Knowledge management and intellectual capital – the new virtuous reality of competitiveness

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The nature and rationale of, and the preconditions and imperatives for, an effective practice of Knowledge management (KM) are outlined briefly, KM engenders and encompasses a dynamic nexus of organizational learning, innovation, skills, competencies, expertise and capabilities. It evolves and graduates toward the development of a company's intellectual capital (IC). The latter is defined here as the holistic meta-level capability of an organization to generate creative and effective responses to extant and emerging, present and potential challenges facing it, in an ongoing manner. Both KM and IC represent modes of competitiveness based on the individual and collective brain power of people. The latter however, cannot be harnessed in the absence of a social fabric of virtuous reality. Virtuous reality comprises an ethos of trust and co-operation, sincerity and goodwill, help and care, shared values and vision. The inner virtuous reality of an enterprise thence shapes the outer reality of its competitiveness.

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The imperative importance and rationale of managing knowledge as a crucial competitive resource is brought out in a compelling manner in the following comments of Matsushita, the founder of the global firm, bearing his name:

> The survival of firms today is so hazardous in an increasingly unpredictable environment that their day-to-day existence depends on the day-to-day mobilization of every ounce of intelligence. For us, the core of management is the art of mobilizing and putting together the intellectual resources of all employees in the service of the firm ... Only by drawing on the combined brain power of all its employees, can a firm face up to the turbulence and constraints of today's environment [8, p. i].

Today's turbulent business environment is, in part, an outcome of a very powerful shift in the world's economic system. A mass production based economy is being displaced by an economy based on information and knowledge. In such an economy, intangible attributes like speed, flexibility, and imagination; and intangible assets like 3Cs – concepts, competencies, and connections – are more important for business success, than tangibles like mass, size or physical assets.

Competitive edge today, more than ever, resides in creativity and capabilities, expertise and skills, improvement and innovation. All of them have their source and locus in the pursuit of learning and the cultivation and use of knowledge. In their absence, a company is apt to be paralysed when markets shift suddenly, competitive advantages become transient, and the threat of obsolescence is ever present. In today's business environment, where the only certainty is un-

certainty, the one sure source of lasting competitive advantage is knowledge. When markets shift, technologies proliferate, competitors multiply, and products become obsolete quickly; successful companies consistently create new knowledge, disseminate it widely within the organization, embody it rapidly in new products and services, and innovate continuously [5].

1. What is knowledge management?

Knowledge management may be defined as a systematic and integrative process of co-ordinating organization-wide activities of acquiring, creating, storing, sharing, diffusing, developing, and deploying knowledge by individuals and groups in pursuit of major organizational goals. It is a process through which firms *create and use* their institutional and collective knowledge as follows:

(1) Organizational learning – the process through which the firm acquires information and/or knowledge;
(2) Knowledge production – the process that transforms and integrates raw information into knowledge which, in turn, is useful to solve business problems; and
(3) Knowledge distribution – the process that allows members of the organization to access and use the collective knowledge of the firm [11].

Knowledge management comprises knowledge – focused activities. Eight major categories of such activities are:

– generating new knowledge,
– accessing valuable knowledge from outside sources,
– using accessible knowledge in decision making,
– embedding knowledge in processes, products and/or services,
– representing knowledge in documents, databases and software,
– facilitating knowledge growth through culture and incentives,
– transferring existing knowledge into other parts of the organization, and
– measuring the value of knowledge assets, and/or the impact of knowledge management [10].

A succinct definition of KM defines it as systematic leveraging of information and expertise to improve or-

ganizational innovation, responsiveness, productivity, and competence (Lotus-IBM).

Globally competitive firms today are those which have the insight and foresight to develop, mobilize, and allocate their knowledge resources to ever new productive uses. Continuing development and expanding productivity of their knowledge resources are the most important determinants of their sustained high performance. Their practice of knowledge management is based on their belief that if they do not live in the future today, they will live in the past tomorrow. For this purpose, they have become engines of inquiry. They constantly and obsessively question their operations and processes, their theory of business, and the logic of their business models.

