Knowledge, as the postulation and practice of new relations and as an outcome of organizational processes, provides the greatest leverage for firms to survive, compete, and conquer greater heights in the world of business. Knowledge is very much intrinsic to the organization and it is wrong to consider that it is always imported from outside the organization. It implies that the extrinsic aspect of knowledge is to be minimized considering the endogenous processes in the arenas of cognition and organizational processes. The heart of the problem is the enmeshing of the knowledge development components with the sophisticated aspects of individual and organizational functioning. The hunt for knowledge involves configuring and reconfiguring the organizational processing systems in the context of managerial cognitions so as to create knowledge continuously. Knowledge creation and management are accomplished through unique organizational and cognitive processing.

THEORETICAL DEVELOPMENT OF THE STUDY

Data are facts and figures which are of little use by themselves; arranged into a useful context, they constitute information. Linking related information to one another and drawing a conclusion or inference from that leads to the development or creation of knowledge (Daft, 2004). Knowledge may be generally defined as the relationship that fills the gap in the existing state of affairs or one that adds, multiplies, subtracts, or divides the present state of affairs into a more meaningful or manageable form.

Knowledge that surfaces out of the interconnected data and information is viewed from different perspectives. It is generally divided into explicit and tacit forms — the former is formal and systematic knowledge stored in hard form and the latter is based on personal experience, rules of thumb, intuition, and judgment and is not found in written or documented form (Daft, 2004). The nature of knowledge can also be understood from other specific perspectives or approaches that attempt to broaden its realm of influence in organizations. From the perspective of who holds a particular form of knowledge, that is, the individual or the organization, there comes the duality between individual knowledge and organizational knowledge and this demands different sets of management strategies in knowledge creation (Bhatt, 2002). Secondly, knowledge is understood in terms of “static substance knowledge” and “dynamic process knowledge” in which the former implies product or service knowl-
edge which is relatively unchanging and the latter implies changing knowledge that needs to be constantly adapted to the conditions (Gao, Li & Clarke, 2008). Moreover, static knowledge implies fixed and saturated knowledge used in the established and unvarying processes whereas the dynamic form of knowledge is varying, proactive, and revolutionary. In the complexity-based perspective of E2E model, the non-linear relationships among existence, data, information, knowledge, wisdom, and enlightenment are highlighted (Faucher, Everett & Lawson, 2008). The non-linearity implied in relationships suggests the unpredictable permutations and combinations giving rise to knowledge, wisdom, or enlightenment.

Shadbolt and Milton (1999) classify knowledge into declarative knowledge of facts and statements and procedural knowledge (knowledge of how to do things), static and dynamic knowledge (unchanging substance related and changing process related knowledge) abstract knowledge (applies across many situations) or specific knowledge (applies to a few situations and tacit (unwritten), and explicit knowledge (written).

The well-known classification of knowledge, made by Nonaka and Takeuchi (1995) based on Polanyi’s (1966) distinction, into tacit and explicit forms, has captured the imagination of many researchers. This classification however is not well-grounded and is not relevant in the management context since it is based on philosophical assumptions (Nonaka, Krogh & Voelpel, 2006). Secondly, tacit and explicit knowledge are predominantly personal in character and all knowledge especially organizational knowledge has a collective orientation (Tsoukas & Vladimirou, 2001). Thirdly, knowledge is to be defined and understood in terms of its application, and in relation to the context and utility rather than being treated as an abstract concept (Akbar, 2003). Besides tacit dimension of knowledge can not easily be explained or operationalized. Finally, Gourlay (2006) states that tacit and explicit dimensions are “radically subjective” in nature, devoid of consistent and valid referentials. As tacit and explicit dimensions are vulnerable to varied interpretations, another definition of knowledge is required in terms of its application and operational utility.

Based on the above, it may be surmised that knowledge acquires different forms based on the criteria of generalist and specialist nature of its use, the content nature, and the way knowledge is created and managed. It may be stated that knowledge creation and management cannot be restricted to recording and manipulating explicit/tacit knowledge and that it has to go further based on process-mechanisms and transformation that does not depend upon the content type alone (Gao, et al, 2008) or the specific categories of knowledge. It means that by studying the process dynamics or the transformative mechanisms, organizational scientists would be in a better position to understand knowledge creation and management.

