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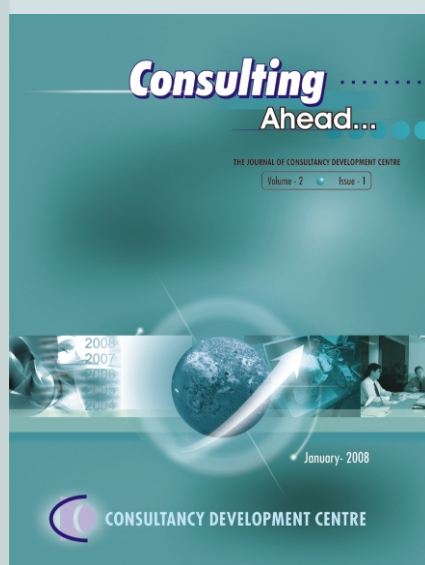
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Climbing the Spiral[®]: A Road Map for Professional Management Consultants

There is a premium on 'thought leadership' amongst consulting and academic circles today. The author proposes that there is an upward spiral evolutionary path for growth and learning for management consultants to arrive at this destination. It begins with establishment of credentials through appropriate qualifications and certification, and then moves on to management of client interface and relationships, acquiring consulting skills, bringing value added contribution to consulting projects, and then creating sustainable advantage through thought and practice leadership. The dynamics of the spiral can go wrong if consultants do not master one stage before moving to the next level of growth, or if they get fixated at any one level and also if they leapfrog the learning curve.



Aneeta Madhok

Every organization needs help from Management Consultants at some point or the other. The consultant brings specialized knowledge, experience of dealing with similar issues, an outsider perspective and perhaps a team that carries credibility and clout. Management Consultants bring benefits to their client systems and have enabled growth and change in many different ways. The value of a 'third eye' is that it brings objectivity and can throw light on issues being confronted in the firm without the constraints of internal paradigms and frameworks of existing practices. According to Kubr¹ (2002) there are five generic purposes for which consultants are used. These are: achieving organizational purpose, solving management and business problems, identifying and seizing new opportunities, enhancing learning, and implementing changes. Consultants provide information and knowledge resources that they bring to the client as a specialist in their domains. They enable the clients networking and relationships with outside world, diagnose problems, develop and implement solutions. Consultants also provide valuable service in developing management systems and processes, training, counseling, coaching, mentoring and many other numerous ways of managing competitiveness and change.

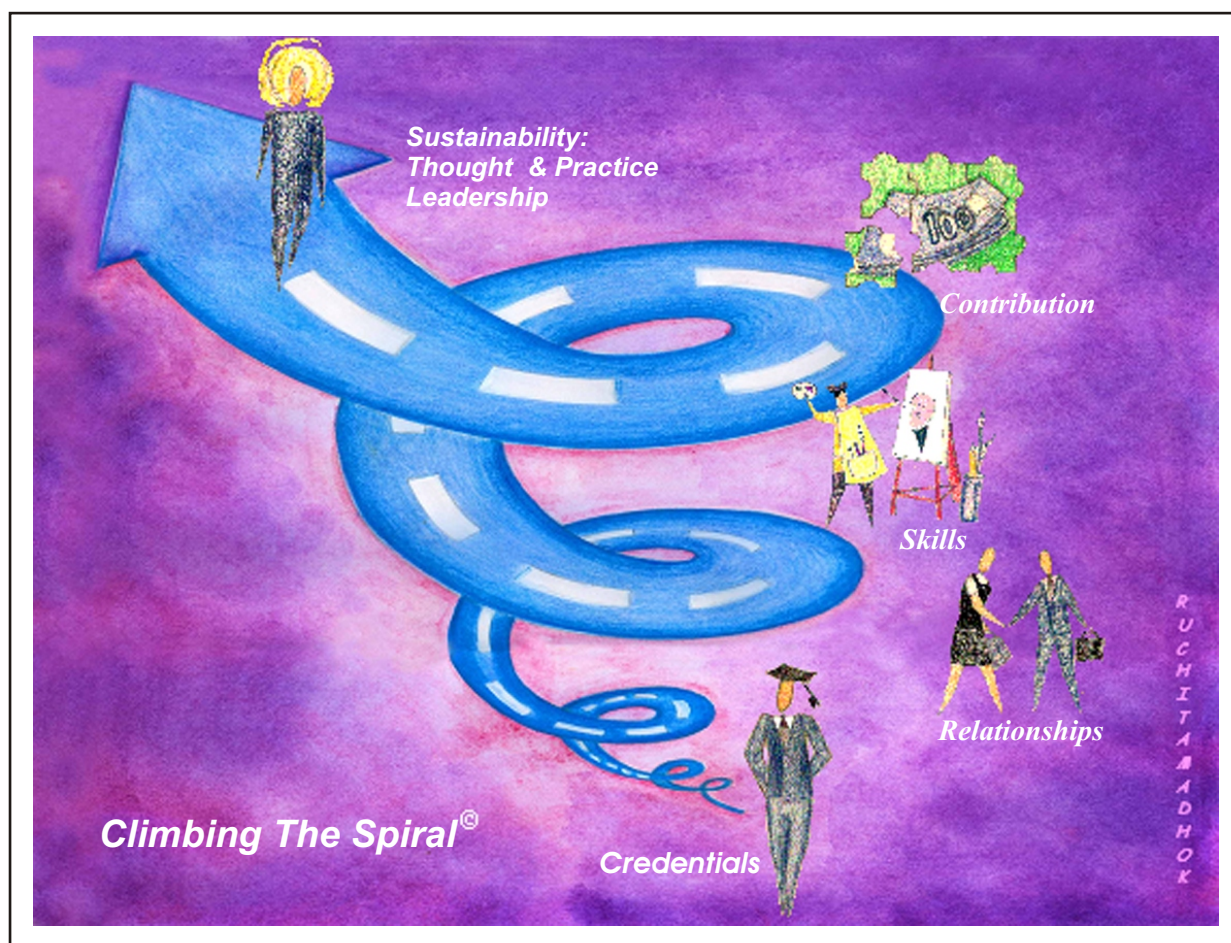
Many companies however, do not give enough thought to how they choose a consultant and how they would benefit the most from these relationships. There are varying degrees of professionalism in consulting and it would do well to recognize how professional a consultant is and how the client would maximize the outcomes of this relationship. Here we attempt to discuss some of the things that define the evolutionary path which consultants seem to tread and also what criteria to keep in mind when working with the consultant. An eye to the professionalism that the consultant carries will go a long way in bringing synergy into the relationship and establishing a true win-win partnership where the client as well as the consultant grows.

Today, consultants and consulting firms are working hard towards establishing themselves as "Thought Leaders". Cutting edge business models and their applicability to business are being developed in large and small consulting firms. Knowing that "thought leadership" can boost revenue and market awareness, consulting firms are working hard to improve the intellectual capital in their marketing programs, a new Bloom Group study shows. (Buday, Thiel, Buddenbaum², 2007). The study showed that 109 consulting firms studied by The

Bloom Group LLC from July to September 2006, ranked 'Strong Intellectual Capital' as the key factor in marketing effectiveness for consulting firms. Sheth and Sobel³ (2000) too, have espoused their thoughts on evolving from an expert for hire to an extraordinary advisor and moving from being a knowledge worker to a wisdom worker. However, there is the inherent danger of falling into the trap of more 'thoughts' and not enough 'leadership'. Simply saying you are a thought leader doesn't make you one. The largest consulting firms know the market advantages that thought leadership status confers on them. McKinsey, Accenture, Boston Consulting Group, Bain, and others spend significant sums in developing and marketing their intellectual capital and have made intellectual capital development a separate function in the organization (Buday, Thiel, Buddenbaum², 2007).

Before we can learn to fly, we must learn to walk. Thought leadership was not achieved in a day but seems to be something to work towards. According to Clare Graves⁴ (1970) "the psychology of a mature human being is an unfolding emergent, oscillating, spiraling process marked by progressive subordination of older, lower-order behavior systems to newer higher-order systems as man's existential problems change." Applying this frame of reference, there seems to be an evolutionary path for management consultants as they grow in their professions and in stature. It begins with establishing credentials, building relationship skills, polishing the consulting process, increasing the contribution to the client, and sustaining the change and growth through thought and practice leadership.

The evolutionary path seems to form a spiraling hierarchy of sorts where you will find different



consultants and consulting firms at different stages of the evolutionary process. (Graves⁴, 1970). The learning curve is a spiral. This curve of evolution seems to be governed by three dynamics: Firstly, mastery over one stage of evolution seems to be important in stepping forward towards the next stage of evolution. Secondly, it is possible that many consultants get fixated on one or the other rungs of the ladder and do not evolve further. The evolution is always a matter of conscious choice and does not happen incidentally. Growth is not an accident but something that comes from within a consultant who is engaged in endless search for knowledge and truth. If a consultant is not able to master one step of the ladder and transcend it, chances are that he will remain fixated on that rung till such times as he makes the conscious choice to move on. Thirdly, leapfrogging the learning ladder will result in loss of credibility of intellectual capital, gaps between theory and practice, and solutions from consultants that are not practically implementable.

Credentials: Qualifications, Certifications, Referrals

A professional management consultant would begin by acquiring the right pedigree. Good and appropriate qualifications testify to domain expertise and knowledge. An MBA with the right set of electives and subject choices gives testimony to the domain knowledge of the management consultant. In addition to domain knowledge like courses in Business Strategy, Market Research, Quality Systems, Financial Services, and Information Technology which establish basic levels of domain knowledge, some B-Schools also provide electives in Consulting to Management or Essentials of Consulting, which give the beginner an added edge. Certification of consulting expertise from professional associations of a national and international flavor would provide the client with some certainty about basic minimum standards of consulting process. According to Madhok⁵, (2007) knowledge fast becomes obsolete in this era of globalization and one way to keep one-self updated is through certification and continuing education.