2. Knowledge management operations

Management of knowledge by a firm is driven by its strategy. Strategic objectives specify the desired business results. The latter specify the requirements of knowledge for decisions and actions in support of strategic goals. For meeting the requisite requirements of knowledge, firms plan and implement a set of KM operations as follows:

(1) *Identification* of the nature, kinds and modes of knowledge required for a competitively effective implementation of enterprise strategy. The knowledge may be explicit, i.e., in the form of structured information; or it may be tacit (subjective) in the form of implicit operational know-how, or heuristics.
(2) *Mapping* the existing and available knowledge (including expertise and skills) in terms of its context, relevance, and locations. Preparation of 'knowledge maps' assists employees to find out who knows what. Company 'Yellow pages', skills inventory, and expert databases denote various forms of such maps.
(3) *Capturing* the existing knowledge through its formalized representation.
(4) *Acquiring* needed knowledge and information including know-how from external sources as necessary.
(5) *Storing* existing, acquired, and created knowledge in properly indexed and inter-linked knowledge repositories.

(6) *Sharing* knowledge through its automatic access and distribution to users on the basis of their need and interest. It includes transfer and diffusion of best practices. Tacit knowledge can however, be shared only through interpersonal interaction. This KM operation thence also supports and facilitates knowledge work collaboration among people through colocated and/or virtual teams.

(7) *Applying*, i.e., retrieving and using knowledge including best practices, in support of decisions, actions, problems-solving, automating routine work, providing job aids, and training. The notion of putting the combined knowledge of the firm at an employee's disposal at his/her work site is the essence of a Knowledge Management System (KMS). The basic goal of a KMS is to take key items of data and information from various sources, such as groupware, databases, applications, and people's minds, and make them easily available to users in an organized and logical form.

(8) *Creating*, i.e., generating or discovering new knowledge through R&D, experimentation, lessons learned, creative thinking, and innovation. This is the most advanced stage of KM in a firm.

Knowledge repositories occupy a central place in any knowledge management system. A knowledge repository is an online, computer-based storehouse of organized information, expertise, experience, knowledge and documents about a particular domain of knowledge. The latter may range from business intelligence and customer relationship management to supply chain management, or new strategic initiatives. Creation of a knowledge repository involves collection, summarization, organization and integration of knowledge across multiple information sources. They serve as foundations and knowledge sources for supporting problem-solving, performance improvement, skill/capability development, and process re-engineering efforts.

3. IT infrastructure for KM

IT infrastructure provides relevant, rich, timely, and accurate information to every employee who may need and use it. Such an infrastructural support system thereby makes a very big difference to a company's ability to cope with its complex and difficult problems and challenges. If information about production, product(s), service(s), distribution, marketing problems, and other important issues and emerging opportunities, gets through the organization within minutes and hours, instead of days and weeks; and the concerned people are thereby enabled to work on the problems/issues/opportunities without time lags, the business can enhance its strategic readiness, and responsiveness substantially.

British Petroleum's creation of a virtual team network, as a core part of its IT – infrastructure support system for its KM, for example, produced the following big benefits [7]:

(1) A big reduction in the man-hours needed to solve problems as a result of improved interaction between land-based drilling engineers and off-shore rig crews.

(2) A notable decrease in the number of helicopter trips to offshore oil platforms.

(3) The avoidance of a refinery shutdown because technical experts at another location could examine a corrosion problem remotely.

(4) A reduction in rework during construction projects because designers, fabricators, construction workers, and operations people, could collaborate more effectively.

The company estimated a saving of at least $30 millions from its virtual teams network, in the first year alone. Each member of BP's top management team, and each general manager of the business units, has at least one virtual team work-station. The network enables the firm to engage in continual conversations about competitive dynamics, performance and corporate values.

