Building Technological Capability through Innovations in Telecom Sector

Ranju Katoch*, Prof. (Dr.) Versha Mehta**

Innovation and technological capability of a firm are widely recognized as critical factors contributing to the firm's performance, competitive advantage and sustained commercial success in the market and, therefore, they have been extensively investigated from different perspectives for a long time now. Organisational climate plays an important role for innovation of an organisation. Based upon the review of literature on the innovation climate and the importance of organizational technological capability building, it can be safely concluded that there need to be more arguments concerning the relationship between Innovative climate and Technology capability building of organizations. Although many studies have been conducted individually either on Innovation climate or on technology capability of the organization but this research is an effort to study the relationship between Innovation Climate and Technological Capability Building in the Telecom sector. The data was collected by means of questionnaire based on the identified factors on the selected sample. Analysis of the collected data was done by using descriptive statistics, Correlation, Regression, Multiple Regression etc.

Keywords: Innovation, Innovation Climate, Competition, Technology Capability Building.

Introduction

A number of factors, which have emerged over the past decade or so, have shaped the telecommunication industry. A driving force has been technological developments, which have altered the shape of the industry. Increasingly wireless technology, on-line transactions, value-added content, and application offerings are changing the telecommunications landscape. In addition, there is increasing conversions of technologies and markets. Privatization and competition is also dramatically changing the industry and there has been a significant increase in the number of service providers in this industry. The twin forces of technology change and a highly competitive industry environment means that the service providers have to continually look to introduce innovative products and services and improve their operating efficiency and

service levels. Telecommunication service provider are under tremendous pressure to provide a wide range of innovative products and service at internationally competitive prices and with increased value for money.

The pace of global, economic, and technological development makes change an inevitable feature of organisational life (Andriopoulos and Dawson, 2009). It appears that in this changing liberal policy environment, the development of technological capability is essential in the telecom sector. In spite of the crucial role of technological capability in enhancing the competiveness of the firms very few studies on the question of how technological capability of the organisations can be improved. Organisational change and Innovation have become management "buzz-words" in the past two decades (King and Anderson,

*Research Scholar, The Business School, University of Jammu.
**Director, The Business School, University of Jammu.

2002). The concepts of change, creativity and innovation have never been more topical, especially given the commercial context of fierce business competition, shorter product life cycles and customers that are more demanding. Increasingly, long-term commercial success is based on an ability to manage change, to nurture creativity and to promote innovation (Andriopoulos and Dawson, 2009).

In general, innovation is defined as the adoption of an idea or behaviour that is new to the adopting organization (Rogers, 2003). The innovation can be a new product, a new service, a new technology, a new way of doing things, or a new market. Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome. Innovation provides the firm not only with the immediate results in terms of a new service, product or process, but also in terms of the increased long-term knowledge base of the firm, that in turn can be a source of further innovations, performance improvements and competitive advantage.

The growing importance of Innovation in telecom industry mainly stems from the recent growth of demand and competitiveness in this sector, and from the rapid advances in the technologies available for telecom organizations. Survival and success of telecom companies highly depends on their ability to quickly provide the required amount of services to the customers and products that can satisfy customers changing needs in an effective way, to adequately react to competitors' innovations, to take advantage of the new technological developments available in the marketplace, and to guarantee high quality and safety. In order to be competitive and meet these requirements, companies operating in the telecom sector need to

become more innovative and increase their technology capabilities (Hjalager, 2002; Rodriguez and Burguet, 2003).

With advances in research, the concept of Innovation has also been refined and a more comprehensive understanding of Innovation has been emerged. Innovation has emerged as a resource or competence that enables organizations to change as the environment changes and thus to obtain long-term, lasting competitive advantages (Panayotopoulou and Papalexandri, 2004). Organisations must be aware of the need to develop a perception of support for Innovation where the management's values become employee practices. Perception of support for Innovation is a measure of the organizations orientation toward Innovation. Organisations can nurture perception of support for Innovation by means of different dimensions of the organizational climate. Organizational climate can be described as the shared perceptions of organizational members who are exposed to the same organizational structure.

Given the current paradigm of a rapidly changing business environment in which success relies heavily on human capital, it is of paramount importance that organisations create a workforce that can continually create and implement Innovation. One way for organisations to do this is through the establishment of a strong climate for innovation. (Van de Ven, 1986) suggests that in order for innovation to occur in organizations, employee attention needs to be directed toward creating new products, processes, and services crucial to the organizations survival. A strong climate for innovation may act as a way of focusing employee attention and creating a collective mentality that is supportive of innovation. Several studies reported that the most frequently cited reason given for change initiatives failure such as Business Process Re-engineering or TQM, etc. was due to a neglect of the

organisations climate (Cameron and Quinn, 2006).

