful, satisfied, decisive, optimistic, independent, self-reliant, self-assured, forward moving, assertive, having leadership qualities, risk-taker, which coincide with certain qualities of the innovator given by Rogers and Shoemaker (1972). An innovator aspires to bring new innovations. Self-confidence could be said to be central to this process. A person who is strongly grounded in innovative style of functioning will be attracted to a challenging situation. He might not perceive the world to be hostile. He might be in a position to see positive things in a neutral environment, whereas a person whose self-confidence is low, a favourable environment might appear to be skeptical. Viewed in this way in a competitive world of architecture, a residential building constructor (principal of the firm) must compete with his counter parts by exhibiting his innovative and novel ideas by taking risks, satisfying his client, having leadership etc.

In a residential building construction firm, the principal of the firm needs support from his co-workers and from his organizational environment, for which trust is the only determinant. Mutual secret, trust, faith and promises are important in structuring these relationships. Workers with high interpersonal trust have positive attitudes towards work and feel more integrated with the work group. This will give
raise to information exchange and communication within the group, creating innovative and novel ideas. Keeping the above facts in mind, an innovative residential building constructor can be considered as a person who carry the group along with him to accomplish his goals by showing mutual interpersonal trust.

As stated elsewhere, an externally oriented or controlled person perceive an event or outcome happen to him/her are the result of fate, luck, chance or power beyond one's personal control and understanding. An internally controlled person perceive an event or outcome happen to him or her, dependent on his or her own behaviour. It is quite clear from the explanation that an innovator cannot be an external because he often take risks in doing things differently and implies self-blame for failures. Internality in people seems to be relevant to active tendencies (to control or change their own ideas and action) of an innovator.

Values refer to orientations towards what is considered desirable or preferable by social actors. As such, they express some relationship between environmental pressures and human desires. Values are also seen as the central in organization of personality to the extent they constitute the self. So, an attempt is made to see the relative prominence of six basic interests or motives in personality; theoretical, economic, aesthetics, social, political and religious. Examining the six values and the personality of an innovator, an innovative residential building constructor
is considered to be theoretical (intellectual, scientific and less dogmatic) and economic (profit making, dominate, risk taking).

The word culture stands for a comprehensive conceptualization of the shared norms, perception, skills, orientations, belief systems etc. In the present study the question is raised, whether the culture that is operative within the decisions of the firms principals will make a difference among the high and low innovative firms in fulfilling the objectives of the organizations.

Earlier approaches in an organizational context emphasized that size, organizational complexity and environment were related to innovation and stressed that organizations differ on innovation with respect to these organizational characteristics. An attempt was made in the present study to examine the relationship between the organizational characteristics and innovation in residential building construction.

PROBLEM FOR THE PRESENT STUDY

The study has been conducted among the residential building constructors (principals engaged in the construction of residential buildings) for the following reasons. The field of residential building construction is marked principally by two types of shortages – material and space. One example of material shortage is the case of wood. There are so many substitutes for wood in the market. Similarly, apartment
houses and ingenious way of utilizing spaces for more than one purpose meet the challenge of space shortage. As has been stated elsewhere, the field of residential building construction is a fertile field for innovation and as such the residential building constructors provides a good sample for studying the personality characteristics of an innovator.

OBJECTIVES OF THE PRESENT STUDY

1. To find the differences between the high and low innovative individuals on certain psychological variables like Kirton Adaption-Innovation personality, Self-confidence, Internal-External Locus of Control, Interpersonal Trust and Values (Theoretical, Economical, Aesthetic, Social, Religious and Political).

2. To find out the difference between the high and low innovative firms in respect of organizational, environmental and work culture variables.

3. To find out those personality variables which effectively discriminate the high innovative individuals from those of the low innovative individuals.

The above objective are rewritten in the context of the present study.
1. To find the difference between the principals of high and low innovative firms engaged in construction of residential buildings on certain psychological variables like Kirton Adaption Innovation personality, Self-confidence, Internal-External Locus of Control, Interpersonal Trust and Values (Theoretical, Economical, Aesthetic, Social, Religious and Political).

2. To find out the difference between the high and low innovative firms in respect of organizational, environmental and work culture variables.

3. To find out those personality variables which effectively discriminate the high innovative principals from those of the low innovative principals.

LIMITATIONS OF THE STUDY

The sample of the present study consisted of engineers engaged in construction of residential buildings. Since generalizing from the results of this study to that of architects or civil engineers in general is fraught with the following difficulties.

a. The nature of the work of an architect is more of creativity than of innovation.
b. Civil Engineering is a vast area involving the construction of bridges, canals, roads etc. and as such may be vastly different from residential building construction.

c. Moreover in addition to the inherent difficulties as shown above, the criteria for deciding upon something as innovative would be very much differing across these three areas.

Another major limitation is in the construction of groups constituting innovative and less-innovative firms. Here the responses of the principals alone have been considered. The reason for doing so has been explained elsewhere. Notwithstanding the reasons, this is a limitation to certain extent.

OPERATIONAL DEFINITION OF TERMS

The concepts will have the following meaning as far as the study is concerned.

Kirton Adaption-Innovation Personality: The Kirton Adaption-Innovation personality is operationally defined as the score obtained by the individual on the Kirton Adaption-Innovation Inventory (adapted by Venkatachalam, 1978 from Kirton, 1976).

Internal External Locus of Control: The internal-external locus of control is operationally defined as the internal, powerful others and chance scores on the Internal-External Locus of Control Inventory (Venkatapathy, 1984).
Interpersonal Trust: The interpersonal trust is operationally defined as the scores on the Interpersonal Trust Scale (Christopher, 1980).

Self-Confidence: The self-confidence is operationally defined as the scores on the Self-Confidence Inventory (Basavanna, 1975).

The Values: The values is operationally defined as the theoretical, economical, social, political and religious scores on The Study of Values Scale (Allport, Vernon and Lindzey, 1960).

Principal of the firm: The principal of the firm is operationally defined as the person who owns a company engaged in building activities and employ people to assist him in the field of residential construction and who is accountable for the credit of the firm.

High Innovative firm: A high innovative firm is operationally defined as that firm which has been rated by as high innovative firm by two experts commissioned for this purpose.

Low Innovative firm: An low innovative firm is operationally defined as that firm which has been rated as low innovative firm by two experts commissioned for this purpose.
Size of an organization : The size of an organization is operationally defined as the number of staff working for 8 hours (full-time) in an organization.

Organizational complexity : The organizational complexity is operationally defined as the number of units under the top executive.

Formalization : Formalization is operationally defined as the procedures governing different aspects of work, and the written rules and regulations in the organization.

Environmental complexity : The environmental complexity is operationally defined as the number of experts in allied field from whom the principal and the architectural firm get assistance to carry out their project.

Task-Diversity : The task diversity is operationally defined as the number of services a firm can provide on the list of "comprehensive services" developed by the American Institute of Architects (Blau and McKinley 1979).

Work Culture : The work culture is operationally defined as the ideas expressed by firm's principal to the open-ended question "How do you define a successful project?" and "What do you aim for in your work?"