The most widely acknowledged certification for the Management Consulting Profession is the CMC[®] or Certified Management Consultant offered by the International Council of Management Consulting Institutes (ICMCI) (www.icmci.org)⁶ which has its presence in over 40 countries across the globe. The internationally reciprocated CMC[®] is also possible to attain in India through the Institute of Management Consultants of India (www.imcindia.co.in)⁷ who grant this international certification standard. More than 40 countries have their own Institutes of Management Consultants which offer the globally reciprocated CMC[®] Certification. According to research undertaken by Vieira⁸, “Management Consultants will be increasingly needed in Asian countries.....as clients and consultants themselves become savvier, there will be a compulsion to separate the wheat from the chaff and certification of individuals and firms will gradually become the norm”. Although certification credentials are available to consultants, there does not exist in most countries, government approval or sanction for these credentials, as in other professions like accountancy, medicine, etc. (McKenna 2006)⁹. A consultant is often known by word of mouth and by the position he occupies in the consulting firm. The best credentials however are referrals from clients about the quality of work done. The client satisfaction leads to word-of-mouth publicity for the consultant which is the most valuable of all ways of reaching out. Other achievements like awards and recognitions are also credentials that many consultants strive for. All these add to the CV of the consultant which is the starting point of any consulting relationship.

Relationships: Client Interface

Next you need to look at relationship management skills of the consultant as this holds the key to future success of the partnership. The chemistry between the client and consultant is DNA of the consulting assignment and holds the macro view of how the relationship will unfold. A good chemistry will show that the consultant is able to listen well and relate to the context of the client. He is willing to lead and

facilitate the client towards resolution of the problem situation. He is flexible in his approach and draws upon a vast buffet of intervention options to tailor-make the right approach for a client. Consultants who peddle readymade solutions which they rigidly force fit on to problems will lack synergy with the clients situation and do not really add value to the client. On the contrary, their solutions would lack deeper ownership within the client system and lead to only very short term success. Other relationship skills include the ability to understand the clients business deeply and relate to the context of the clients problems. According to Mulligan and Barber, the client-consultant relationship can have three dimensions the contractual, the idealized, and the authentic relationship. Focus on the contractual aspects of relationships seems to be growing and idealized relationships are strived for. However, successful client-consultant relationships emerge as a result of authentic flavors in the interaction and this is what stands the test of time. (Mulligan and Barber, 1998)¹⁰.

Networking keeps the consultant constantly aware of the market conditions and relationships going strong. Visibility and approachability are all important personal qualities of consultants and you will find professional forums like Management Associations, Client-Consultant meets, as important networking grounds for consultants. Even the golf course is a good place to meet people and form relationships that might lead to win-win partnerships for mutual benefit. History has shown that networking skills of the consultant help in the integration of his individual approach with the rest of society and bring long term partnerships. When a consultant approaches a client with his visiting card, it may hold the potential for future value addition for both.

Many more things can be said about a consultant's relationship skills. They need to be open-minded, unbounded in their thinking, exploring problems for deeper cause-effect relationships, managing conflicts in an inclusive manner, efficient and

effective delivery of deliverables, meeting of client expectation in a realistic frame, and so on. Clients need to be involved at all stages of the consulting process, including entry, data-collection and diagnosis, presenting advice and solutions, implementation and institutionalization.

As the world of Management Consulting is professionalizing, the quality of the relationship often depends on the quality of the consultants competencies and performance. According to Markham¹¹, clients want the most appropriate and experienced consultant, instant attention, and to pay only for the time spent on the job. Consultancies want to use who's available, to service a number of clients, to bill as much time as possible, to train inexperienced consultants and to spread experienced people thinly. The quality of the ongoing consulting process is a key determinant as to how the relationships will develop in the future.

Client-consultant relationships usually take different forms depending on the nature of interpersonal interface as well as the clients need and nature of the project. According to Curnow¹², some of the metaphors of client-consultant relationships are: teacher-pupil, doctor-patient, engineer, coach/mentor, and counselor-therapist.

Skills: Consulting Process

Beyond the interpersonal issues would be consulting skills. The initial relationship would be established through the proposal which would typically begin with a statement of the client's context and purpose and objective of the assignment. At this stage, the consultant needs to understand and articulate the scope of the assignment accurately and arrive at a common understanding with the client about what exactly needs to be done. Pricing and billing schedules are explicit and negotiated through in detail before the work begins. Deliverables like documentation, recommendations, process implementation, presentations, communication goals, etc. are also clearly spelt out in the proposal. The points of agreement are written down and letters of

acceptance exchanged between the client and consultant.

During the course of the consulting assignment, the consultant needs to manage the operational details. The logistics of the assignment, allocation of manpower and resources, time management, records and documentation, planning and scheduling, regular and prompt communication, synchronization of all activities, etc. reduce the number of surprises around the corner and clear the ambiguities that keep on arising. Consulting perfection is the goal and the skill is that of getting down to brass tacks and putting yourself into the thick of it.

Beyond the operational skills are the consultants own competencies. The International Council of Management Consulting Institutes has developed a competency model that describes the professional standards for the consulting profession in terms of a comprehensive set of competencies.

Consultants need to develop their strategic skills in creating their niche, marketing their consulting services, growing their brand value, meeting the competition

Contribution: Insights and Recommendations

The ultimate test of a consultants worth is the value addition that changes the clients organization. The quality of recommendations made varies from the mundane to insightful wisdom. Many 'good' consulting relationships fall by the wayside because the recommendations made were not implemented or did not find the 'buy in' of the client. Reports lay gathering dust and lose their sparkle after a short time and do not translate into reality. Organizational systems change slowly and sometimes it takes a Herculean effort to bring small but significant improvements. At times, the recommendations do not translate into reality because consultants are not involved in the implementation process. At times, only short term gains are seen because the changes implemented are not institutionalized and deeply embedded in the cultural context. In fact, there are

times when consultants have done more damage than good in their engagements with clients.

Consultant's advice needs to be evaluated well, before adoption. Shays¹³ has given guidelines for such an evaluation and says that some of the basic questions that need to be asked are whether the consultant delivered earlier than promised, have the real issues been addressed, are the recommendations logical and will they work in the client system, are the next steps clear, how to achieve potential savings are clear, was there transfer of problem solving competence to the client's employees, will the company be stronger, and will the consultant return after the assignment is over to check on the success of the project.

Wisdom comes when operational and systemic discipline is transcended. Insightful solutions emerge in a synergistic consulting process as if almost magical. Depth analysis of data, broad perspective building dialogues, multi-pronged thinking, inclusive mindsets all converge to provide that sparkling set of insights that show the way forward. Recommendations made by the consultant are held in awe by the client and implemented in true spirit. The consultant also needs to hold hands with the client in the implementation and institutionalization process, so as to ensure that his report and recommendations do not gather dust on the shelf, but he actually contributes. The acid test is met when things actually get better.

Sustainability: Thought and Practice Leadership

The Consultant as a guru of management has truly arrived when he achieves thought and practice leadership. Few among the crop of aspiring MBA consultants who enter the profession each year, will really achieve this goal. The hallowed portals of gurudom come to those who transcend all the earlier steps and put themselves above the daily bread. The only motivation is the search for more knowledge. When this stage arrives, you will find many consultants authoring books, giving keynote addresses to audiences, holding *darbar* as younger

aspiring wannabes listen to the gyan gurus. Being a thought and practice leader has its costs attached and is a lonely path along the woods.

The intellectual capital generated by this genre of consultants would go down in history and be cited in the halls of fame. This is the elixir that the consulting houses today are chasing to create sustainable competitive edge.

Climbing the Spiral®

Learning and growth is a way of life for the consultant. The restless quest for knowledge and wisdom that comes from within is a hallmark of the profession. Continuous professional development opportunities abound in the form of trainings, refresher programmes and re-certifications. Most of the learning opportunities lies in the world outside have the potential of knowledge gain that is so important for the consultant to remain current in his domain expertise. But personal growth goes beyond the knowledge gain and towards thought leadership. The striving of the thought leader transcends the need for information or the stamps of approval of peers, professional bodies and associations. Inner drive and life force are the mainsprings of the quest for more.

The journey forwards on the spiral requires reflection, confrontation, dealing with what lies within and finding the path. This necessarily means that the consultant must be what he can be. It takes courage, strength and humility to face this journey, in the absence of which, the dynamics of the spiral become pathological. Ericsson, Prietula, and Cokely have found that research shows that outstanding performance of experts is the product of years of deliberate practice and coaching, not of any innate talent or skill. Professionals need to practice deliberately, take the time needed, find coaches and mentors, and seek out constructive and even painful feedback over a long time, perhaps up to and beyond ten years, to achieve expertise in any domain. (Ericsson, Prietula, and Cokely)¹⁴

Rules of Evolution

Growth happens only through confrontation. Without that essential ability to look at oneself in the mirror and make course corrections, stagnation occurs and there is no progress. The learning curve follows certain patterns of evolution that follow three basic rules. Firstly, achieving a critical level of mastery over one stage is essential before moving on to the next. Gestation of insights and allowing time for learning to be embedded into the mind of the consultant seems to be an important part of the growth process. In a high-paced world, there is a great deal of push to move forward fast and skip levels in the learning hierarchy. This kind of leapfrogging leads to consultants getting stuck or fixated on to one level or the other in the spiral. We often see some who are constantly in the mode of managing client interface and public relations to keep client systems happy, but do not move forward to engage in skill development or to bring the client face to face with home truths that will compel change. Similarly, there is often an over focus on getting the right consulting process in place and neglecting client relationships. Sometimes, there is preoccupation with thought leadership which is not backed by experience and the right credentials. Such fixations that occur as a result of leapfrogging the learning curve are cancerous forms of growth and prevent true thought leadership from emerging. The simple rule of evolution must be followed if the thought leadership is to contribute to generation of knowledge and wisdom that endures and creates sustainable value.