Some of the world's leading companies have created highly sophisticated, IT infrastructure for their KM activities. Buckman Laboratories infrastructure for its knowledge management system (K'Netrix), for example, comprises electronic forums, online libraries, a knowledge base, electronic mail, Internet/World-Wide-Web, intranet, project tracking systems, customer relationship management systems, groupware, bulletin boards, virtual conference rooms, and databases that capture institutional memory [6].

4. Structural support infrastructure for KM

Structural support infrastructure refers to coordination of organization-wide KM activities by a new

role position designated as Chief Knowledge Manager (CKM). CKM oversees the involvement and varying participation of other major role positions like senior managers, functional or line managers, information systems staff, KMS staff, human resource managers, cross-functional and other project teams' leaders, and individual contributors; toward implementing KM operations in the organization. For this purpose, he/she also helps devise appropriate performance appraisal systems, incentive schemes, and other promotional measures toward fostering a culture of knowledge sharing, use, and creation.

The salient dimensions of a CKM's role performance may be briefly outlined as follows:

(1) *Levels*: Overseeing the KM activities at the interacting levels of individuals, teams, communities of practice, and the organization as a whole. Communities of practice refer to networks of people who are interested in particular areas of work or specialization, and share and exchange their knowledge, ideas and insights amongst themselves in a regular and continuing manner.

(2) *Operations*: Developing, expanding, and coordinating knowledge management operations throughout the organization. The nature of these operations has been outlined in an earlier section.

(3) *Capabilities development*: Facilitating the development and deepening of existing, and creation of new firm-specific competencies and capabilities designed to provide the organization a leading competitive edge. These competencies/capabilities are complex bundles of skills and knowledge (such as new product development, or assimilation and commercialization of new technology) that are meant to be inimitable, customer valued, and applicable across products and markets. Capabilities development also includes the radical redesign of core business processes through which the core competencies are delivered.

(4) *Technology*: Evaluating the technologies of relevance to the firm, adjudging the opportunities they may create, helping to decide whether and when to adopt them, and how to go about implementing them. CKM is also closely involved with the design and operation of the firm's information technology support infrastructure for knowledge management.
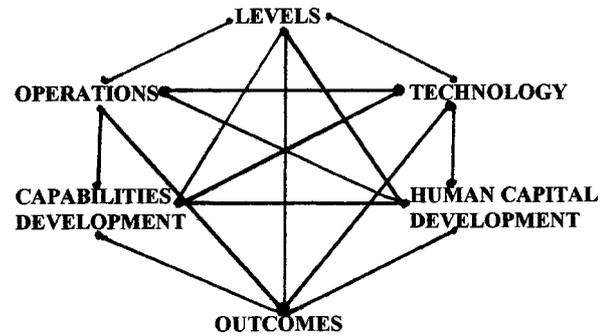

Fig. 1. Synergies in CKM's dimensions of role performance.

(5) *Human capital development*: In this context, the CKM is closely concerned with the nature and management of a company's education and training programmes, organization development initiatives, creation of internal learning centres, schools or centres of excellence. He/she is also involved in the design and implementation of incentive and performance appraisal systems consistent with fostering the objectives of knowledge management.

(6) *Outcomes*: Designing and implementing performance metrics towards measuring the effectiveness of KM. These may include innovations in products, processes, and services; cycle-time reductions; improvement indicators; patents and intellectual property benefits, and so on.

All the foregoing dimensions of role performance are closely interrelated with each other as depicted in Fig. 1.

While managing and coordinating them, a CKM needs to be highly sensitive to, and exploit effectively, the inherent synergies amongst the role performance dimensions. A CKM most importantly however, must also understand clearly the company's business model, the model's logic, and strategic drivers. On the basis of such an understanding, he must be clear about the nature and kinds of knowledge that are vital for the company's success and will help create value. A CKM needs to be able to match knowledge and ideas with present and emerging business needs and challenges, and be most of all a knowledge broker.

A knowledge broker guides and helps transfer, synchronize, and relate business knowledge across business areas/functions/units towards engendering both improvement and innovation. A CKM's role as a knowledge broker may be visualized as in Fig. 2.