A commonly used definition of organizational climate describes it as employees shared perceptions about the environment in which they work, and the general sense of which behaviours will be rewarded (Schneider, 1990). In addition, organizational climate can be examined in terms of a particular referent such as innovation (Schneider and Reichers, 1983). A climate for innovation, therefore, is the perception employees hold about innovation in the organization and it consists of workers' feelings, attitudes, and behavioural tendencies measured by their perceptions (Payne & Pugh, 1976). It can also believe climate for organisational innovation is a useful proxy when it is difficult to get direct behavioural measures of innovation across diverse organisations and industry sectors. In a strong climate for innovation, workers feel like innovation is valued and believe they will be rewarded for innovative behaviours. In a weak climate for innovation, workers do not feel innovation is valued and fear they will be ridiculed if they suggest a new idea. Given the importance of having a workforce that is continuously creating change and innovation, there is an advantage for companies, which establish strong climates for innovation. To create Innovation, organisation must focus employees' attention on developing new products, processes, and services. Several researchers have indicated that a climate for innovation may act as this continual instigator and redirect employees' behaviour toward innovation (Amabile, 1988; Isaksen, 1987; Kanter, 1988). Thus, when a crisis hits, a company with a strong climate for innovation might excel at focusing employee attention toward the developing problem in order to quickly generate solutions. Conversely, when an organization with a weak climate for innovation faces a crisis, it may take longer to focus employee attention towards finding potential solutions.

In sum then, a strong climate for innovation aids in directing employee attention toward Innovation. Organisations seeking to create innovation, therefore, could potentially benefit from the establishment of a strong Climate for Innovation. In business organizations, the structure of the market (competition, concentration), technological dynamism, and market growth are considered the prominent environmental factors influencing technological product/service and process innovations (Cohen and Levin, 1989; Nohria and Gulati, 1996).

In this modern age, technology is the most important resource of any nation. The fierce competition situation is arising because of globalization and privatisation and forcing the organizations across the globe to realize that their survival is not feasible in the absence of Innovative practices. The industries should invoke and gear up for Initiatives to build technology capabilities. Competition and long-term growth can be achieved through Innovation Climate, efficient technology management, and technology progress. Technological developments are also occurring very rapidly. Continuous renewal and adaptation is required to stay in business. The current dynamic environment demands organizations to change. Sustainable development cannot happen without innovation. It is very essential for an organization to change the way it operates and change the products and services it provides. Technologies are continuously changing and are a critical contributor to the turbulent markets.

Innovation Climate and technological capability of a firm are widely recognized as critical factors contributing to the firms' performance, competitive advantage and sustained commercial success in the market and, therefore, they have been extensively investigated from different perspectives for a long time now. Technology capability encompasses the organisation ability to identify its technological needs and to select the technology to fulfil the needs; operate, maintain, modify

and improve the selected technology; and promote technical learning (Kumar et al., 1999). The major mechanism of Building Technology Capability of a firm is Innovation Climate. Although there are a number of recent studies investigating Innovation in the telecom industry (Fache, 2000; Hallenga-Brink and Brezet, 2005; Hjalager, 2002). The existing literature is still in a relatively early development phase and does not address the issue of Technology Capability Building through Innovation Climate, despite its importance and need for a better understanding of this process in Telecom context.

Review of Literature

Research has called for organizations to be more flexible, adaptive, entrepreneurial, and innovative to effectively meet the changing demands of today's environment (Orchard, 1998; Parker & Bradley, 2000; Valle, 1999). Many studies have been carried out on change processes on the individual and groups levels (Poole, Van de Ven, Andrew H. 2004). The change and Innovation research has been carried out by psychologists (King and Anderson, 2002), management scientists and organisational sociologists (Graetz et al. 2006), (Henry, Mayle, 2002), (Paton, McCalman, 2001), (Senior, 2002), organization behaviour specialists (Mowday and Sutton, 1993) in addition to scholars from other disciplines (Clarke, 1994). The thorough literature, though remarkable and inspiring, lacks cohesiveness and integration. Innovation is not simply developing new ideas, but rather is "the generation, acceptance and implementation of new ideas, processes, products or services" (West and Altink, 1996). 'Creativity' is commonly used as a synonym of 'Innovation'. Although the two terms are greatly connected to each other, they refer to two different but related concepts. "At its simplest, creativity is the thinking process that drives employees to generate new and useful ideas. Without the development of new ideas, the ability to respond to dynamic market pressures, or to imagine alternative

ways of doing things, organizations may lose their competitive position and become staid and unresponsive to the shifting demands of their customers" (Andriopoulos and Dawson, 2009).

Studying innovation has received increased attention. The pressure to present new products mainly triggers this increased interest in 'Innovation' for customers. Innovation refers to the introduction of any new product, process, or system into an organization (Suranyi-Unger, 1994). The word innovation is derived from the Latin word Novus, or new, and is alternatively defined as "a new idea, method or device" or "the process of introducing something new" (Gopalakrishnan and Damanpour, 1994). West and Farr (1990) define innovation as the intentional introduction and application within a role, group, or organization of ideas, processes, products, or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization, or wider society. Hamel (2006) described innovation more broadly as a marked departure from traditional management principles, processes and practices or a departure from customary organizational forms that significantly alters the way the work of management is performed.