Thought leadership was not built in a day. The path to achieving this respects experience, age and wisdom. There are hurdles and obstacles along the way. It is not granted to all to achieve this exalted status, but those who are destined, know when their time has come and they choose this less traveled road.

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Knowledge Management Practices in Consulting Firms

'Knowledge Management' is a relatively new term which has emerged to describe how a firm acquires, stores and applies its own intellectual capital. Since the 1990s, consulting firms have lead the way in leveraging the collective experience and knowledge of the employees across the firm and in building 'knowledge databases'. Knowledge management has graduated from a scenario where knowledge was shared through interpersonal relations and face-to-face meetings to a scene where it has moved to an industry by itself. Knowledge management systems are of special relevance in business consulting where the core product is knowledge-enabled service.

This article looks at the evolution of different knowledge management systems, drawing from the experience of McKinsey, Anderson Consulting, KPMG, Price WaterhouseCooper, etc. An attempt has been made to synthesize the wide range of experience. Knowledge management draws from the segmentation of expertise, as is evident from the practice at McKinsey and TCS. These firms have transformed knowledge into an organization-wide resource by creating Knowledge management infrastructure supported by specialized functionaries.



Dr. Mary Ipe

Knowledge Management has become a fashionable selling proposition in the consulting industry. 'Knowledge Management' is a relatively new term which has emerged to describe how a firm acquires, stores and applies its own intellectual capital. Consulting firms are leading the way in building 'knowledge databases' which capture information across the organization and convert it in the form of a data base. Since the 1990s, these firms have created a new profile and title of Chief Knowledge Officers (CKO), or Corporate Knowledge Officers (CKO), to design and implement 'Knowledge Management systems'. These systems leverage the collective experience and knowledge of the employees across the firm.

Although Knowledge Management (KM) has been fuelled by the growth in IT, it is much more than just the consolidation and on-line availability of documents and data. It is useful for internal and external management.

KM systems have become popular in every industry and functional area including manufacturing. Hewlett-Packard has embarked on KM initiatives with its formation of Knowledge Links. Similarly GE's Work-Out Program facilitates hidden knowledge within the company to be made visible (Takeuchi, 1998)¹. KM systems are of special relevance in business consulting where the core product is knowledge-enabled service.

This article looks at the KM practices prevalent in the major consulting firms. The article elaborates on the following:

- Over view of the business consulting industry
- KM Proliferation: The onset of KM systems in consulting
- Providing expertise across industry and functional areas
- Transforming the knowledge into an organization-wide resource

¹Takeuchi, Hirotaka, 'Beyond Knowledge Management: Lessons from Japan', June 1998.
<http://www.sveiby.com/articles/Lessons Japan.htm>

- Creating KM Infrastructure and Functionaries.

Overview of Business Consulting Industry

The field of business consulting is a dynamic profession that offers specialized expertise on different areas in management and IT. In 2004, the business consulting revenues was estimated to be a \$125 billion industry worldwide, up 3 per cent over the previous year.

The consulting practice is widespread across industries, with different 'segments' of players and offers services on all aspects of management-Strategy, HR, IT, Finance, Technology, etc. The market is broadly categorized as management and strategy consulting and technology consulting. In terms of size, the market can be segmented as follows:

- Large multinationals, historically strategy consulting firms with global presence (McKinsey, BCG, Bain and Co.).
- Consulting arms of the 'Big 4' accounting firms (Deloitte Consulting LLP, Price Water House Coopers, E&Y, KPMG International).
- Medium to large independent firms (PA Consulting).
- Firms offering niche services (Mercer HR Consulting specializing in compensation and employee benefits).
- Technology consulting firms (Booz Allen Hamilton, TCS, Infosys).

Most of these firms offer expertise in a wide array of services, while claiming depth and credibility in specific industry sectors.

Recent Trends

The latest developments in the industry are:

- Firms moving towards broad scope consulting, providing a variety of consulting specialties.
- A phase of consolidation in the form of mergers and acquisitions and strategic alliances, 50 in the last decade.

- Strategic alliances being formed between technology and management consulting firms, which have propelled them into the top position in terms of size of operations.

These trends have made it imperative that the firms have a KM system in place. Each firm adopts a unique portfolio of activities, approaches, methodologies and knowledge bases that differentiates it sharply from its competitors.

KM Proliferation: The 'Onset' of KM Systems in Consulting

There is a wide consensus on the strategic importance of managing the knowledge well. The KM movement encapsulates two fundamental developments:

- 1) Shift to knowledge as an essential resource; and
- 2) Rise of knowledge-based industries as a leading sector. The proliferation in KM is visible in the entire arena of the knowledge creating industry.

The consulting firms (along with accounting firms, think tanks and management associations) build and capture knowledge through KM conferences, research projects, online databases and intra firm training and communication. The knowledge boom includes:

- New books and titles authored by consultants.
- New journals, newsletters and electronic media dedicated to KM.
- Conferences on KM across the globe, including India with its large hub of knowledge-creating firms.
- Inclusion of KM in the academic sphere.

The KM systems in consulting firms seem to differ in their stage of development, scale/scope and implementation. The evolution of different systems has been driven by the firm's type of work, culture and supporting infrastructure. Historically, in the strategy consulting firms (like BCG, Bain and McKinsey), the KM systems are fairly decentralized where the focus is on 'connecting people,' the conventional mechanism for sharing and leveraging the firm's experience.

Strategy consultants have created information systems that enable a consultant to tap into the firm's expertise by locating other consultants with relevant client, industry or functional expertise. For example, McKinsey has developed the 'Knowledge Resource Directory' (KRD) the 'yellow pages' for the firm's area experts. KRD is widely used in the firm. The company also publishes booklets, papers and magazines, including the famous McKinsey Quarterly. The knowledge data bases are generated by teams, which appoint a 'historian' to document the team's experiences in each assignment.

The firms have attempted to synthesize the wide range of experience. McKinsey's PDNet Database and Booz - Allen Hamilton's Knowledge On-Line (KOL) system are KM systems encapsulating a hybrid of databases, bulletin boards, discussion forums and training courses (Barnard, 1997)². They have transitioned from 'paper-based' centralized libraries to on-line information networks or progressively from Lotus Notes-based to web technology (BCG and Booz Allen Hamilton).

The focus in the KM systems seems to be influenced by the consulting practices of the respective firm. The practices at the 'IT-based' and 'Big Four' accounting firms have different origins, which grew from the method-based and system development and implementation practices. Since their focus was on IT, the KM systems centered on 'automating' the processes and sharing methodologies for structuring and executing large systems implementation projects.

As these firms have wide scoped their services to include consulting, the systems have transformed from providing methodologies to facilitating decision support. Anderson Consulting's Knowledge Xchange, KPMG Peat Marwick's Knowledge Manager, Price WaterhouseCooper's Knowledge View and Ernest and Young's Centre for Business Knowledge are specific examples.

Providing Expertise Across Industry and Functional Areas

The key to client service in consulting practice is the ability to integrate know-how in functional areas with deep industry knowledge. KM draws from the segmentation of expertise. We take a look at the practice at McKinsey and TCS.

The McKinsey services are segmented around 18 clientele industry practices and 6 functional practices. The centers of competence (virtual, not physical) are built around existing areas of functional expertise like marketing and sales, corporate finance and operations. In each stream, there are recognized experts identified as practice leaders.

The KM practices adopted, facilitates the following:

Identifying the consultants for specific assignments

For instance, balancing assignments of over 80 consultants in the Sydney McKinsey office to 25 ongoing teams involved matching the needs of the engagement and the individual consultants' development requirements. Firm wide, nearly 20% of work was performed by consultants on *inter-office loan* (Bartlett, 1999)³.

Assembling a group of internal specialists and experts- 'consulting directors' (CDs) to the team

The CDs play an important role in the quality assurance for the assignment and are available for evaluation stages.

Generating leads by scanning the knowledge resource directory and the PDNet database

For instance, in a financial services growth strategy study, they tracked down 179 relevant PDNet documents and extracted the advice and experience of over 60 consultants worldwide. There are over 12,000 documents on the PDNet, with over 2,000 being requested each month.

²Barnard, A. M., 'Knowledge management at Ernst and Young,' *Graduate School of Business, Stanford University*, September, 1997

³Bartlett, C.A., 'McKinsey and Co: Managing knowledge and learning,' *HBS*, June 28, 1999.

IT major TCS was adjudged one of 14 winners in Asia's Most Admired Knowledge Enterprises (MAKE) study⁴. TCS fostered the knowledge gained over decades and instituted the Web of Participation Structure which combined the company's knowledge on 9 industry verticals with expertise in 8 service practices. The structure enables the company to maximize the benefits of its depth, diversity and delivery capability to offer innovative solutions across technology and business domains.