**Active and Dormant Knowledge**

In the face of the over-generalized classification of knowledge, an attempt is made to draw another classification of knowledge generated and used in multiple organizational processes. Knowledge forms generated and utilized in multiple organizational processes as explained here stem from two process-based classifications of active knowledge and dormant knowledge. As it is process-based, the state of knowledge moves on a continuum where inhibitory and incremental phases can be plotted. It means that the study of knowledge from the angle of organization must be approached based on the usability of knowledge in productive terms.

Dormant knowledge is both hidden and undiscovered, sometimes subliminally used and not yet brought forward into easily understandable form. Dormant knowledge is present in concealed form, for example, a new marketing strategy not isolated or implemented so far. It is present in interpersonal relationships, manufacturing activity or financial activity. It may be influencing the present understanding directly or indirectly so much so that the manager always sidelines it from consciousness. It is a form of sleeping knowledge that is enmeshed within the intricacies of organizational processes which is not systematically retrieved so as to put into systematic and effective use. The form of knowledge that is dormant to one person may not necessarily be dormant to another which means that dormancy is always relative and is not an organization-wide phenomenon.

Active knowledge is consciously recognized and is being used in the organizational processes in full measure or not in full measure. It may be unique to the organization; part of it is shared with others and part can be patented. Active knowledge enables easy and quick
accomplishment of organizational, group and individual goals. It is available with members in stored form of books, e-forms, and oral and non-verbal forms.

The main difference between active and dormant knowledge lies in the extent of conscious application, in terms of the level of manipulation and to what extent it is perceived by humans or executed by machines. Thus on a continuum that ranges from left to right, on the left, there is perfect dormant state of knowledge (inhibitory in nature) and on the right, there is perfect state of active knowledge (multilayered processes).

As knowledge is created and managed in different organizational processes, different forms of knowledge are used. Interpersonal knowledge relates to active and dormant forms across the spectrum of interpersonal relations. Interpersonal knowledge covers knowledge of the efficiency of other co-workers, the personality process, work styles, the level of commitment to the organization, team behaviour, trust (Lane, Salk & Lyles, 2001), and cooperative behaviours (Shyamkumar, 2010) besides the socio-psychological processes.

Creative and innovative knowledge as active and dynamic processes become fundamental to all forms of organizational innovation. Knowledge-based resources of the firm and unique knowledge processes have a direct and stimulating effect on the innovation processes (Kaya & Patton, 2010; Lopez-Cabrales, Perez-luno & Cabrera, 2009).

Problem-solving knowledge can be in the form of social and technical systems (Easterby-Smith & Araujo, 1999), which means that the entire range of organizational processes is subjected to the emergence of the problems. Moldoveanu (2009) has identified two types of problems: P type (easy ones) and NP type (difficult ones). The general tendency is to engage with P type problems and to set aside NP type problems (Moldoveanu, 2009). Based on this observation, problem-solving knowledge may be interpreted as organizational resources or capabilities that circumvent path-dependency, structural inertia, commitment (Schreyogg & Klieschibri, 2007), and cognitive rigidity.

Strategic knowledge pertains to the knowledge structures of strategy formulation/development and implementation. Knowledge structures of managers in the strategic realms of Miles and Snow’s classification as specified by Kabanoff & Brown (2008) point to distinct forms. In other words, the strategic orientations of the firms determine the strategic knowledge base of the organization which in turn is the product of the complex managerial cognitions of strategy. Thus, the strategic knowledge base of the organization primarily depends upon the collective managerial cognitions and the nature of the information-processing.

Functional knowledge is the form of organizational knowledge used in the overall functioning and structure of the organization. Creation of organizational knowledge is mediated by the mental models or knowledge structure of managers or group of managers which, for example, is changed by ‘observe-assess-design-implement’ OADI-learning cycle (Bogenrieder, 2002).

**Process Dynamics of Knowledge Creation**

Knowledge creation theories range from Nonaka & Takeuchi’s (1995) SECI model to information processing theories (Paavola, Lipponen & Hakkakaini, 2004) of various levels. Nonaka & Takeuchi (1995) provide a ground-breaking analysis of knowledge creation in Japanese firms. In this theory, knowledge is created by the mechanisms of socialization (social interactional activities), externalization (developing concepts using tacit knowledge), combination (combining elements of tacit knowledge), and internalization (formation of individual mental models). Gourlay (2006), while questioning the four modes of knowledge conversion, differentiates between non-reflectional behaviour (tacit knowledge) and reflectional behaviour (explicit knowledge). Shadbolt & Milton (1999) differentiated the use of knowledge, which also implies the creation of knowledge, based on analytic task and synthetic tasks.