Innovation is divided into two types: Technical Innovation, which is related to "the implementation of an idea for a new product or a new service, or the introduction of new elements in an organizations production or service operations", and Administrative Innovation, which "occurs in social systems of an organization, like the implementation of a new way to recruit personnel, allocate resources and structure tasks, authority and rewards. It comprises innovations in "organizational structure and in the management of people" (West and Altink, 1996). The adoption of innovation means that the innovation is new to the adopting unit (Angle and Van de Ven, 2000); it intends to derive anticipated benefits from changes that the

innovation may bring to the organization (West and Anderson, 1996).

The adoption of innovation can be the direct result of managerial choice or can be imposed by external conditions. For instance, the adoption of a new strategy, structure, or reward system may be stimulated by a performance gap because of internal inefficiency or stimulated by environmental change. Regardless of the internal or external origin of the impetus for change, innovation adoption is a means of creating change in the organization to ensure adaptive behaviour and is intended to change the organization so that it maintains or improves its level of performance or effectiveness. The adoption of innovation can be a means of changing the organization in response to environmental demands and constraints by exploiting environmental opportunities. Innovation scholars have often posited that the primary stimulus for organizational innovation and change come from the external environment; hence, characteristics of an organization's environment may be critical to its ability to innovate (Camison-Zornoza, Boronat-Navarro and Segarra-Cipes, forthcoming; Pierce and Delbecq, 1977; Tornatzky and Fleischer, 1990).

Innovation is often expressed through behaviours or activities that are ultimately linked to a tangible action or outcome. Examples of this include the implementation of ideas surrounding new product/services or modifications to existing ones (product or market focus), restructuring or cost savings initiatives, enhanced communications, personnel plans (process related), new technologies (technology/research and development based), unique employee behaviours (behavioural based), or organizational responses to opportunities (strategic) and unscripted situations (Martins and Terblanche, 2003; Robbins, 1996; West and Farr, 1990). In these situations, the metric for success is dependent on the nature of the outcome itself and is often measured

against changes in performance. Barrett and Sexton's (2006) view that innovation is both an end and a means in achieving sustainable competitiveness.

According to (Buckler and Zien, 1996) Innovation is the purpose of the whole organisation a broad activity. In this kind of culture, new ideas come forward into an atmosphere of enthusiastic support and a desire to contribute to them, even though everyone knows that the majority of these ideas will not make it to market. Innovative companies are on the lookout to continually refresh this climate, because it can be undermined. Thinking "outside the box" is certainly a major characteristic of an innovative climate (Buckler and Zien, 1996). Schneider and Reichers (1983) define organizational climate as shared employee perceptions of organizational policies, practices, and procedures. Climate is shared among employees and therefore defined by how employees collectively experience the organization. Damanpour and Schneider (2006) asserted that strategic leadership research indicates that top managers influence organizational outcomes by establishing organizational culture, influencing organizational climate, and building the capacity for change and innovation. In this context, the climate for innovation is a direct result of top managers' "personal and positional characteristics" (Damanpour & Schneider, 2006, p. 220).

Organisation climate plays an important role for the innovation of an organisation. (Ekvall and Ryhammar, 1999) have found that there are important connections between innovative organisations and a creative climate. The innovation climate that is the degree to which an organisation offers its employees support, and encouragement to take initiative and explore innovative approaches that influences the degree of actual innovation in that organisation (Martins and Terblanche, 2003; Mumford and Gustafson, 1988). Many authors (Van de Ven, 1986; Amabile, 1988; Smith, 2000;

Unsworth and Parker, 2003) have found that individual innovation helps to attain organizational success. Employee innovative behaviour depends greatly on their interaction with others in the workplace (Anderson et al., 2004; Zhou and Shalley, 2003). According to (Damanpour and Schneider, 2006), the climate for innovation is a direct result of the top manager's personal and positional characteristics. Innovative organisations have the capacity to adapt to constantly changing environments in order to survive, and these adaptive organisations require a climate that stimulates creative behaviour (Ekvall, 1999).

According to (Ekvall, 1990), innovative organisations score high in the following dimensions challenge/ motivation, freedom, idea-support, trust, dynamism, humour, debate, risk-taking and idea-time. According to (Nystrom, 1990), a climate that supports innovation can enable its members to generate and implement creative ideas more effectively. Mumford and Gustavson (1988) stated that organizational innovation depends on the climate for innovation. Different arguments have been advanced on the relationship between size and innovation. Some scholars propose that large organizations are more innovative because they have more financial resources, diverse facilities, professional and skilled workers, higher technical potential and knowledge and better scale economies for raising capital (Fennel, 1984; Hitt, Hoskisson and Ireland, 1990; Nord and Tucker, 1987). Others argue that small organizations are more innovative because they can make quicker decisions to go ahead with new and ambitious projects, have less bureaucratic and more flexible structures and greater ability to adapt and improve, and have less difficulty in accepting and implementing change (Damanpour, 1991; Nord and Tucker, 1987).