Such a broad conceptualization of CKM's role, along with other dimensions of role performance out-
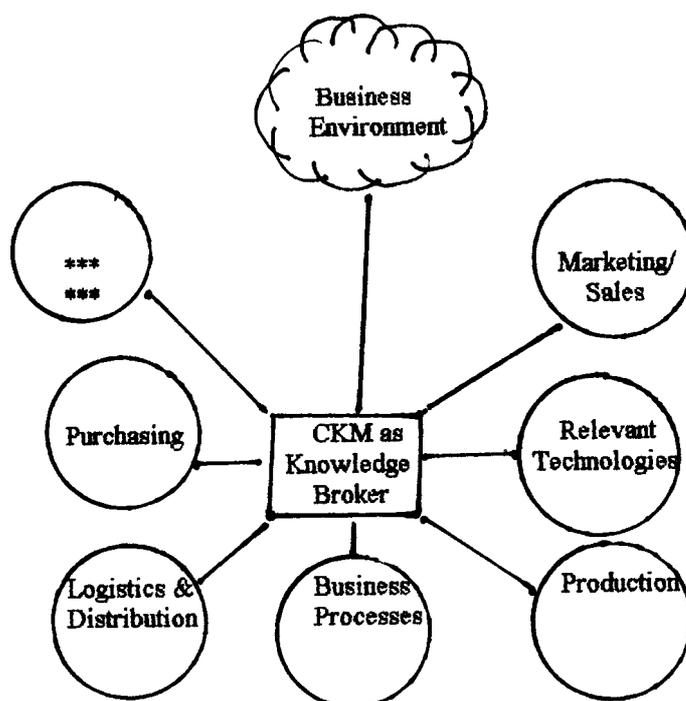
Fig. 2. CKM's interactions as knowledge broker.

lined earlier, make his/her role extremely demanding, difficult, and crucial. He/she is expected to enthuse, guide, and enable others to continually strengthen a company's market position through leveraging its knowledge resources. He is expected to help and encourage multifunctional teams address critical business and/or technical problems. He is expected to focus organization members at all levels on the creation and delivery of superior value through learning, creativity, innovation, and best business practices.

5. KM implementation problems and difficulties

Implementation of a KM programme is neither easy, nor simple. It is beset with numerous problems and difficulties. A survey of extant literature, reveals the following implementation challenges:

- Motivating employees to search, accept, and adopt best industry practices.
- Developing metrics toward appraising the effectiveness of a KM programme, and measuring its results.
- Motivating employees to share knowledge.
- Making knowledge usable, i.e., storing it in an easy to understand form and enabling the employees to relate it to their work.

- Identifying suitable people for staffing and implementing the KM programme. The programme demands a multi-disciplinary background, and people management skills of a high order.
- Changing people's perceptions and behaviour.
- Identifying and representing the organization's existing knowledge.
- Defining the scope of KM initiatives.
- Lack of common understanding of the company's business model and strategic drivers.
- Changing bureaucratic culture and organization structure.
- Staff turn-over with special reference to attracting and retaining talented people.

If these difficulties are further compounded by a weak commitment of the firm's top management, the development of a knowledge management programme cannot take off. But even when strong support of top management for the programme is in evidence, the programme may still fail to realise its promise and potential if the following "eleven deadliest sins" are not avoided [1]:

(1) Not developing a working definition of knowledge, i.e., failure to distinguish between data, information, and knowledge; and lack of a

shared understanding of what the knowledge-driven company is all about.

(2) Emphasizing knowledge stock to the detriment of knowledge flow.

(3) Viewing knowledge as existing predominantly outside the heads of individuals.

(4) Not understanding that a fundamental intermediate purpose of managing knowledge is to create a shared context (through dialogue).

(5) Paying little heed to the role and importance of tacit knowledge.

(6) Disentangling knowledge from its uses.

(7) Downplaying thinking and reasoning, i.e., failing to challenge prevailing modes of thinking and reasoning, assumptions and beliefs.