Under each of these heads, the company offered specialized services. For instance, the e-business service of TCS includes creating new revenue streams, optimizing the supply chain and enterprise information. TCS has come out with innovative solutions which combine the domain expertise and service capability, such as:

- *Smart Gov* which was developed by working closely with state governments. The Smart Gov project aims at making interaction between the government, citizens and business transparent and inexpensive. Smart Gov helped to prevent the duplication of work through creation of an office management system, a central file and an application system. The integrated project was first successfully implemented in Andhra Pradesh in 2002 (The Hindu Business Line, 2002)⁵.
- The launching of the portal *www.healthcare.com*, where TCS combined its e-governance (service practice) with healthcare expertise (industry practice). The portal acts as a nodal point for the dissemination of health-related information which is beneficial to the medical community

and the general public. The web site provides free on line consultation to patients and doctors, in coordination with leading medical institutions (Business India, 2000)⁶.

Transforming Knowledge into an Organization-wide Resource

The process of spreading knowledge requires firstly, capturing the knowledge and secondly, storing it in a presentable way in knowledge data bases. The actual process and the name differ across firms, such as Accenture's *Knowledge Xchange*, Booz Allen Hamilton's *Knowledge On-Line* and Price Water House Coopers's *Knowledge View*.

The organization-wide implementation of KM at Ernest and Young (E&Y) and Accenture is elaborated.

Ernest & Young's KM system is central to their business strategy. The data base consists of two parts:

- An unfiltered repository of documents including proposals, process maps, reports.
- Structured 'power packs' for different industries- finance and aerospace and processes such as procurement (Werr, 2003)⁷.

The databases were created and maintained by centers of excellence consisting of virtual groups of consultants with varied experience. The power packs included the firm's best products and documents such as proposals, process models, marketing support, previous assignments, etc. The KM organization of this system is being discussed later in this article.

Accenture organizes its services based on the industry and the competencies. Consequently, there are 20 industry groups segmented further into sub-

⁴Conducted by KNOW Network, in association with Teleos. KNOW is a global community of knowledge-driven organizations dedicated to sharing best KM practices. Teleos is an independent KM and intellectual capital research firm.

⁵'TCS in Parleys with several states for Smart Gov Solutions', *The Hindu Business Line*, October 30, 2002.

⁶*www.health.com*, *Business India*, March 20-April 02, 2000.

⁷Werr, A. 'Exploring management consulting firms as knowledge systems', *Organization Studies*, July 2003.

groups. For example, the aerospace and defence industry is segmented further as commercial, manufacture and defence contractor industry segments. Accenture's competencies include consulting, technology and outsourcing.

Each industry and competency group has *partners* responsible in each geographic region. Communities of Practice, expert networks work with a particular technology or service area, making use of Accenture's knowledge sharing system.

Accenture's knowledge sharing system was initiated with the introduction of lotus notes email in 1991, and has grown into an enormous electronic knowledge repository housing more than a hundred thousand documents (Shaheen, 1999)⁸.

The company, through its *Knowledge Xchange* -a network of 33,000 data bases (1, 5 million pages in 14 global libraries) connects over 100,000 professionals. Some specific knowledge bases in the *Knowledge Xchange* system include:

- Core business models and methodologies.
- Industry vision, business processes and best practices.
- Interactive databases, where consultants in the field could send questions, comments and lessons learnt.

Accenture had developed navigational aids to deal with the volume of information on the Knowledge Xchange system such as:

- **The knowledge Xchange yellow pages-** A comprehensive catalog of system data bases that allows categorization by alphabetical order, type of application (global, Communities of Practice, work group), server on which the knowledge base resides, owner, etc.

- **The Knowledge Xchange Front Page-** A customizable access point into the system, that featured headlines of general relevance and data bases of specific interest to the consultants.

While consulting firms see technology as an enabling factor, the new technologies as groupware (particularly lotus notes)⁹ and the World Wide Web has catalyzed their KM efforts (Apostolou and Mentzas, 1999). E&Y, Accenture, Price Water House Coopers and Lybrand, etc., all have large repositories of knowledge, often exceeding 1000 different data bases.

Creating KM Infrastructure and Functionaries

Consulting firms, in pursuit of KM initiatives, are creating infrastructure, with a dedicated team, technical infrastructure and organizational positions. We look at the steps taken by E&Y and Infosys to create the KM infrastructure.

E&Y has created four centres to support the KM system.

- The **Centre for Business Knowledge (CBK)** serves as the knowledge repository at both the centralized and localized levels. It synthesizes the firm's internal know-how as well as external knowledge and information. The CBK is the core of E&Y's KM system, responsible for gathering and filtering the firm's knowledge. It offers a call centre, business research facilities, coordination of knowledge networks and administration of the firm's data bases.
- The **Centre for Business Innovation (CBI)** is responsible for knowledge based on multi-client research, coordination and application of theory. The centre is a 'think tank' which identifies and investigates new business

⁸ Shaheen, G.T. 'Knowledge management at Anderson consulting', *HBS*, July 7, 1999.

⁹ Lotus Notes is the most frequently used groupware application that enables consultants to:

Deliver quality solutions, create on-line repositories of information, knowledge and resources and share and exchange insights and experiences in remote client sites.

See Apostolou, D. and Mentzas, G. 'Managing Corporate Knowledge: A comparative Analysis of Experiences in Consulting Firms', *Knowledge and Process Management*, Vol.6, No.3. pp 129-138.1999.

concepts and collaborates with external research institutions.

- The **Centre for Business Transformation (CBT)** is the tools development centre. It structures the knowledge into techniques and application tools to support E & Y's operations.
- The **Centre for Technology Enablement** provides technological facilities ranging from architecture to networking and management.

These four centers are the core of E & Y's KM system. These entities are linked and interfaced with the consultants in the field via the firm's 'knowledge web.' The main users are field consultants, engagement teams and subject matter experts.

When E&Y and CapGemini merged to form CapGemini E&Y, the KM systems were perceived to be a significant factor in the success of the merger. Prior to the merger, CapGemini had adopted a decentralized KM approach specifically through building a knowledge repository, named *Knowledge Galaxy*¹⁰. The complementarities between the KM systems were a critical feature that facilitated the alliance.

Infosys KM infrastructure has a dedicated team of experts and an extensive technical infrastructure in place. Infosys adopts 3-tier architecture to implement KM in the organization, resting on *people, process and technology*.

People

- The central KM group which reaches out to all employees, supported by KM champions in the development centres.
- A KM champion who volunteers for this role and propagates KM in the Development Centre where he or she is located.
- Authors who are producers of the knowledge resources that are submitted to the KM portal called Knowledge Shop (KShop).
- Users- professionals who access these knowledge assets.

- Reviewers- professionals who review a document prior to or after it is published on KShop. The reviewers are experts who have volunteered to review the documents submitted for publication.

Process

- Review-detailed process undertaken by experts to determine the quality of documents made available on KShop.
- Content quality-experts who review the document and the content editors need to follow a comprehensive process while assessing the content quality.
- Incentivization - Infosys incentivizes knowledge sharing where contributors earn their due in terms of **Knowledge Currency Units** or **KCUs**.

Technology

- KShop is a central repository of knowledge that has been codified, classified and archived for reuse.

Accordingly Infosys KM vision is matched by a comprehensive infrastructure where the company aims to move towards a 'Learn Once, Use Anywhere' paradigm (Chaudhary, 2005)¹¹.

These firms while building KM structures have established specific organizational positions. In addition to the above, the companies have introduced positions such as Chief Knowledge Officers (CKO), Chief Learning Officers (CLO), Knowledge Engineers, Intellectual Capital Directors, etc. The responsibilities of the CKO are:

- To lead the KM change.
- Build a knowledge culture.
- Design and implement the knowledge codification.
- Measure the value of intangible assets.

¹⁰The knowledge value chain: A pragmatic knowledge implementation. www.emeraldinsight.com/Insight/ViewContent.

¹¹Chaudhary, H.C., 'Knowledge Management for competitive advantage'. New Delhi. Excel Books, 2005.

The day-to-day management of knowledge demands multiple roles from the KM personnel.

Andersen Consulting for instance, has 'knowledge integrators'- experts in a specific domain, who determine what knowledge is valuable and 'Knowledge administrators' who capture, store and maintain the internally generated competencies. The firm has additional roles for the technical staff who install and maintain the knowledge-oriented software packages, e.g., Lotus Notes.

Conclusion

With the growth in the size and complexity of the consulting industry, knowledge sharing and management is becoming increasingly complex. It has graduated from a scenario where knowledge was shared through interpersonal relations and face-to-face meetings to a scene where it has moved to an industry by itself. It requires an army of researchers ferreting information or data on the industry segment or service, along with advanced technology, sophisticated intranets and thousands of data base.

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Research & Development in Indian Chemical Industries

India cannot be just a provider of technical and support services to global multinationals but has to move up the R&D value chain or could loose the outsourced dollars if more cost competitive countries start bidding for these jobs. The technical excellence of Indian scientific community should be visible, which is not so now. The scientific output measured in terms of papers published or patents granted is dismal. The government labs have to do more focused R&D rather than diffused efforts. Currently R&D in India is mostly funded by public funds. Indian corporate houses should spend more on R&D and cannot hope to grow just through improving on operating cost, but grow by introducing new products and developing new technologies. Improving technical and public infrastructure has to be taken up by the government at high priority to attract foreign investment for setting up new manufacturing facilities and R&D labs to carry out "high-end" research. India's main strength is in the area of natural products, biodiversity, chemical technology, and in innovative process development.



Mukesh Doble

Introduction

According to the National Science Foundation (USA) Research and Development is performed for the purpose of "increasing knowledge, including knowledge about humanity, culture, and society," and using "this stock of knowledge to devise new applications". R&D is divided into Basic research, Applied research, Development, and R&D plant and each one is defined as follows :

Basic research: the idea is to gain more comprehensive knowledge or understanding of the subject under study without specific applications in mind. In industry, basic research is defined as research that advances scientific knowledge but does not have specific immediate commercial objectives, although it may be in fields of present or potential commercial interest.