Shariq (1997) observes that knowledge theory is to be developed in an interactive and dynamic context where human cognitions are to be strongly represented. It leads to the view that knowledge creation is firmly entrenched in organizational processes and human cognitions. Using a human factors perspective, Fu, Chui & Helander (2006) note that in the area of knowledge creation and management, little research is done with a focus on cognitive and social psychological variables including internal human activities. Beech (2002) has approached knowledge creation from the perspectives of psychodynamics, social construction, and complexity theory whereas Paavola, et al (2004) go by the knowledge crea-
ation metaphor of mediated intelligent activity.

In the context of these different perspectives, diverging interpretations, and a lack of theory development, there is the need for a systematic and comprehensive theory of knowledge creation (Rich, 1991) that gives an accurate account of the process-mechanisms involved in organizational knowledge creation and also possibly management. According to Augier & Vendela (1999), knowledge creation and development is to be understood in relation to the way we define and relate knowledge to organizational processes which means that the ambiguity surrounding the very term 'knowledge' is to be solved before attempting a theory of knowledge creation.

SECI Model Revisited

It can be seen that the four knowledge conversion processes of SECI model can be subsumed under managerial cognition and organizational or social processes which are the paths of knowledge creation meaning that greater elaboration and explanation of these processes bring out more clearly the mechanisms of knowledge creation. The SECI model variables of socialization and externalization are organizational processes whereas combination and internalization are cognitive activities. It may be pointed out that the use of the variables, organizational processes, and managerial cognition greatly simplifies the understanding of the mechanisms of knowledge creation.

Information processing theory with its explanatory and descriptive power, which becomes a basis for managerial performance (Ramanujan & Cooper, 1994), explains the mechanisms involved in the processes of attention, selection, and internalization of information so as to produce a derived output (Lachman, 1996). The informational inputs pertaining to the organizational processes received by the organizational participants are transformed in multiple cognitive magic boxes of processing that result in the production of new knowledge. Overriding the behavioural interaction emphasized in other models, an information processing model seeks to bring out the diversity of cognitions (Daniels, Johnson & Chernatony, 1994) that activate the reinterpretation and recentering of the knowledge field.

The mental processes that get embedded in the transformation of information systems become the focus of a study in a cognitive analysis of knowledge creation. In the cognitive analysis of information processing, researchers have identified three routes of processing: serial, parallel, and hybrid (Kantowitz, 1996), which are to be differentiated in terms of sequential and simultaneous use of data.

Managerial cognition perspective, a derivative of the information processing theory, puts forward the view that the structure and functions of the cognitive processing of the managers in the form of knowledge structures shape the organizational activities. The knowledge structures of managers are the mediating variables of organizational performance and that complex and dynamic environments create in managers corresponding knowledge structures of different use (Kabanoff & Brown, 2008). Executives as cognizers must evaluate the information available and put it into good use in the knowledge development process (Tyler & Steensma, 2007).

Cognitive processes or the operations of the mind structure are better understood in the view of mind as an information processing machine (Wilson, 1996). Cognitions which are “rock-solid discoveries and which remain so until challenged” (Antaki, 2006) form the base structure and the super structure of individual knowledge of managers as well as organizational knowledge. It can thus be stated that the mediating variables of organizational performance and that complex and dynamic environments create in managers corresponding knowledge structures of different use (Kabanoff & Brown, 2008). Executives as cognizers must evaluate the information available and put it into good use in the knowledge development process (Tyler & Steensma, 2007).

Mental or cognitive models (Johnson-Laird, 1989) of managers are one of the means to achieve high performance (Gary & Wood, 2010). As continuous representations of reality, mental models in individual and shared use bring about better analysis of organization leading to better outcomes. The typical operations of a mental structure involve cognition, memory, divergent production, convergent production, and evaluation (Colman, 2001).