(8) Focusing on the past and present, and not on the future.

(9) Failing to recognize the importance of experimentation.

(10) Substituting technological contact for human interface, i.e., face to face dialogue.

(11) Seeking to develop direct measures of knowledge.

6. Action imperatives for KM

The forgoing problems and difficulties, constraints and impediments in the implementation of a KM programme, are not easily rectifiable. There are no easy or simple solutions. What an organization may however, usefully do, is to initiate a concerted set of measures toward progressively building up the company's capacity for resolving and overcoming the problems and difficulties. These measures are focused on building a learning organization. The latter is an imperative prerequisite for effectively implementing a KM programme.

The action requirements may be listed briefly as follows. They entail a co-ordinated recasting of the firm's training, incentives, and communication programmes, along with organizational policies, procedures, rules and routines. The action requirements/measures are:

– Creating and stressing continuous learning opportunities for people.
– Providing opportunities for people to engage in dialogue and inquiry.
– Encouraging and rewarding collaboration and team learning in a sustained manner.
– Establishing systems to capture and share learning.

– Involving people toward developing and sharing a collective vision.
– Identifying and developing leaders who model and support learning at the individual, team, and organizational levels.
– Developing shared understanding first at local levels since the locus of learning, and use of knowledge resides largely at local levels; and then gradually moving toward the level of a company as a whole.
– Providing individuals frequent occasions for discussing, debating, and clarifying for themselves as to what constitutes knowledge in their areas of work.
– Helping people identify the role, requirements, and implications of knowledge for their work performance.
– Focusing more on the flow of knowledge than on its stock.
– While benchmarking of processes of other companies for comparison and learning; managers must not lose focus of what may be unique in their own company's situations.
– Creating a 'boundaryless' organization. 'Boundarylessness' means "behaviour that is open, where people act without regard to status or functional loyalty, and also look for ideas from anywhere" (Jack Welch).
– Remembering that in any successful innovation and change, there is a crucial common factor: a strong and motivating goal that anyone on a team can easily understand and embrace.
– Introducing a skill-based pay plan as a part of a wider system of incentives, rewards and recognition. In a skill-based plan, employees are paid more for developing and mastering new skills that are relevant to company's strategic concerns. Such a plan (or plans) helps create a multi-skilled workforce, and engender a culture which values and rewards continuous learning by people.

7. Developing human capital and corporate IQ

The role of managers in general, and of senior managers in particular, needs to be reoriented around coaching and mentoring. They need to help plan and facilitate the development of the firm's human capital. In terms of such a reoriented goal, they need to combine both teaching and learning toward helping employees along the following lines:

(i) Helping employees to identify their skill gaps, and recognize areas of inadequacy to improve current performance.

(ii) Motivating employees to keep up with developments in their professions, and to anticipate how changes in the organization and industry, may demand new work skills, capabilities, and knowledge from them; and preparing for the same.

(iii) Enabling employees to acquire insights into enterprise goals, performance requirements, and their readiness to meet the firm's expectations.

(iv) Motivating employees to look for ideas and insights in both traditional and non-traditional places.

(v) Encouraging employees' self-development by:

  (a) understanding the employees' perspectives, aptitudes, and aspirations,

  (b) providing helpful performance feedback,

  (c) treating poor performance as a difficulty to be overcome, rather than a focus for criticism,

  (d) providing behavioural choices for learning,

  (e) communicating new opportunities for learning, and changing requirements of skills and knowledge, and

  (f) enabling and facilitating individuals becoming responsible for their own development, and providing resources in support of this objective.

Individuals engaged in self-development actively seek and use feedback, set development goals, get involved in learning and development activities, and monitor their own progress and performance. Developing human capital for, and through a KM programme, requires patient efforts over time.

The planning and implementation of all the foregoing actions and initiatives would require concerted efforts of managerial leadership. These efforts, would be guided, shaped, and co-ordinated by the new role position of the CKM. To the extent, all the foregoing efforts toward building a learning organization, and developing human capital are successful; they would engender and enhance a company's 'corporate IQ'.