Applied research: aimed at gaining the knowledge or understanding to meet a specific, recognized need. In industry, applied research includes investigations oriented to discovering new scientific knowledge that has specific commercial objectives with respect to products, processes, or services.

Development: systematic use of the knowledge or understanding gained from research directed toward

the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.

R&D plant: acquisition of, construction of, major repairs to, or alterations in structures, works, equipment, facilities, or land for use in R&D activities.

R&D is done by companies, organizations or institutions to improve energy usage, reduce raw material usage, trouble shoot existing plant problems, finding alternate manufacturing processes, overcome safety issues, overcome environmental issues, develop new products or advance scientific knowledge but does not have immediate commercial use. Industries may not spend large funds on the last reason since it may take several years for such projects to succeed or it may not succeed at all.

New World order

National boundaries and cultural identities are being lost due to globalization, and businesses are being imitated easily and speedily in several parts of the world. Online and networking technologies have lead to new competencies. The power of the new consumerism has shifted the production decisions

from manufacturers and owners of capital to consumers. Long term relationship between the supplier and customer through technical support and service has become more important than what one makes and sells. Knowledge economy has replaced business economy. New jargons such as 'Knowledge management', knowledge workers', have come into play. Economic growth is now largely driven by advances in technical knowledge and innovation and a critical element of the latter is investment by businesses in R&D and capturing commercial advantage from this. R&D is used for solving customer problems, new product development, product and process improvements, competitor product analysis, and long-term strategic research.

The rise of R&D costs has forced many industries to look for different alliances that suited their strategic position both in the short and long-terms. Companies joined and broke quickly. Apart from alliances such as incubator, Virtual Science Park,

spin-off companies, Venture capital and Industry consortia, looking beyond the shores of their own country for cheaper locations to carry out the R&D has become part of the strategic thinking of many multinationals from the developed world. Countries including India, China, Malaysia and Russia are found to be attractive alternates for this outsourced activity. Large cost involved for developing a new drug molecule has forced multinational pharma companies to look towards India as a possible ground for clinical trails.

Changing Times for Chemical Industries

The Indian chemical industries had seen sea changes in the 1990s as depicted in figure 1. The concept of 'Special effect' chemicals, Globalization, environmental issues, China factor had changed the face of the Indian chemical scene. 60s to 80s could be termed as the 'golden era' for the Indian chemical industries with protection and complete insulation from the global players. High import duties helped

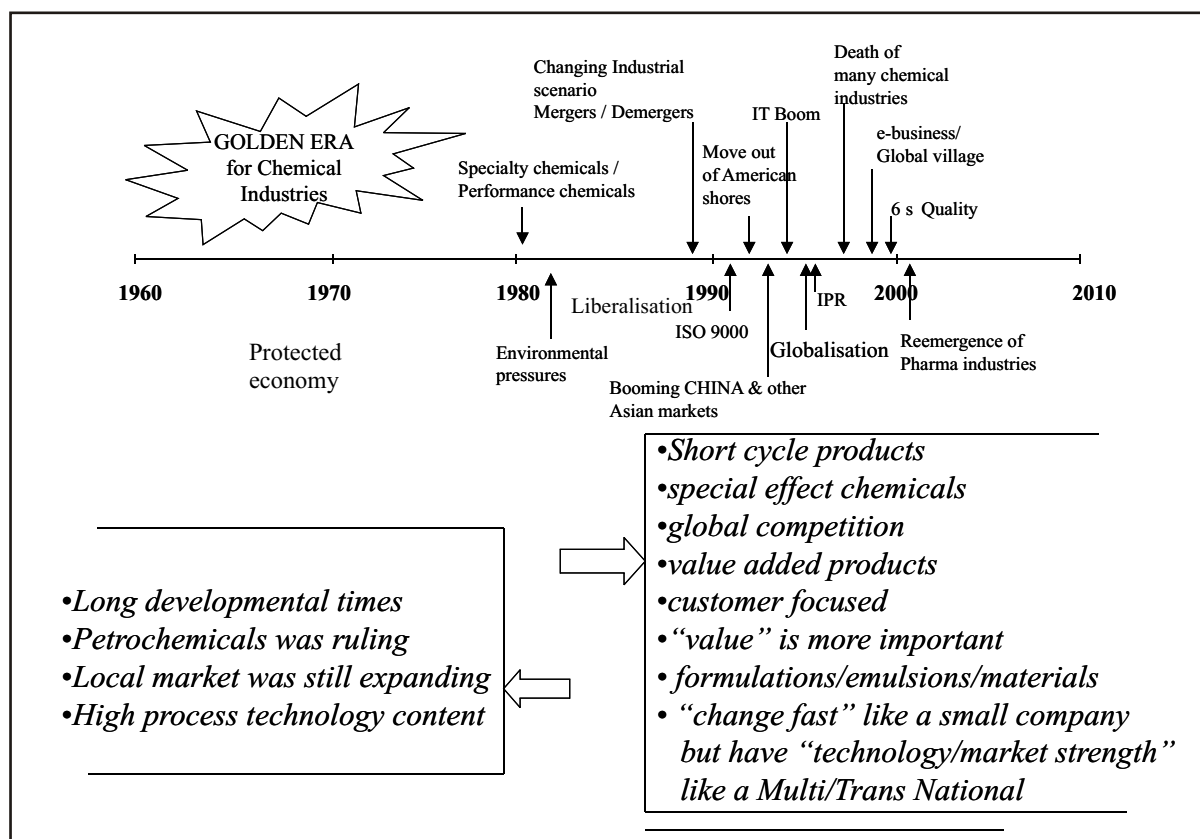


Figure 1: Changing times for Indian chemical industries

these industries to sell at any price. The chemical industries made good profit in spite of inefficient processes and obsolete technologies. Companies did not invest in R&D nor did they think of new products. Large Indian companies believed in licensing technologies. 80s saw the advent of 'specialty chemicals', where performance of the product was given more importance. Globalization brought in buzz words such as 'value addition', 'customer focus', 'technical service', 'Six Sigma and quality' etc for the chemical industries to operate.

R&D was initially based on high technology content but, in the 90s long development times were passé. New product introduction at a fast pace became a necessity, which was based on the successful approach practiced by the Japanese electronic and high tech companies. Innovation, Six Sigma and e-business became necessary as the world shrunk

because of Internet. Many American companies started looking beyond their shores for R&D alliances.

Indian R&D Performance

India stands fourth (with US \$ 2.7 trillion -2002 data) in the Gross Domestic Product output next to USA, China, and Japan but ranks 41st in R&D spending by countries as a function of GDP (~ 0.6%), while USA stands 7th (~ 2.5%) (figure- 2) (CIA World fact book, 2002). All European, Eastern block, South American and South Asian countries spend more on R&D as a ratio of their GDP.

Approximately 386,000 technical papers were published relating to chemical field in the year 1987, which increased to about 585,000 in 1997 (C&E News, 1998). India stands 10th in the list of countries that publish technical papers in chemical field, while USA heads the list (see figure 3).