Heterogeneous and homogeneous managerial cognitions pave the way for unique knowledge creation and complex cognitions and knowledge structures of managers heighten their performance (Mc Namara, Luce & Tompson, 2002). It has been found that the absorptive capacity of individuals and firms to value, assimilate, and utilize new knowledge differs which explains the different patterns of cognitions (Lane and Lubatkin,
Differential and unique managerial cognitions that become the basis of knowledge structure are individually and collectively construed by managers (Daniels, et al, 1994). In the functional levels, cognitive processes distinguished by attention, planning, information coding, and knowledge base result in individual differences (Das & Misra, 1995). The point to be noted is that managers or organizations differ in their need for and pattern of cognitions. A high need for cognition, an individualized functional specialty, generates the processing of massive and complex data in greater breadth and depth (Levin, Huneke & Jasper, 2000). In the cognitive field of operation, which is used to organize, categorize, retain, and process knowledge, top performing managers are found to behave differently with regard to the use of processing strategies (Walker, Kapelianis & Hatt, 2005).

As knowledge is socially constructed (Lang, 2001), knowledge creation involves the consideration of interaction among people, technologies, techniques, and culture (Bhatt, 2002). Social interaction and, more specifically, organizational interaction processes are to facilitate and enhance knowledge development (Renko, Autio & Sapienza, 2001; Haas & Hansen, 2007). Knowledge creation is thus consequent to varied social interactions of different patterns and texture (Raza, Kausar & Paul, 2007). In the analysis of organizational processes from the perspective of knowledge creation, the consideration of learning organization assumes significance as the structure and nature of organizational knowledge is dependent upon individual learning and organizational culture (Song & Chermack, 2008). In considering the subject of a learning organization, Argyris (1999) divides them into seven subfields: socio-technical systems, organizational strategy, production, economic development, systems dynamics, human resources, and organizational culture. Knowledge used in organizations thus differs as to the nature of its content, which means that multiple organizational processes require different types of knowledge. Learning organizations embody social and behavioural interactions that become the mainstream of knowledge creation.

It is understood that learning organizations are always on the path of sustained growth and competitive advantage. Such is the case that organizations these days overwhelmingly create the conditions necessary for learning organizations (Peters, 1995). Practitioners show greater interest in creating organizational learning processes so as to place the firm ahead (Easterby-Smith, Snell & Gheradi, 1998). Garvin (1993) describes a learning organization as an organization skilled at creating, acquiring, and transferring knowledge and at modifying its behaviour to reflect new knowledge and insights. He brings forward five skills required for a learning organization: systematic problem solving, experimenting with new approaches, learning from one’s own experience and history, learning from others’ experience and history, and transferring knowledge quickly through the organization. Organizational learning involves the use of organizational process related knowledge to change and improve them in a continuous manner (Cummings & Worley, 1993). Organizational learning revolves around the processes of generating and applying knowledge in organizational activities. The distinction made between adaptive learning and generative learning brings out the degree of learning complexity involved in organizational learning (Luthans, 1998). The reactive response of adaptive learning is a form of single-step learning where the organizational learning lags behind the required changes to which organization is adapted whereas generative learning is productive and proactive. It is a total reframing or re-centering of an organization’s experiences related to work and the organization is put on the track of generating situations of learning so as to be ahead of the environmental contingencies (Luthans, 1998).

Cummings & Worley (1998) have identified the characteristics of organizational learning modes in which the organizations’ structures are characterized by team work, strong lateral relations, and networking across organizational activities so as to facilitate the frequent exchange of information within and without the organization. Secondly, information processing systems of organizations provide the infrastructure for organizational learning. The higher the capacity of the organization to process the information, the higher will be the learning capacity to create knowledge in adaptive and generative situations.

Finally, in the organizational learning mode, the members carry out the learning processes of discovery, invention, production, and generalization. Organizational learning members within the enriched circle of learning are to use the principles of cognitive and experiential learning in an effort to broaden the horizon of learning, aiming at greater efficiency and effectiveness. Organizational learning involves the use of organizational process related knowledge to change and improve them in a continuous manner (Cummings & Worley, 1993). Organizational learning revolves around the processes of generating and applying knowledge in organizational activities. The distinction made between adaptive learning and generative learning brings out the degree of learning complexity involved in organizational learning (Luthans, 1998). The reactive response of adaptive learning is a form of single-step learning where the organizational learning lags behind the required changes to which organization is adapted whereas generative learning is productive and proactive. It is a total reframing or re-centering of an organization’s experiences related to work and the organization is put on the track of generating situations of learning so as to be ahead of the environmental contingencies (Luthans, 1998).
izational learning can thus have the positive mode of facilitating the organizational learning of members or it can have the negative mode of inhibiting the learning of its members. It may thus be contended that organizations with different types of knowledge can be placed either at positive or negative modes. And diverse organizational processes can positively and negatively influence knowledge creation (Chatenieu, Verstegen, Biemans, Mulder & Omta, 2009).