Studies of organizational innovation have found that senior executives influence the adoption of innovation by creating a favourable climate toward innovation (Damanpour, 1991; Dewar and Dutton; 1986; Hage and Dewar, 1973). Top executives' favourable attitude toward innovation facilitates the initiation of innovation by building feelings of confidence and providing support to organizational members for proposing new ideas (Mumford, 2000). It also facilitates adoption decision because strategic decision-makers with a more favourable attitude toward innovation would more likely decide to adopt innovative ideas that depart from existing practices, instead of those that are more consistent with current practices, and allocate resources to acquire and implement them. Successful implementation of innovation requires laying the social, technical and intellectual groundwork, building coalitions among different constituencies and helping coordination and conflict resolution among units and members (Damanpour, 1991; Mumford, 2000). An innovation climate occurs when top managers decide to go ahead with the new idea and allocate resources to it. Initiation and implementation, on the other hand, require cooperation and commitment of non-managers. Successful implementation requires continued commitment of top managers to the innovation, involvement and support of middle managers, and motivation of organizational members or clients to use the innovation (Dougherty and Hardy, 1996; Klein and Sorra, 1996).Organisation heavily influence organizational capabilities by establishing organizational climate, motivating and enabling managers and employees, and building capacity for change and innovation (Daft, 2001; Elenkov, Judge and Wright, 2005; Yukl, 1999). Witt and Beorkrem's (1989), measure identified nine organizational characteristics that influence and promote innovation and creativity: 1) freedom to decide work assignments, 2) good project management, 3) sufficient resources, 4) encouragement of new ideas, 5) organizational norms of cooperation, innovation, and freedom to fail 6) recognition/reward of innovation 7) sufficient time to think creatively 8)

challenging work and, 9) urgency/pressure from outside sources to accomplish something important. Top managers affect innovation adoption because they modulate the process of scanning the environment and formulating policy to respond to environmental change; they control resources and influence major decisions, especially strategic decisions. Top managers are a potent force for or against innovation, especially if decision-making power is concentrated in their hands (Dewar and Dutton, 1986), and are largely responsible for the cultural values that prevail in support of innovation within the organization (Bantel and Jackson, 1989; Elenkov, Judge and Wright, 2005). Thus, top manager's personal and positional characteristics, functional and general management expertise, and attitude toward change influence organizational climate conducive to innovation (Ekvall, 1996; Hoffman and Hegarty, 1993; West and Anderson, 1996).

Greater environmental complexity leads to more numerous, specialized and interconnected organizational parts, stimulating higher rates of innovation and change (Daft, 2001; Huber et al., 1993; Meyer and Goes, 1988). The availability of financial resources promotes organizational innovation and the lack of resources inhibits it (Damanpour, 1991; Nohria and Gulati, 1996). Access and ability for contact and information exchange with external organizational systems are also essential for innovation (Fennel, 1984; Kimberly, 1978).

According to (Khandwalla, 1984), the management of an innovative organisation should be willing to take risks and must believe in flexibility and adaptability. Nagabrahmam (1980) observed that departmental climate and commitment of leadership to the innovation were crucial for the success of innovations in organisations. In a study of an Indian scientific research organisation, Dayal (1991) noted lack of open communication, resulting in the predominant feeling of distrust and insecurity, as one of the main factors

inhibiting innovations. Tesluk, Farr, and Klein (1997) focused on how organizational culture and climate influenced creativity at the individual level. Drawing on the work of the scholars described above, among others, Tesluk et al. identified five dimensions of organizational climate that influence creativity, including goal emphasis, means emphasis, reward orientation, task support, and socio emotional support. Kanter (1988) states that innovation is most likely to occur in organizations that (a) have integrative structures, (b) emphasize diversity, (c) have multiple structural linkages inside and outside the organization, (d) have intersecting territories, (e) have collective pride and faith in people's talents, and (f) emphasize collaboration and teamwork. Amabile (1998) identified six support scales that they hypothesized would differentiate between high-creativity climates and low creativity climates, including (a) organizational encouragement, (b) supervisory encouragement, (c) work group supports, (d) freedom, (e) sufficient resources, and (f) challenge. Nystrom et al. (2002) observed that organisations with more resources are more likely to invest in innovation because they can afford to take innovation related risks and absorb the loss caused by failures.

As a response to increasingly intensified globalisation accelerated technological updating and continuously increasing demands for new products or services, opportunities constantly arise in the market, stimulating firms involved to respond. Innovation scholars confirm that the stimulus of firm-level innovation can come from external environment (Damanpour & Schneider, 2006; Thornhill, 2006). Van de Ven (1986) suggests that in order for innovation to occur in organizations, employee attention needs to be directed toward creating new products, processes, and services crucial to the organization's survival. A strong climate for innovation may act as a way of focusing employee attention and creating a collective mentality that is supportive of innovation. Given the importance of having a workforce

that is continuously creating change and innovation, there is an advantage for companies, which establish strong climates for innovation.

Owing to the above literature review on Innovation Climate and Technology capability building, it can be concluded that there are rare arguments concerning the relationship between Innovation Climate and Technological Capability Building. Honouring this argument with respect to Innovation supportive climate and Technology Capability Building, it should be worthwhile investigating the relationship between Innovation climate and Technology Capability Building. Based upon above review on the innovation climate and the importance of organizational technological capability building, it can be safely concluded that there need to be more arguments concerning the relationship

between Innovative climate and Technology Capability Building of organizations. Although many studies have been conducted individually either on Innovation climate or on technology capability of the firm but this research is an effort to study the relationship between Innovation Climate and Technology Capability Building of the organization in Telecom sector.