"Corporate IQ is a measure of how easily your company can share information broadly and of how well people within your organization can build on each other's ideas . . . Contributions to corporate IQ come from individual learning, and from cross-pollination of different people's ideas" [2, p. 239].

Given the rapidly changing and highly competitive markets in which most firms today compete, a company can create a competitive edge only on the basis of new concepts of customer-valued products, services, and ways of doing business. The ability to move information and ideas quickly around a company is useless, if, the information does not tell managers and employees how to create value, and the ideas are obsolete or irrelevant. Information and ideas, learning and knowledge, must enable a company to improve, innovate, and develop and deploy inimitable competencies and capabilities. Knowledge must create or add value. *This constitutes the top most priority of a firm's knowledge management system, toward developing its human capital.*

8. From KM to IC

KM is viewed as a business process that is driven by, and supports, a firm's competitive strategy. Such a limited view however, misses out on realizing the very rich promise and potential of KM. This potential lies in nothing less than (engendering and sustaining) long term viability and competitiveness of enterprises facing volatile business conditions. How may such a potential be realized? For this, we need to focus on the basic outputs of KM, and its dynamic web of linkages, i.e., its nexus as a whole.

Knowledge management is not a stand alone process. It is closely bound up with the inputs of organizational learning and strategy that govern its nature and scope. Its basic outputs are constituted of the continual streamlining of organization's core business processes; development and deepening of its inimitable core competencies and capabilities; and both incremental and radical innovations in products, services and modes of creating and delivering value. All the three basic types of outputs are the outcomes of coordinating the firm's continual and interconnected operations of acquiring, creating, developing, integrating, transferring, sharing, and applying knowledge. The basic outputs are not however, oneway outcomes. They, in turn, serve *to expand, enrich and enhance the firm's capacity for absorbing, generating and exploiting knowledge* in terms of a positive feedback, i.e., self-reinforcing cycle. Such a feedback cycle enables the firm to create *new competitive space* for itself.

Creatively orchestrated deployment of the firm's re-engineered business processes, world class competencies/capabilities, expertise and innovative prowess; en-

ables the firm to achieve superior business performance, and creation of value in a continuing manner. It is the firm's sustained capacity to generate and deliver superior value to its customers that underlies its sustained competitiveness over time, and under changing conditions. The premises governing this inference may be represented and stated in a rather simplified form, as follows:

- (K . _____ a _____ . W) . __1__ . CI . __e__ .VC

- (K . _____ a _____ . W) . __1__ . SC/D . __e__ .VC

- (K&C . __a__ . CBP) . __1__ .RBP. __e__ .VC

- (K&C . __a__ . P(S) . __1__ . I . __e__ . VC

- (K&C . __a__ . BS) . __1__ . C/C . __e__ . VC

- (I&C/C . __a__ . BE) __1__ . NCS . __e__ . VC

- ((K&C&C/C) . __1__ . IP) . __1__ .Is . __e__ .VC

- (RBPs & C/C & IP) = LIC (= Meta-Capability)
  Dynamic Orchestration

- (LIC . __a__ . BE) . __1__ . SC . __e__ . VC

Symbols: a, applied to; 1, leads to; e, engenders; K, Knowledge; W, Work; CI, Continuous Improvement; SC/D, Skills Creation/ Development; VC, Value Creation; C, Creativity; CBP, Core Business Processes; P(s), Problem (s); I, Innovation; BS, Bundle of Skills; C/C, Competencies/Capabilities; RBPs, Redesigned Business Processes; BE, Business Environment; NCS, New Competitive Space; IP, Innovation Prowess; LIC, Leveraging of Intellectual Capital; SC, Sustained Competitiveness.