From the above analysis, it can be inferred that knowledge creation is an interactive outcome of organizational processes and managerial cognitions and that knowledge grows out of an interaction between interpersonal relationships and everyday sense-making activities (Richter, 1998). In a significant study, Neto & Choo (2010) have identified four groups of “enabling conditions” of knowledge creation and these are social/behaviour, cognitive/epistemic, informational, and business/managerial which function singly or in combination at the levels of individual, group, organizational, and inter-organizational. Moreover, Linderman, Schroeder & Sanders (2010) have brought out the role of supportive infrastructure like leadership in the effectiveness of process-improvement techniques in the creation of knowledge. In other words, non-structural and formal mechanisms of coordination pave the way for knowledge creation (Luzon & Lloria, 2008). Thus, complex social and cognitive activities form the foundation of knowledge creation in organizations. And this leads to the adoption of a social-cognitive view of knowledge creation. Social cognitive view as espoused by Bandura (1989) involves the consideration of three inter-related and interactive variables of cognition, behaviour, and situation. However, the mechanics of social-cognition suggested here differ from the mechanics of Bandura.

A GENERAL MODEL OF KNOWLEDGE CREATION

Knowledge creation involves transformation of the dormant knowledge to active knowledge so that the latter becomes readily useable for increased activity, productivity, diversification, and growth. The figurative representation of the knowledge creation process is given in Figure1.

The nature of the conversion process is represented by straight lines and arrow head lines, the upper line indicating the existing state of knowledge and the lower line indicating the created state of knowledge. The arrows pointing to the right direction symbolize movement towards activation and the line stubbed at one end means movement from the dormant state. The central line connects the upper and lower lines signifying the transformation into a new state of knowledge. The lines representing the multilayered incremental creation are four as there are more paths identified in the knowledge creation which means that some sort of revolution is underway following a major breakthrough.

The knowledge conversion process is from active or dormant to active or dormant which implies that the conversion process can be either partially successful, partially unsuccessful, fully successful, or fully unsuccessful. However, in the diagram, there is no mention of the quantitative difference that a conversion process makes. The creation/conversion of knowledge in the positive or negative direction takes place by building upon the existing knowledge structure through the mechanism of information processing. The mechanics of knowledge conversion is explained in Figure 2.

In the state of Inhibitory Processing, that is from Dormant to Dormant, there is no real conversion taking place due to the influence of the factors of excessive cognitive strain to process information, routinized thinking, zero interest to discover something new, absence of clarity of purpose, and pervasive influence of organizational dysfunctional processes. In this inhibitory form of information processing, there is severe loss of information that makes the activity redundant and worthless and the dormant state in which organization is placed now continues to be reinforced because of the major gaps.
in key information areas. Firms that fall in this category are the neglected loss-making government departments of clerical type that do the same work without sensitivity to technology and the liquidated private firms.

The state of Regressive Processing, that is from active to dormant, is characterized by a process that can be called unusual because the movement is from positive to negative. There is nothing unusual here because the contextual mechanisms may be preventing further conversion. For example, during a period of recession, many firms like those involved in the manufacturing of automobiles or construction are forced to move from innovation to banking upon the existing design or features. Specifically, the reason for these backward movements are reduced availability of financial and/or material resources, forced compliance to restrictive measures, disarray in the internal working of the organization, negative impact of environmental contingencies, replacements of personnel, transfer of ownership, change of structure, etc.

In Incremental Processing, the organizational participants engage in an ignited information processing that brings about a turnaround in the knowledge creation and management of organizations. And this turnaround at the knowledge realm is to be transferred to organizational growth and renewal. As far as knowledge creation is concerned, this may be considered to be the significant fact of all knowledge creation processes outlined here because of the newly brought about restructuring and reigniting components. Resurgence at the level of information processing along with the level of computing adds to the knowledge creation process.

In the final form of Multilayered Incremental Conversion, the conversion is from an already active state to greater activity knowledge that would exponentially increase the advantages accruing to the organization, following the introduction of a new platform of knowledge creation. Management innovations like benchmarking, TQM, and re-engineering fall in this category of knowledge development and utilization.

At this level of information processing, the organization and the participants continue to invest cognitive/intellectual and technological resources so as to always place the company ahead of others in terms of competitive advantage, greater growth, and expansion.