The Proposed Model

A model of the relationship between Innovation Climate and Technological Capability building is proposed based on the review of the Technology Capability Building and Innovation Climate literature. The model developed for this study postulates that innovation Climate contributes in Technology Capability Building is presented in Fig. 1.
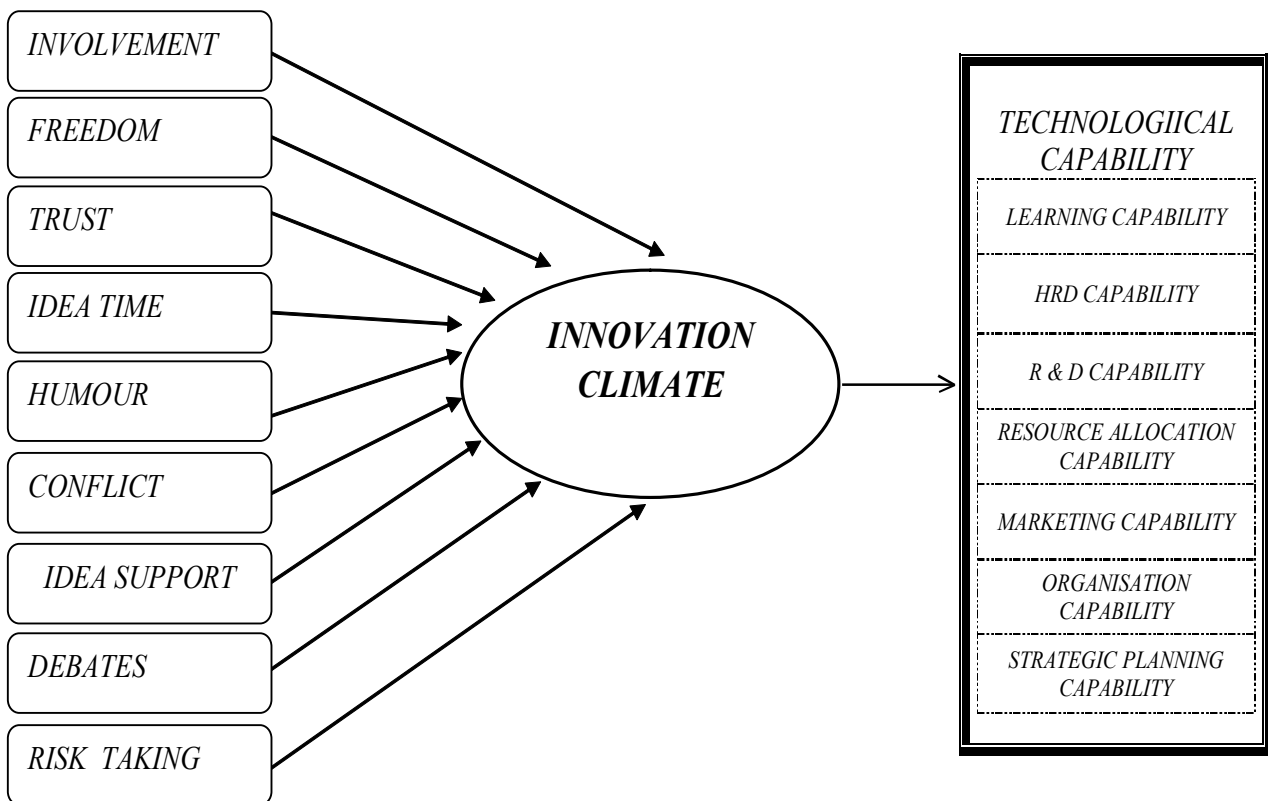
Fig. 1. Conceptual Model

Figure -1: Proposed Model Showing the Effect of Innovation Climate On Technological Capability Building.

Objectives

The objectives of the study are as follows:

1. To study the relationship between Innovation Climate and Technology Capability Building.

2. To analyze the effect of Innovation climate on Technology Capability Building in the select companies.

3. To suggest a model for enhancing Technology Capability of the Organization.

Research Methodology

The scope of the study extends to the Telecom Sector. For the purpose of the study, 2 Telecom organisations are chosen namely BSNL and Aircel. The study has been conducted in Jammu and Kashmir. The respondents are the employees working in these organisations.

Sample of the study: To study the relationship between Innovation Climate and Technological Capability, in total 60 employees were selected. The sample was randomly selected.

The research study was conducted by collecting both primary and secondary data. Primary data have been collected by a means of questionnaire. Secondary data was obtained from various books, journals, published papers, newspapers, websites etc. A standardised Innovation Climate questionnaire (Source: Isaksen & Ekvall, 2007) contained 62 (55+7) items was used. Each of the items was rated on the Five-point Likert type scale anchored by "strongly agree", "agree", "neutral", "disagree", "strongly disagree" respectively referred to points 5, 4, 3, 2 and 1.

Data Analysis and Results

Table 1 Summarizes Value of Cronbach's' alpha of the items. Hence, we could conclude that the items were valid and reliable measurement for the study. Mean ratings that indicated perceived importance of variables idea time, debate and idea support are the important one.