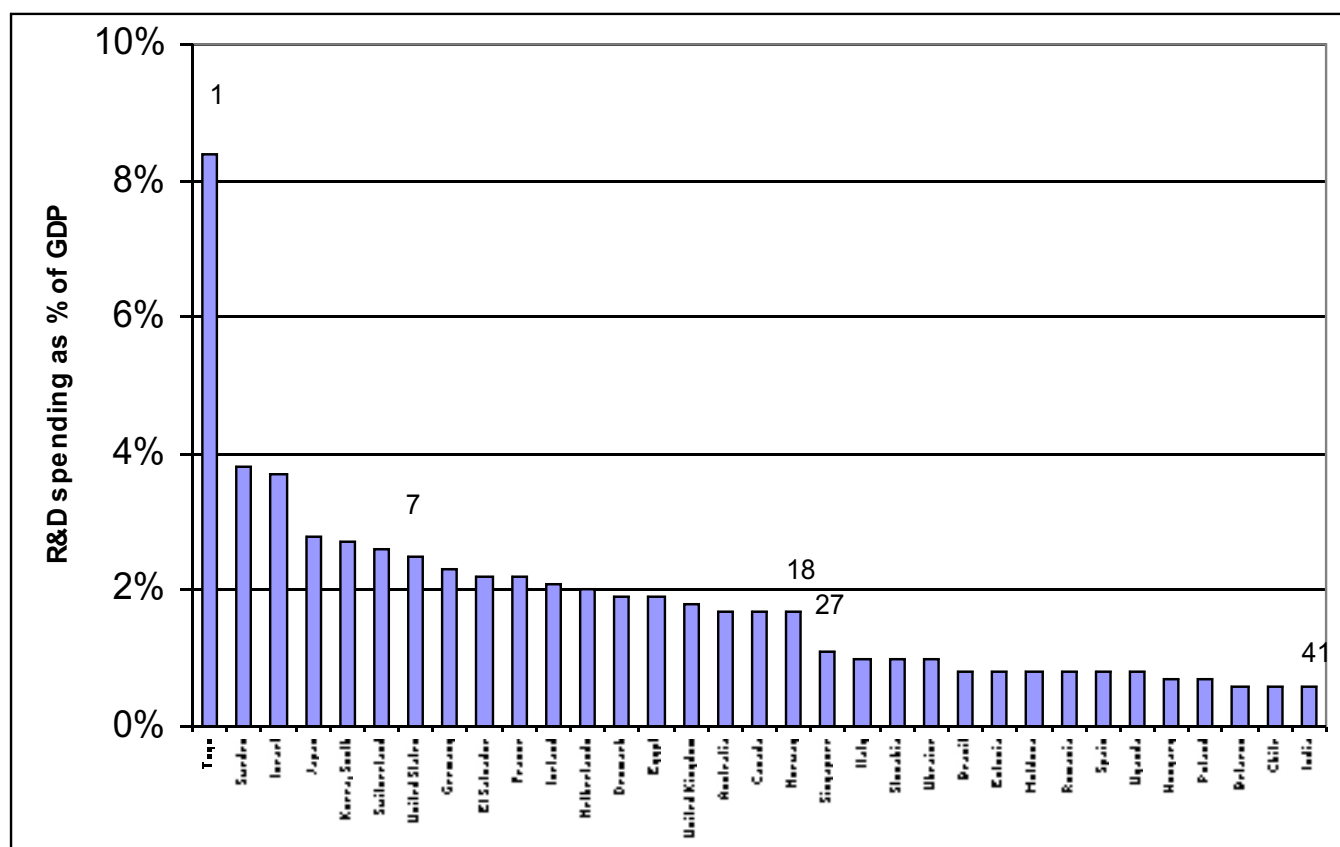


Figure 2: R&D spending as a function of GDP of different countries (USA stands 7th and India 41st in the list)

The number of chemical patents filed in USA in 1987 was 22,000, which increased to 34,000 in 1997. India ranks 61st in the list of country of origin which filed chemical patents in USA (figure 4).

The number of technical personnel as a ratio of population is shown in figure 5, in which Japan, USA, Germany, France and UK occupy the first five slots and India ranks 69th (0.00016 technical personnel per person) in that list.

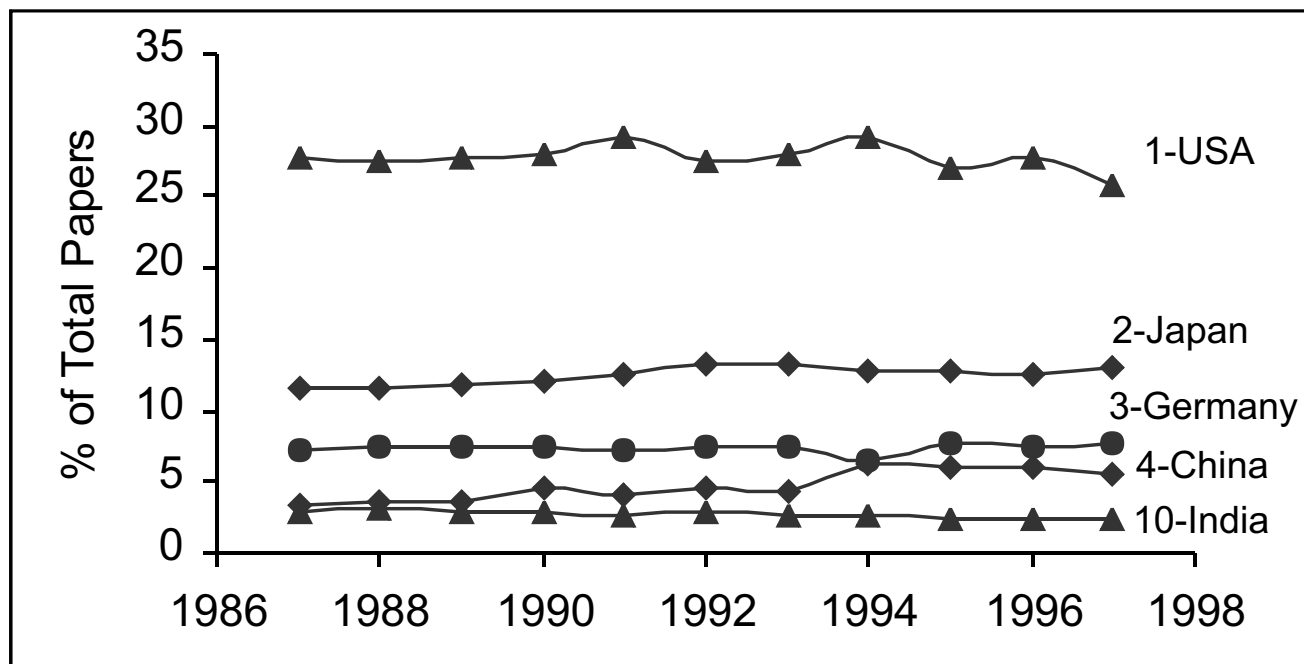


Figure 3: Percentage of chemical literature published by different countries

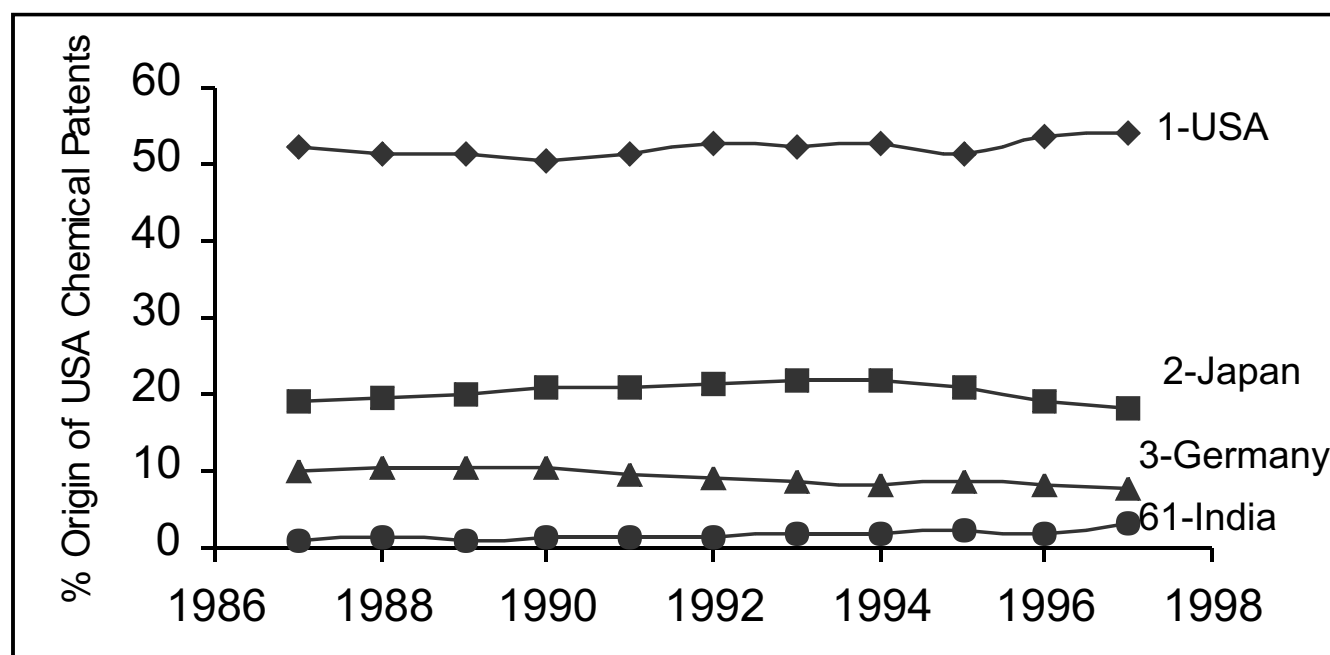


Figure 4 : Percentage of origin of chemical patents filed in USA (India ranks 61st)

Perception about India

From the figures shown above it is clear that the R&D investment, R&D standing and output of India is much inferior when compared to all the OECD and several Asian and South American countries. So what is the attraction of the American and European countries to India? (EIRMA, 2000; Financial Exp, 2003).

Some of the positive reasons are

- Qualified English speaking engineers and scientists
- Vast resource pool of multidisciplinary talent, coupled with some world-class technical educational institutions (see figure 6).
- Availability of superior talent at lower cost