In this multilayered knowledge development processes, the knowledge gap is considered from different angles so that an exhaustive theorem or its alternatives are brought forward that can confront all the possibilities of strategy formulation. The characteristic feature of this conversion is that there is a real breakthrough in the field of knowledge, a real innovation so far unknown to the organization. The network of relations existing in the arrangement of variables can become the base of knowledge development and the new path of relations identi-
The real knowledge development in organizations can be generally attributed to technological variables, human variables of quality minds, productive interpersonal relations, and a conducive work environment that accentuates innovation. Finally, knowledge conversion can sometimes be accidentally brought about or patiently worked through across years of effort and experiments.

**DIFFERENT TYPES OF ORGANIZATIONAL KNOWLEDGE STATES**

Organizational knowledge states may be understood from the analysis of critically important variables that constitute the organizational processes as embedded in the structures, tasks, technology, and managerial cognitions. The efficiency and effectiveness of the organizational processes depend upon the creation and utilization of knowledge of different streams. The five streams of knowledge identified, as stated earlier, are interpersonal knowledge, creative knowledge, problem-solving knowledge, strategic knowledge, and functional knowledge.

**Interpersonal Knowledge**

This form of knowledge implies the successful enactment of interpersonal dealings and relationships so as to be effective and efficient in the organizational processes (Figure 3).

On the interactive dimensions of dormant and active interpersonal knowledge, negative and positive organizational learning modes, and simple and complex managerial cognitions, the four knowledge states identified are Randomized, Participation-oriented, Group-based, and Team-based knowledge. In the Randomized state of knowledge, there is no systematized or identified pattern of knowledge to make interpersonal situations effective and efficient. The near total absence of interpersonal knowledge makes interpersonal relations redundant, boring, and non-substantial. In the state of participative orientation, interpersonal outcomes of goal-oriented nature are absent because of the dormant interpersonal knowledge but the positive organizational learning mode, combined with simple cognitions, orients the members to participative behaviour and processes.

In the third state of group-based knowledge, the active state of interpersonal knowledge interacts with the negative mode of organizational learning and complex cognitions leading to the formation of temporary work groups. These work groups however do not contribute anything of lasting value to the organization as there is no organizational or managerial support to sustain the functioning. As such the groups get easily dismembered but regroup again because of the tenacity of leading members. In the fourth state of team-based knowledge structure, the active interpersonal knowledge, complex cognitions, and positive organizational learning mode result in the formation of team-based work culture in which the shared goals and processes always take the members to new heights of accomplishments.

**Creative Knowledge**

Creative knowledge involves the innate and the acquired components of innovating something new that has lasting value to the organization and to the society.

On the interactive dimensions of dormant and active creative knowledge, negative and positive organizational learning modes, and simple and complex managerial cognitions, first of all, the barren organizational knowledge state is identified (Figure 4). In this state, the dormant creative knowledge, negative organizational learning mode, and simple cognitions result in the emergence of knowledge processes. The organizational processes are devoid of any creative activity and they are wholly dominated by routine procedures of administrative matters that are mechanical and not at all enthralling to the participants. This is the state that is most characteristic of bureaucratic organizations.
In the second state of one-shot organizations, the positive organizational learning mode, the dormant state of creative knowledge state, and simple cognitions contribute to a single spark of creativity that becomes the hallmark of the organization and the organization thrives upon this single-most effective invention and since it fails to increase the stock of knowledge, it may disappear from the field in a rather quick manner.

Bubble type knowledge organizations when compared to one-shot organization comes up with a rather significant breakthrough that has large scale effects on the consuming community. Bubble type states influence a large section of the society and it returns with large sums of money to the organization’s kitty but it soon fades out as the organization fails to reinvent, renew, or restructure in terms of learning strategies.

In the fourth state of innovative organizations, the organization is always on the fast track of innovation and renewal which enables it to have sustainable competitive advantage. The path of innovation that it has carved out for itself in the competitive environment results in exciting opportunities of value creation on a global realm.

Problem-Solving Knowledge

On the interactional dimension of organizational learning mode and the nature of the problem-solving knowledge and managerial cognitions, four organizational knowledge processes can be delineated. In the clerical knowledge processes as is evident from Figure 5, the state of problem-solving knowledge is dormant, and the organizational learning mode is negative and unsophisticated ruled by simple cognitions which ultimately are responsible for the emergence of the clerical state.