Table 1

DIMENSIONS	Mean	Standard Deviation	Cronbach's Alpha
Challenge/Involvement	3.35	0.924	.86
Freedom	3.38	0.043	.74
Trust/Openness	3.13	.159	.83
Idea-Time	3.87	.252	.93
Playfulness/Humour	3.51	.151	.91
*Conflict	2.17	.113	.76
Idea-Support	3.46	.079	.95
Debate	3.60	.141	.88
Risk-Taking	2.80	.152	.71

*Negative variable

Spearman's Rank Correlation Coefficient:

For the purpose of the study, the two variables viz. Innovation climate and Technological Capability Building has been taken. By using spearman's rank correlation method, the obtained value in table 2 of r = .742. It shows that the relationship further between innovation climate and Technological Capability Building is positive (r=.742)

Table 2

R	t	Sig
.742[a]	8.431	.000

Both the variables show a positive relationship among themselves so; the purpose of studying these two variables simultaneously has been served. The two variables are related to each other and mutually dependent on each other. For testing the significance of the relationships, t test has been used. The value of t is 8.43. The relationship between the innovation climate and Technological Capability Building is significant. Therefore, on the basis of rank correlation the relation was observed to be positive between the Innovation Climate and Technological Capability Building. On the basis of t test, it is found to be significant.

Effect of Innovation Climate on Technological Capability Building

On the basis of previous research results, the innovation climate has been taken as an independent variable which has further 9 sub factors: Involvement, Freedom, Trust, Idea-Time, Humour, Conflict, Idea- Support , Debates And Risk Taking can be named as X1, X2 . .. X9. An effort has been made to find out the sub-factors, which have marked influence on technology capability building.

Regression analysis for Innovation Climate and Technology Capability Building

Innovation climate has 9 sub-factors Involvement, Freedom, Trust, Idea-Time, Humour, Conflict, Idea-Support, Debates and Risk Taking, Now the effect of 9 sub-factors on technology capability building (Table 4). The results are as under:

Here r^2 is equal to .551, which indicates the fit is better. Calculated value of F is 71.083, which shows that regression analysis as a whole is significant.

Table 3

R^2	F	Sig
.551	6.083	.000[a]

In order to investigate the process of building technological capability through innovation climate, the regression analysis was done, with technological capability as dependent variable and following independent variables: Involvement, Freedom, Trust, Idea-Time, Humour, Conflict, Idea- Support, Debates, and Risk Taking. The regression results in table 3 indicate that the variables together explain 55% of the variation in technological capability (R^2=0.551) and the model is statistically significant at the 0.000 level (F-test).

According to table 4 X7 (Idea Support) has the highest coefficient value i.e. = .207 and proclaims that, for building the technological capability, the climate should be supportive, ideas and suggestions are received in an attentive and professional way by bosses, peers, and subordinates. Possibilities for trying out new ideas are created. The atmosphere should be constructive and positive when considering new ideas. Next factor X5 (Playfulness/Humour), the value of coefficient is .170. The spontaneity and ease displayed within the workplace. A relaxed atmosphere, People having fun at work. The atmosphere should easy-going and light-hearted effects the technological capability in organisations. Further factor X8 (Debates) the value of coefficient is .145, the debating, many voices are

Table 4 Regression analysis for Innovation Climate and Technology Capability Building

VARIABLES	B Coefficient	Std. Error	t	Sig
X_1	.112	.065	1.726	.031
X_2	.122	.015	1.060	.024
X_3	.090	.047	1.876	.056
X_4	.118	.084	1.399	.018
X_5	.170	.059	2.877	.006
X_6	-.120	.077	-1.549	.028
X_7	.207	.075	.366	.016
X_8	.145	.086	1.688	.040
X_9	.116	.062	1.867	.008

heard and people are keen to put forward their ideas for consideration and review. People can often be seen discussing opposing opinions and sharing a diversity of perspectives and thus enables and improves building of technological capability through innovation. However, at the same time X3 (Trust) the value of coefficient is .090 revealed that the degree of emotional safety in relationships, When employees trust each other, individuals can be genuinely open and frank with one another. People can count on each other for personal support enables and improves technological capability through innovation. If we see significance column at 5% level of significance all factors X1, X2, X3, X4, X5, X6, X7, X8, X9 are significant statistically, out of them X6 i.e. conflict have negative effect but significant with technological capability, which makes it clear that the presence of negative personal and emotional tensions in the organization effect the technological capability of the organisation.

Main Findings and Suggestions

The spearman's rank correlation method, points out that there is positive relationship between Innovation Climate and Technological Capability Building. This relationship found to be significant also on the basis of t test.

The multiple regression analysis shows that on the basis f-test, the regression as a whole is significant for Innovation Climate and Technological Capability. Out of the 9 factors of Innovation Climate, Conflict has significant but negative effect with Technological Capability. Idea Support, Humour and Debates also have great influence on Technological Capability Building.