Relationships in knowledge management – intellectual capital nexus

A firm's progressive ability to differentially combine, orchestrate, and deploy its processes, competencies, and innovative strength in a flexible and creative manner to meet ever-changing competitive challenges effectively; represents the leveraging of its intellectual capital (IC). In this view, a firm's IC is not a stock of its so-called knowledge assets. It is a firm's meta-level super ordinate capability of abiding strength to creatively combine, orchestrate, and deploy the power of its processes, competencies, and innovativeness to exploit opportunities and/or overcome competitive challenges. Teece, Pisano, and Shuen [12] posit a somewhat similar concept which they term as "dynamic capabilities". According to them, dynamic capabilities are the capacity of a firm to sense and seize opportunities; to reconfigure knowledge assets, competencies

and complementary assets and technologies; to select appropriate organizational forms to allocate resources astutely; and price strategically; to achieve sustainable competitive advantage.

An effective display of its meta-capability by a firm over time, shapes investors' expectations of the firm's future performance. These expectations, in turn, push up the firm's market valuation steeply. The difference between the book-value and market valuation of a firm, represents a financial measure of its IC.

Given a highly uncertain and turbulent business environment, strategy cannot be about specifying and realising some projected outcomes five or ten years ahead. Such long range, or master plans become irrelevant in the face of rapid and unpredictable changes. Strategy making may thence focus best on framing and buying the right options that will enable a firm to compete in an uncertain and poorly understood future. Such options will reserve for the firm the right to play when the firm wants to, and when it obtains a clearer understanding of the new or emerging competitive game. Such an approach to strategy, requires the firm to engage in a sustained process of probing and learning for identifying and developing viable strategic options. The latter would imply developing and applying relevant bundles of skills, distinctive capabilities, streamlined flexible processes, and innovative approaches in the service of stretch goals.

A firm's capacity to generate and expand the nature and range of its strategic options, and exploit the selected options rapidly and effectively, would depend upon its overarching meta-capability of leveraging its IC. In this sense, the management of knowledge in and by a firm, may be seen as the foundation of its efforts toward securing and sustaining a leading competitive edge. What a firm knows, how it uses what it knows, and how fast it can know something new and important; are part of an inclusive meta-capability (IC) process of generating insights, developing and using foresight, engaging in skills and capabilities based action, and learning from feedback. The goal of this process is to maximize a firm's response effectiveness across challenging situations through a relentless cultivation and exercise of its holistic intellectual potential. The focus of the process is the firm's creation of wealth within extant and emerging domains of opportunity through continuous innovation and exploitation of expertise.

Development of intellectual capital as the holistic meta-level capability of a firm however, does not involve a plan. It is rather a systemic process of cre-

ating and continuously enhancing a company's creative intellectual potential through a relentless involvement and strategic development of its human capital. The process is iterative. It incessantly works through the firm's management of knowledge; environmental appraisal; streamlining of business processes; buildup of current and needed competencies/capabilities; nurturance of innovation; amplification of synergies and complementarities in the development, syntheses, and deployment of skills and capabilities; continuous search for insights; development and testing of industry foresight; and time-paced critical reflection on its entire spectrum of means, modes, and ends. The process is designed to generate values-creating possibilities, new competitive space, readiness for strategic surprises, growth initiatives, reframing of problems and issues, superior strategic options, new and higher levels of skills and competencies, frame-breaking innovations, new products/services, business, and customer concepts; and the firm's capacity to manage constant change in an ongoing manner [9].

9. The new virtuous reality of competitiveness

Knowledge management and its graduation toward intellectual capital together imply a new paradigm of competitiveness. This paradigm is based on competing through the collective intelligence or brain power of people in an organization. Competitive success of an enterprise is seen to stem from the individual and collective creativity and innovation, learning and knowledge, skills and capabilities of its people. The whole organization, in fact, is expected to function like a cohesive team; or a symphony orchestra where individuals play different instruments but according to a common musical score.