In the infructuous learning processes of knowledge creation, the positive organizational learning mode, the dormant knowledge state, and simple cognitions result in the creation of knowledge that is of no actual use to organizational members. The futility of knowledge generated in the inappropriate manner makes the state infructuous. On the active, negative, and complex dimensions, the knowledge state is expressed as rational-logical, which implies that the organization has acquired a massive amount of rational and logical knowledge that is of little use to the organizational processes. The stored knowledge which has little intrinsic value is thus non-adaptive and static as far as the specific organizational processes are considered to be out of the mode of organizational learning processes.

The componential state of knowledge is due to the process of active knowledge state, complex managerial cognitions, and positive mode of organizational learning processes. In this state, the organization is better poised to deal with any kind of future that involves challenges to the organization. The characterist of this state is that the organizational repository of knowledge contains even detailed and componential aspects of resolving tricky and complex issues of marketing, finance, etc. Problem-solving knowledge that is centred on problems is of the componential and practical nature.

Strategic Knowledge

Strategic knowledge underlines the organization’s strategic approach to situations of competitive nature and that demands adaptive responses in response to unforeseen events and circumstances.

On the interactive dimension of negative mode of organizational learning, the dormant state of knowledge
and simple managerial cognition, the organization faces a doomed-to-failure state, which means that on these dimensions, there is virtually no activity that leads to knowledge creation, which eventually leads to a crumbling state (Figure 6). The un-evolved strategic process of management predisposes the organization to failure in the event of serious challenge to its competitive advantage and innovation in the face of entry of other serious competitors. Moreover, the threat of substitute products, the bargaining power of buyers and suppliers, and the rivalry among competitors greatly diminish the strategic advantage of the organization since it lacks a clear strategy to move ahead in the competitive-strategic arena.

**Figure 6: State of Strategic Knowledge**

<table>
<thead>
<tr>
<th>Positive Organizational Learning Modes</th>
<th>Simple Managerial Cognitions</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entangled State</td>
<td>Dynamic-Proactivity</td>
<td></td>
</tr>
<tr>
<td>Crumbling State</td>
<td>Segregated</td>
<td></td>
</tr>
<tr>
<td>Strategic Knowledge</td>
<td>Dormant</td>
<td>Active</td>
</tr>
</tbody>
</table>

On the fourth interactive combination of active strategic knowledge state, complex cognitions, positive organizational learning mode, and the state of dynamic proactivity, there is complex evolved knowledge and complex proactive behaviour in the context of strategic situations. In this state, the organization is characterized by flexible and adaptive responses to forces of competition, repository of wide range of knowledge, an array of proactive response patterns, and quick and ever flowing response patterns to changing environmental conditions and the new business challenges.

**Functional Knowledge**

Functional knowledge involves the use of advanced and relevant principles of effective and efficient functioning in the most important areas of organizational processes. This form of knowledge revolves around the best methods, approaches, working processes, financial and accounting practices and innovative research projects of competitive nature.

On the interactive dimensions of dormant-functional knowledge, negative organizational learning mode and simple cognition, the state of functional knowledge is dysfunctional or outdated. Both the processes of dormancy of functional knowledge due to the inadequate development of knowledge processes and the negative organizational learning modes contribute to this state.

In the second state of dormant knowledge, simple cognition, and positive organizational learning mode, the knowledge state displays a Greenfield characteristic. It denotes that the positive and the enriched organizational learning mode contributes to this take-off position where the organization has good infrastructure and basic facilities but the critical knowledge components referring to the new venture are absent because of the dormant nature.

In the third state of transactional knowledge state, the active knowledge and complex cognitions enable high amount of transactions but is devoid of a positive mode of organizational learning that finally results in the emergence of non-absorptive learning programmes. The surfaced knowledge however goes without much deeper significance since organizational learning mode is negative in the absence of encouraging organizational learning processes.
knowledge states. This process of knowledge creation is to take place within an expanding “community of interaction” (Nonaka and Takeuchi, 1995) of networked interrelationships with organizational learning processes, the state of knowledge, that is active and dormant, and simple and complex managerial cognitions.

The complex interrelationships presented among the three processes of managerial cognition, states of knowledge, and the organizational learning modes generate four types of organizations that differ in degrees of knowledge (Figure 8). The organizations with the lowest degree of knowledge are characterized as bureaucratic or administrative organizations, where the state of knowledge is dormant, the organizational learning mode is negative, and the managerial cognitions are simple. In this interactional relationship, there is no worthy knowledge creation taking place in the organization that concentrates on administrative matters alone. Most of the government organizations fall in this category.