The findings of the study are useful for identifying the problems of employees related with creating proper organisational climate for innovation in telecom sector. Particularly, it is helpful for 2 companies of this industry,

taken up for study purpose. It also prepares the ground for working out relevant remedial measures to strengthen the system. In this study, the correlation and regression analysis gives overall positive results so, a management must take up both the variables i.e., Innovation Climate and Technological Capability simultaneously if we want the better results and improved performance of the organisation. For Technology capability building and innovation to occur at a faster and continuous rate, the presence of an innovation climate should be encouraged which effects the technological capability building of the organisation. In this regard, the case organization should be looking into ways of building its Technology Capability by: (1) giving more freedom for employees to try out ideas and voice out opinions, (2) making the climate more open and trustworthy by having emotional safety in relationships, (3) giving more time for members to elaborate new ideas, (4) displaying more spontaneity and ease in actions, (5) reducing the presence of emotional tensions (conflicts), (6) supporting new ideas brought up, (7) injecting liveliness within the workplace and, (8) having more courage to take risks on opportunities.

Two main areas for future research are recommended. First, the study was focused on explaining the process of achieving high technological capability, not on company's economic performance. The study would therefore benefit from detailed analysis of relationship between technological capability and performance. Secondly, a study of a larger sample of companies could be conducted in order to include in the analysis greater number of independent variables that can possibly be related to technological capability.

Refrences

Amabile, T.M. (1988). *A model of creativity and innovation in organisation*, in Haw, B.M. and Cummings, L.L. (Eds), Research in Organizational Behaviour, 10, 123-67.

Andriopoulos, C. & Dawson, P. (2009). *Managing Change, Creativity, and Innovation*, London: Sage Publications.

Anderson, N.R., de Dreu, C.K.W. and Nijstad, B.A. (2004). The routinization of Innovation research: a constructively critical review of the state-of-the-science, *Journal of Organizational Behaviour*, 25(2), 147-74.

Bantel, K. A. and S. E. Jackson (1989). 'Top Management and Innovations in Banking: Does the Composition of the Top Management Team Make a Difference', Strategic Management Journal, 10(S), 107-124.

Barrett, P., & Sexton, M. (2006). Innovation in small, project based construction firms. *British Journal of Management*, 17, 331-346.

Buckler, S.A. and Zien, K.A. (1996). From Experience: The Spirituality of Innovation: Learning from stories. *The Journal of Product Innovation Management*, 13(5), 391-405.

Cameron, K.S. & Quinn, R.E. (2006). *Diagnosing and Changing Organizational Culture*, Revised Edition edn, Jossey-Bass, CA, USA.

Camison-Zornoza, C., M. Boronat-Navarro and M. Segarra- Cipres (forthcoming) '*A Meta-Analysis of Organizational Innovation: Moderator Effects and Internal and Market Variables*'. In: J. Saee (ed.), Contemporary Corporate Strategy: Global Perspectives. London: Routledge.

Clarke, L. (1994). *The Essence of Change*, (1st edn), Hertfordshire: Prentice Hall Europe.

Daft, R. L. (2001). *Organization Theory and Design. South*-Western, Cincinnati, OH.

Damanpour, F., & Schneider, M. (2006). Phases of the adoption of innovation in organizations: Effects of environment, organization and top managers. *British Journal of Management*, 17, 215-236.

Damanpour, F. (1991). 'Organizational Innovation: A Meta- Analysis of Effects of Determinants and

Moderators', *Academy of Management Journal*, 34, 555-590.

Dewar, R. D. and J. E. Dutton (1986). 'The Adoption of Radical and Incremental Innovations: An Empirical Analysis', *Management Science*, 32, 1422-1433.

Dougherty, D. and C. Hardy (1996). 'Sustained Product Innovation in Large, Mature Organizations: Overcoming Innovation-Organization Problems', *Academy of Management Journal*, 39, 1120-1153.

Klein, K. J. and J. S. Sorra (1996). 'The Challenge of Innovation Implementation', *Academy of Management Review*, 21, 1055-1080.

Ekvall, G. and Ryhammar, L. (1999). The creative organizational climate. Its determinants and effects at a Swedish University. *Creativity Research Journal*, 12, 303-310.

Ekvall, G. (1996). 'Organizational Climate for Creativity and Innovation', *European Journal of Work and Organizational Psychology*, 5, 105-123.

Ekvall, G. (1990). Work Climate. Manual Form A. Stockholm: *G. E. Organizational psychology*.

Elenkov, D. S., W. Judge and P. Wright (2005). 'Strategic Leadership and Executive Innovation Influence: An International Multi-Cluster Comparative Study', *Strategic Management Journal*, 26, 665-682.

Fennel, M. L. (1984). 'Synergy, Influence, and Information in the Adoption of Administrative Innovations', *Academy of Management Journal*, 27, 113-129.

Graetz, F., Rimmer, M., Lawrence, A. & Smith, A. (2006). *Managing Organisational Change*, 2nd Australasian edn, John Wiley & Sons, Australia.

Gopalakrishnan, S., & Damanpour, F. (1994). Patterns of generation and adoption of innovation in organizations: Contingency models of innovation attributes. *Journal of Engineering and Technology Management*, 11, 95-116.