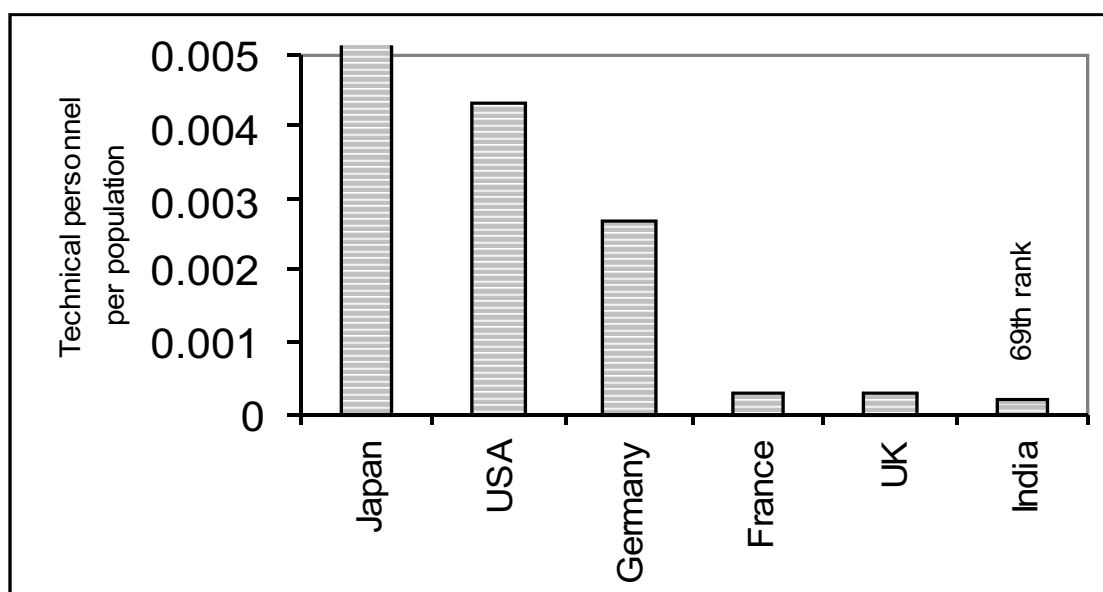


Figure 5: Technical personnel per population in different countries

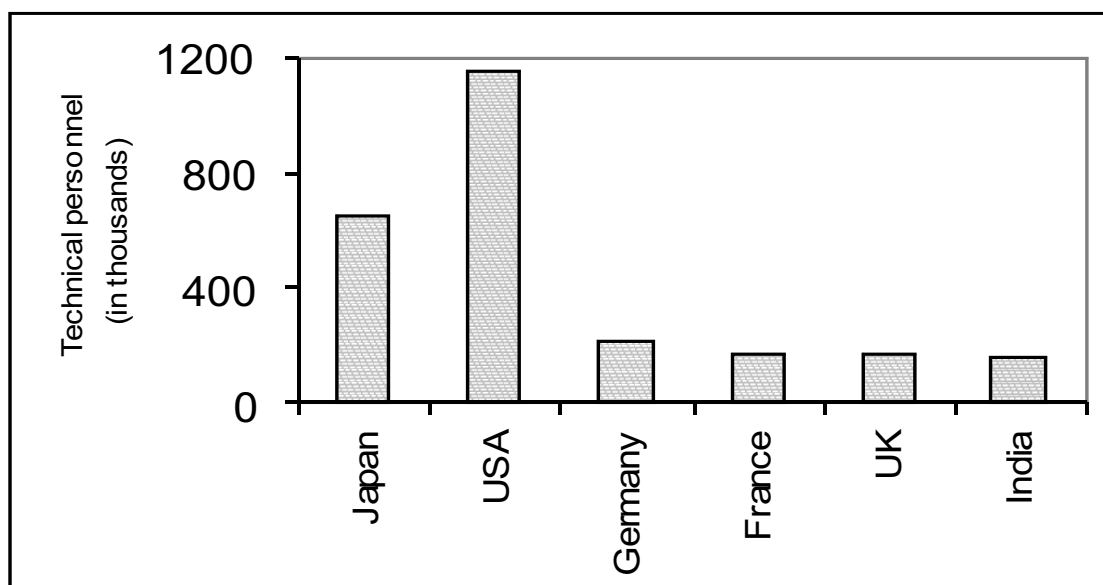


Figure 6: Number of technical personnel in different countries

(allows companies to do things that they did not consider economically viable in the past). Can take risk, for example some companies ask their Indian counterparts to improve chemical process steps which are either uneconomical or has poor yield.

- Proximity to customers base in the Asia region plus cost infrastructure
- India has good legal and administration infrastructure in the cities, and a democratic, liberal and stable rule
- Real estate is easily available and overall costs, including construction etc are cheaper
- Convenient time zone with respect to USA leading to 24 hours and 7 days a week combined activity
- Well developed small/medium scale chemical industries

Also if the publication data is viewed based on GDP per capita per year (i.e. divide the number of publications that come out of India every year by the GDP per capita), then India tops the list, with a value of 31.7, China with 23.3 and USA with 7.0. Countries like Germany, UK and Japan have values of 2.64, 2.59 and 2.15 respectively (King, 2004). Similarly if the number of citations per year is also divided by GDP per capita then India once again tops the lists with 77.4 citations per GDP per capita per year, followed by China and USA with values of 69.1 and 67.3 respectively.

Although there are several positive features about investing in India, the West is still apprehensive about spending in India because of

- Absence of IPR protection (although India has signed the GATT treaty, it has not been fully passed in the parliament and made into a law)
- Too many local laws/regulations. Several windows of clearances and they change depending upon the local government in power.
- Red tapeism, bureaucracy and corruption

R&D by Indian Corporate Houses

Indian government spends 3% of its US \$ 118 billion annual budget (2005-2006) on science, technology

and environment. Council of Scientific and Industrial research, Department of Biotechnology and Indian Council of Medical research spend about US \$ 350, 100 and 50 million respectively (2005-06) (King, 2004). 66% of R&D spending is by these three Central government agencies, 20% by public sector and state government and hardly 15% of the R&D spending is by private industries. The R&D spending by Indian multi nationals are very low when compared to the global standards and they generally purchase technologies from the Global market. In contrast private industries in USA provide for 68.4% of total R&D funding (2000 data).

The types of projects that are carried out by the Indian industries are directed towards reducing manufacturing cost and generally short term in nature. Of late, Indian pharmaceutical companies are spending considerable sums of money on new molecules mainly due to the new patent laws that are going to be implemented from 2005 as part of the GATT agreement. Indian companies provide 22% of the world's generic drugs (copies of brand-name drugs), which means they have become very competitive in the Global market as well as have achieved the highest quality standards. Global Pharmaceutical R&D spending by pharmaceutical companies is \$53.4 billion, while the total sales of these companies is \$275 billion (2000 data), which translates to R&D spending to sales ratio as 19.5% (WTO, 2005). While the Indian pharmaceutical industry spend 1.9% of the industry's turnover (2000), once again a dismal amount when compared to the rest of the world. Of course the percentage has increased considerably in the past 2 to 3 years (>3 %).

Indian corporate houses are only interested in short-term returns or gains; hence most of the R&D activities are technical support in nature. In case of poor performance by companies, R&D becomes the first to face the axe due to cost cuts. Many companies group many miscellaneous spending under the R&D category. As a result, R&D ends up becoming only a route to performing audit-book jugglery. Also R&D by Indian companies is directed towards Indian requirements.

R&D by Western Multi Nationals in India

Overall, companies continue to report that 10% of total R&D spending has a long-term orientation, 30% is for the medium term and 60% is for short-term work (Business Week, 2003). As Global multinationals are finding that doing R&D is very expensive, they are trying to find ways of reducing the cost and at the same time retain the strategic projects. They have found that short term projects, technical support etc, which requires less direct supervision, man power intensive, routine in nature and does not add value to their own technical personnel in their own soil can be pushed to cheaper locations. India is one of the countries that is being viewed by these companies as a technical back room. The type of projects that are being carried out in India by multi nationals under the name of R&D include,

- analytical service and sophisticated instrument operation
- customer technical calls and trouble shooting
- literature search and report writing
- technical support to US/European R&D centres (small piece of the big pie)
- design analysis
- patent back room (patent searches and report writing and preparing office actions)
- generating routine data ('design of experiments' factory)

Issues to be Addressed

There are several issues, which the government, public sector research labs, and industries have to address to make India more attractive for multinationals to invest in 'high end' research. Some of these are:

- Absence of good manufacturing base for multinationals-China and Singapore are preferred. Every one is attracted by the size of the market in India and the size of the middle class but no one wants to put up manufacturing base in India due to problems mentioned above such as bureaucracy, absence of IPR, poor infra

structure. Companies such as ICI UK, Hoechst etc, systematically pulled out of India since they could not manage dealing with the local bureaucracy.

- Complicated government regulations, complex and cumbersome customs procedures and red tape and bureaucracy leading to lost time and need more effort.
- Short term thinking by Indian multinationals and hence not enough money spent on R&D by Indian corporate houses.
- Absence of infrastructure
 - Public (water, transportation, power and communication etc)
 - Technical (sophisticated fabrication facilities etc)
- Research by government labs are not focused in few specific areas of our core competencies (e.g. based on natural resources etc) instead it is diffused and 'aping the west'
- Research by government labs is "islands of activities" due to absence of teamwork between labs and/or various centres.
- Core research areas relevant to India to be identified and addressed by industries/research labs/universities (CSIR to do that job)
- The current IT and BPO boom is making the CII and the Government Science and technology bodies complacent. But these activities are at the low end of the value chain, they do not increase the technical competency of the nation, currently creating a shortage of technical and scientific personnel (since the work force is moving towards the attractive option) and, can disappear if the multinationals find cheaper alternatives. Slow erosion of technically competent and trained personnel could have long term impact on the manufacturing base of the country.

Silver Lining

- Situation on the R&D front is changing in India with the economy shifting to open market, high

GDP growth (~ 8%). Several pharmaceutical and biotech companies have increased their R&D funding and are today doing meaningful R&D unlike before.

- CSIR Labs themselves are undergoing a sea change and becoming more market driven as they are forced to self-sustain.
- Universities and Industries have started dialogues at various levels and have signed MoUs, which mean that they are viewing each other with less apprehension.
- Indian pharmaceutical companies are becoming big players in the International scene with acquisitions and JVs.
- The average cost of a clinical trial in the United States is US\$180 million while the cost in India is US\$100 million, which means India is being seen by many pharmaceutical companies for forging JVs as well as for investing.

What to Focus on

- India is rich in Natural resources and biodiversity and hence the research should focus in those areas instead of aping the west.
- Chemical technology has always been the strength and that is the reason why many contract chemical research activities (CRO) have been started which involve scale-up and process development of products for International clients
- Innovation in pharmaceutical research for cheaper products. Introducing a new drug by an Indian pharmaceutical company might be difficult because it costs almost US \$ 1 billion to move from lab to commercial stage and it also takes about 12-15 years.
- Biotechnology which is still in the research stage and is man power intensive. The biotech Industry in India crossed US \$1 billion in 2005 with a 36.55 % growth and more than half of this is in the area of biopharmaceuticals. It accounts for 1.1% of the global turn over (USA = 78% and Korea = 2.2%). Sales of biotech products are slated to reach over \$ 60 billion by 2015.