Knowledge creation in organizations explained with the approach of information processing thus leads to the different processes and mechanism that underlie new knowledge states. Excellent organizations on the path of growth, diversification, and high efficiency and effectiveness have always kept the cup of knowledge to the full and are never deprived of knowledge resources.

A Summative Interpretation

In Nonaka & Takeuchi’s (1995) conceptualization, the two dimensions of knowledge creation are ontological and epistemological. The former connotes the intra- and inter-organizational processes mediated and crystallized by managerial cognitions whereas the latter implies the two states of dormant and active knowledge. The extent of integration of the ontological and epistemological processes holds the key to knowledge creation and development. In the detailed analysis of the ontological processes, the nature of managerial cognitions and organizational processes lead us to understand the intricate and the obvious mechanisms involved in the knowledge creation and development.

Creation of knowledge in organization is to be interpreted and experienced as a process that transforms the stable managerial cognitions in relation to the organizational learning modes and the current nature of the

As the name indicates, in budding organizations, the level of knowledge is still at an infancy stage characterized by a high receptiveness to acquisition and creation of knowledge. The characteristics of organizations of budding nature include time-consuming problem-solving and decision-making, developing networks of relationships, few attempts to make innovative breakthroughs, and peripheral reorganization to make learning a reality.

Blossoming organizations inherit a heavy stock of knowledge and they are on the verge of a massive knowledge explosion processes which will take them to greater heights. However, the increased and heightened empha-
sis on knowledge creation is limited by the absence of a proper organizational learning mode. This single most limiting factor will not be a handicap in the long run as the blossoming organizations become knowledge-based organizations. This limiting factor is due to some hiccups and distortions in the foundational mechanisms of operation and structural arrangements.

The complex managerial cognitions and/or a high degree of individual/collective learning affect learning at the organizational level by the mechanism of shared mental models or shared knowledge structures (Bogenrieder, 2002). The development of complex managerial cognitions lays the foundational structure of a truly learning organization. Information intensity or active knowledge is thus a significant antecedent to IT enabled strategy formulation (Kearns and Lederen, 2003).

Knowledge-based organizations pool informational resources from the internal and the external processes. According to the resource-based theories of the firm, knowledge can be a “unique and inimitable resource” (Scarbrough, 1998) that provides the firm with competitive advantage and which can be always leveraged by the firm as its core competency. Knowledge as the key resource of the firm springs from an effective configuration of social relations, dynamic practice (Scarbrough, 1998), and collective managerial cognitions.

Knowledge creation is thus primarily an endogenous process and, in their boundary spanning roles, externally-oriented companies detect and process information so as to generate and develop a knowledge structure (Jemison, 1984). Driven by knowledge generation processes, companies are to make quick and bold experimentation so as to advance further in the horizon of knowledge (Hatum & Pettigrew, 2006), where complex cognitions, positive organizational learning modes, and active knowledge are the key processes.

CONCLUSION

Knowledge creation in organizational processes cannot be understood in the simple classification scheme of knowledge prevalent now. The understanding of knowledge creation involves analyses of knowledge from different perspectives. It involves the consideration of complex cognitive processing of information and differential learning modes. The cognitive processes and the behavioural organizational processes add, multiply, subtract, and divide the knowledge creation process in astonishing ways such that knowledge creation becomes a highly sophisticated activity in the hands of key and non-key organizational participants. As organizations show different learning modes, they are bound to show different levels of knowledge creation. Positive organizational learning modes accentuate knowledge creation whereas negative learning modes inhibit knowledge creation. The basic idea of information processing involves transforming the informational inputs into a usable knowledge form. The nature of information processing and the organizational learning modes thus underlie the process of knowledge creation; such processing ranging from simple to complex results in different amounts of knowledge that is active or dormant. It means that knowledge in organizations can be subsumed under dormant or active labels and that higher amounts of active knowledge and lower amounts of dormant knowledge as opposed to higher amounts of dormant knowledge and lower amounts of active knowledge, is the desirable state of organizational survival, growth, and expansion.

REFERENCES


Jose Mathews The author is a senior faculty at Gaeddu College of Business Studies, Royal University of Bhutan, Bhutan. He has obtained his Ph.D from University of Madras in the area of organizational behaviour. His research areas are OB and HRM.

e-mail: josmathews@gmail.com