Hage, J. and R. Dewar (1973). 'Elite Values Versus Organizational Structure in Predicting Innovation', *Administrative Science Quarterly*, 18, 279-290.

Hamel, G. (2006). "The why, what and how of innovation management", *Harvard Business Review*, 84(2), 72-84.

Henry, J. & Mayle, D. (eds) (2002). Managing Innovation and Change, 2nd edn, London: SAGE Publications,

Hitt, M. A., R. E. Hoskisson and R. D. Ireland (1990). 'Mergers and Acquisitions and Managerial Commitment to Innovation in M-Form Firms', *Strategic Management Journal*, 11(S), 29-47.

Hoffman, R. C. and W. H. Hegarty (1993). 'Top Management Influence on Innovations: Effects of Executive Characteristics and Social Culture'. *Journal of Management*, 19, 549-574.

Kimberly, J. R. (1978). 'Hospital Innovation Adoption: The Role of Integration into External Informational Environments', *Journal of Health and Social Behavior*, 19, 361-373.

King, N. & Anderson, N. (2002). *Managing Innovation and Change: A Critical guide for Organizations*, (2nd edn), Thomson, London.

Martins, E.C. and Terblanche, F. (2003), "Building organizational culture that stimulates creativity and innovation", *European Journal of Innovation Management*, 6(1), 64-74.

Mumford, M.D. and Gustafson, S.B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin*, 103, 27-43.

Mowday, R. & Sutton, R. (1993). "Organizational Behaviour: Linking Individuals and Groups to Organizational Contexts", *Annual Review Psychology*, 44(1), 195-229.

Nohria, N. and R. Gulati (1996). 'Is Slack Good or Bad for Innovation?', *Academy of Management Journal*, 39, 1245-1264.

Nord, W. R. and S. Tucker (1987). *Implementing Routine and Radical Innovations*. Lexington Books, Lexington, MA.

Nystrom, H. (1990). *Technological and market innovation: Strategies for product and company development*. Chichester: Wiley.

Orchard, L. (1998). Managerialism, economic rationalism and public sector reform in Australia: Connections, divergences, alternatives. Australian *Journal of Public Administration*, 57(1), 19-32.

Parker, R., & Bradley, L. (2000). Organizational culture in the public sector: Evidence from six organizations. *International Journal of Public Sector Management*, 13(2), 125-141.

Paton, R. & McCalman, J. (2001). *Change Management: A guide to effective implementation*, (2nd edn), London: SAGE Publications.

Pierce, J. L. and A. L. Delbecq (1977). 'Organization Structure, Individual Attitudes and Innovation', *Academy of Management Review*, 2, 27-37.

Poole, M.S. & Van de Ven, Andrew H. (eds) (2004). *Handbook of Organizational Change and Innovation*, (1st edn), New York: Oxford University Press.

Robbins, S.P. (1996), *Organizational Behavior: Concepts, Controversies, Applications*, 7th ed., Prentice-Hall, Englewood Cliffs, NJ.

Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. *Personnel Psychology*, 36, 19-39.

Senior, B. (2002). *Organisational change*, (2nd edn), England: Pearson Education Limited.

Suranyi-Unger, T. (1994). Innovation: In D. Greenwald (Ed.), *Encyclopedia of Economics*. New York: McGraw-Hill.

Tornatzky, L. G. and M. Fleisher (1990). *The Process of Technological Innovation*. Lexington Books, Lexington, MA.

Unsworth, K. and Parker, S. (2003). *Proactivity and innovation: Promoting a new workforce for the new workplace*. In D. Holman, T. Wall, C. Clegg, P. Sparrow and A. Howard (Eds.), The New Workplace: A Guide to them Human Impact of Modern Working Practices. West Sussex, UK: Wiley.

Valle, M. (1999). Crisis, culture and charisma: The new leader's work in public organizations. *Public Personnel Management*, 28(2), 245-257.

Van de Ven, A. H., H. L. Angle and M. S. Poole (2000). *Research on the Management of Innovation: The Minnesota Studies*. New York: Oxford University Press.

Van de Ven, Andrew H. (1986). Central Problems in the Management of Innovation. *Management Science*, 32(5), 590-607.

West, M.A. & Altink, W.M.M. (1996). "Innovation at Work: Individual, Group, Organizational, and Socio-historical Perspectives", *European Journal of Work and Organizational Psychology*, 5(1), 3-11.

West, M. A. and N. R. Anderson (1996). 'Innovation in Top Management Teams', *Journal of Applied Psychology*, 81, 680-693.

West, M.A. and Farr, J.L. (1990), *"Innovation at work", in West, M.A. and Farr, J.L. (Eds)*, Innovation and Creativity at Work: Psychological and Organizational Strategies, Wiley, Chichester, 3-13.

Yukl, G. (1999). 'An Evaluative Essay on Current Conceptions of Effective Leadership', European *Journal of Work and Organizational Psychology*, 8, 33-48.

Zhou, J. and Shalley, C.E. (2003). *Research on Employee Creativity: A Critical Review and Proposal for Future Research Directions*, in Martocchio, J.J. and Ferris, G.R. (Eds.) Research in Personnel and Human Resource Management, Elsevier, Oxford.