Brain power, or collective intellectual potential of people cannot however, be harnessed and exploited through relationships of authority and power, compliance and control. It can be accessed, mobilized, and amplified only in and through human relationships, behaviour, and interactions based on sincerity and goodwill, trust and cooperation, shared beliefs and ideas, commitment and responsibility. In the absence of these virtues, dense social webs of participation and intense involvement cannot emerge and take off in an organization. A company must therefore create and sustain a practice field of virtuous reality, if it is to compete effectively in today's complex, uncertain, and turbulent world of business.

A well-designed IT infrastructure for KM facilitates speedy access, diffusion, and sharing of information and knowledge by people in an organization. But the infrastructure cannot by itself induce and motivate people to share and use knowledge, to trust and collaborate with each other, and to engage in problem-solving and innovation together. It cannot enthuse people to strive together with a collective sense of purpose, and commitment. KM and IC are quintessentially about the way people think, feel and behave towards one another, and how they work together to learn, share, create, and use knowledge. If the virtues like trust and co-operation among people are missing, the practice of KM and IC in an organization cannot take off.

Spontaneous, sustained, and reflective co-operation; transactions based on implicit trust and sharing; generating, and using knowledge together in pursuit of shared stretch goals; are however, possible and effectively realisable only in a community of people. A community of people is based on a shared sense of purpose and meaning, spontaneity of trust and co-operation, and an ethics of help toward the self-development of its members. Successful practice of KM, and attainment of sustained high level of IC-based performance by an organization, may thence be seen as depending upon its transformation toward a community of knowledge workers.

A community implicitly binds its members together through an *ethics of care*. "To care for another person, in the most significant sense", says philosopher Mayeroff [4, p. 1], "is to help him grow and actualize himself." Hence, in an organizational context, to care for someone is to help him learn, to help him increase his awareness of important events and their consequences, and to help nurture his personal knowledge creation, while sharing his insights [3].

Care engenders a particular mode of behaviour in relationships. This mode of behaviour is characterized by attributes of interpersonal trust, empathy, sensitivity to others' difficulties and concerns, authentic helpfulness, open communication and dialogue. These attributes by themselves, and through their interplay, engender rich patterns of creative, co-operative, achievement oriented and emotionally fulfilling behaviour. They need to be harnessed by a firm to dismantle mental and social structures that lock and limit people's talents, creativity, and productive energy.

The foregoing attributes of the ethos of care make it easier for management to understand and communicate the value of care, and the nature and meaning of care in organizational relationships. Management may in

this context, design and implement an incentive system which focuses on building care, i.e., help, co-operation, and open communication in organizational relationships. Such a system would also emphasize and reward contribution to knowledge creation and use based on creative collaboration. Team-based rewards for performance would encourage people to co-operate and share their knowledge in order to enhance team performance. Performance appraisal schemes should also similarly stress the importance of cooperation and helping behaviour toward one's work associates.

Incentive system(s) and performance appraisal scheme(s) should moreover operate in tandem with training programmes. The latter should focus on showing explicitly formulated values of care and helping behaviour in practice. Such training can be integrated in both off-the-job, and on-the-job training programmes and activities. Company-wide mentoring programmes that promote sharing of knowledge and insights by senior members with junior people, may also usefully be introduced in this context. Company-wide communications programme should be recast to foster free flow of knowledge and ideas, learning-oriented dialogues, shared destiny focus, and self-development of each individual through learning and cooperation.

Training, communication, incentive, performance appraisal, and mentoring programmes of a company should be so designed and aligned together as to stress the value of care and helping for cooperation in sharing and use of knowledge; for creation of new product, service, and business concepts; for facilitating the commercialization of new technologies; for releasing trapped economic value though radical redesign of work processes; and for continuous improvement and breakthrough innovations throughout the enterprise. The roots of success would however, lie not in struc-

tures and systems, but in how people relate to each other, how they work together to learn, and how they learn to work together. The roots of success would lie in how an enterprise expects and enables its people to engage in enterprising. This however, may be possible only through their shared meanings and purpose, and a shared ethos of caring and helping behaviour – the ultimate social fabric of virtuous reality.

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