Currently bioinformatics sales accounts for about 2 % of the sales and is expected to grow to US \$ 2 billion by 2010 (Jayaraman, 2005; Biospectrum, 2005).

- Energy has always been a serious problem, with most of our foreign reserves spent on importing oil. Government should seriously pump in more funds in research directed towards alternate and sustainable energy sources, rather than the current half- hearted effort. In addition they should subsidise the users who use alternate energy sources.

Customer Focused R&D

What the customer “wants” is more important than what “I can give”. One of the reasons why CRO is flourishing in India is mainly because we are doing what they want us to do. Customer focusing means developing new products, new processes or services specifically to cater for their needs or solve their current problems instead of doing what nobody may show interest in. One of the reasons for the success of pharmaceutical companies can also be attributed to the customer focused approach followed by them.

In addition to chemical industries government labs also should be looking outside to identify customer problems and address them through their R&D efforts. A few CSIR research labs are already well ahead into this concept of customer focused R&D that they are able to self sustain without government funds. The system should also encourage and reward scientists and technologists who are willing to focus on customer problems, rather than work on fancy problems which may not be relevant to Indian context.

R&D and Multi Disciplinary Approach

R&D has become highly multidisciplinary in nature with the scientist and engineer has to be not only an expert in his/her core area but should also know many other subject which includes:

- Product knowledge
- New Reactor designs
- Separation techniques
- Analytical techniques

- Process Flow sheeting software
- Patent literature/Competitive product analysis skills
- Process control and instrumentation
- For biotechnology - knowledge of Molecular Biology/Enzymology
- For Polymer- knowledge of Polymer chemistry/processing and Material science
- Six-Sigma, Quality factors
- Inherent safety
- Environmental issues

In addition the person should develop soft skills such as Communication, Net working, Team working and Global thinking

Conclusions

The type of R&D Western multinationals do in India is not the “high end”, but provides support to the groups in United States and Europe. The knowledge generated in India by these personnel gets exported to their parent organization to be benefited in their countries. Although R&D investment by these multinationals in Indian soil provides employment to the local scientists and engineers, it serves no purpose in developing the economy of our country or help in developing technical competencies that India needs. Indian industry has to move up the value chain from providing skills (which is what it mostly does today) to technologies and products

generator. A company can successfully move up the value chain only if its R&D investments result in the creation of IPR that can be packaged and delivered to the customer and working for generating IPR for foreign multi national companies is not the answer. Indian business houses and Government research labs should invest considerably in R&D in India and develop certain core areas, which are relevant to the country's needs rather than work in a diffused manner. Research activities of the pharmaceutical companies in India over the past 50 years were directed towards circumventing patents and improving the bottom line through cost cutting, energy savings etc. But, now they have realized that fundamental and focused research is needed to discover new molecules and hence have increased their R&D spending considerably. But still this amount is very less when compared to the spending by rest of the world. Foreign multi nationals would want to form alliances and joint ventures only if they feel that the Indian counterparts could provide them with new products or technologies. Whereas the alliances that are formed at present are meant to get a foot hold to the vast Indian customer base or to reduce their development cost. Better support and subsidy by the government is needed for the pharmaceutical and chemical companies so that they can compete in the global market against countries like China which gets considerable subsidy from their government.

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Dynamics of Customer-Consultant Relationship

In the 21st century, it is taken for granted that the consultant is keeping abreast of technological advances, to be able to help clients. But success will go to the consultant, who additionally, can manage customer-consultant relationship excellently

Customer-Consultant relationships are facilitated when:

- *there is an optimum fit between the Management Consultants offer and the clients requirements. This ensures that the client will want to buy.*
- *the customers attitude is one of 'self-help' - where the client has skills in extracting value from consultants.*
- *the 'interface span' between consultant and client is large - and involves people at every relevant level of the organization.*
- *there is trust - where both know they are on the same side.*
- *there is offer of the unexpected and free. As in all marketing, this improves relationships.*

Handling the dynamics of customer-consultant relationship effectively, will help the consultant to graduate from 'expert on hire' to 'advisor extraordinary.



Walter E Vieira

Beyond the Challenge of Technology-the Challenge of Customer-Consultant Relations.

It may seem normal to assume that *in an era of rapid technological progress*; management consultants will be running out of breath keeping abreast of technological advances in their anxiety to communicate, interpret and transfer these to their clients. There is EVA and MVA. There is ERP and SAP to distribute, collate and capture data for better decision-making. There is the balanced score card and the marketing score card. There is CRM and now, ROC (Return on Customer). And there are as many theories on leadership, as there are consultants. There are innumerable software packages - simple and complex - which will help the client manage more effectively; with better returns to all stakeholders.

It is such technological tools that enable the 21st century consultant to advise customers, how to

transform themselves to meet the challenges of rapidly changing business conditions.

And yet, there is the other and as important *challenge* for consulting services in the 21st century. It is the *challenge of customer or client relationships!*

This old adage may seem relevant in this context:

“Benjamin Franklin may have discovered electricity, but it was the man who invented the electric meter who made the money”.

It is the Management Consultant who can additionally, manage Customer Relationship excellently, who will be successful in the 21st century.

The First Submission

Customer relations is dependent on an optimum fit between the management consultant's offer and the client's requirements.

There are too many consultants going round the world, *with standardized and ready SOLUTIONS*. They are *looking for PROBLEMS* where they can fit these solutions! It does not matter how obliquely they manage to do this. Often, Management Consultants *do not take the time and trouble to listen* to the customer; to investigate whether the real problem is different from what the client perceives; to analyze whether the client is following an agenda of deception in order to use the mask of the consultants report to garner respectability for his own decisions.

Management Consultants, especially *those who work internationally do not sometimes consider the cultural divides* that need to be bridged and which may alter the solutions. In the East, you first need to be a friend, before you can do business. In the West, you first do business, and then, perhaps, you may become a friend.

There is a basic formula in Marketing theory. Only *when MAN marries FAB, a SALE is born*.

MAN is the customer-who has the Money; the Authority; the Need.

FAB is the sellers' ability to convert Features, into Advantages, and in turn, into Benefits for the client.

Unless this is first achieved, virtually as a glove to a hand, the project will be off to a false start. *This FIT is the rock foundation of good on-going customer relations* throughout the project period of weeks or even years.

Many consultants do not understand this (the senior ones because of ego and over confidence; the junior ones because of ignorance) that you can never really *SELL* a service (especially a sophisticated one like Management Consulting).

You can only *make a client WANT TO BUY* - because the *BENEFIT* the Management Consultant offers *FITS* into his *NEED*!

The Second Submission

Customer relations is heavily dependent on the customer profile and his attitude.

I have attended many Management Consultants' meetings over a 30-year period and found that we always wonder *why patients never have a problem taking advice from doctors!*

My friend R Jaganathan, former Editor of Indian Management has described this situation beautifully in a recent editorial. Patients come in with a complaint; the doctor does a few checks and then prescribes something to address either the symptoms or the disease or both. The patient usually accepts the advice, swallows the pills and in most cases, gets cured in due course. Everybody is happy, even if all the doctor may have done is hand the patient a placebo! But this kind of *happy ending is not so common when companies call in management consultants* to help with diagnosis or cures.

Many companies *bring in a consultant without knowing what they specifically want from them*. Not surprisingly, the end results of these engagements vary from patient to patient. Some of those who take the advice do wonderfully well. Others reject the advice, but are none the worse for it. Others are neutral - they neither lose nor benefit too much. The rest accept the advice and regret the outcomes. Why does this happen?

Because the *right analogy* is not the traditional doctor-patient relationship, but the more complicated one *between a troubled soul and his counselor*. Success here depends *more on the patient's own efforts and less on the pill*. This situation requires the client to do all the hard work, with the counselor merely giving you guidance and egging you on.

And it is the same with consulting relationships. What you get out of a consultant ultimately depends on what you want to do with the advice, and how well you can implement the game plan he has helped evolve. Success does not depend on the length or erudition of the consultants report. *It needs client skills in extracting value from consultants*. The Management Consultant shows the client the road to success, but the client has to negotiate the terrain

himself. Clients must be sure why they want a consultant (The NEED) otherwise, having one is of no use! And no amount of customer relationships will help.

The Third Submission

Customer relationships are greatly affected by the “interface span” between the consultant and the client.

When the proposal is presented, everyone from the Management Consulting firm is around. The CEO, the Engagement Manager, the Industry Specialist, the Country Specialist et al. *When the assignment gets going, all one may see is the team of recently graduated MBAs with two years cumulative aggregate experience in industry. Clients find this distressing.* Many large consulting firms have destroyed their reputations and consequently, their relationships, on this account.

Some consulting firms are now *changing their structures* from the pyramid, which had a few senior consultants at the top; a few more below them as Engagement Managers, and a large number of 'worker bees' at the bottom.

This pyramid is now being changed to a diamond - where there are a few at the top; very many at the middle; and some (but more than the top and less than the middle) at the bottom. Sure, this will increase costs. But it will deliver better results. And certainly greatly increase trust - and therefore, client relationships.

There is less dependence on relating only to the top management - and greater effort to involve people at every concerned level of the organization. Then, there is “empathy.” The consultant has touched every relevant 'vertebra' in the spinal column. It extends from the 'gatekeeper' to the initiator, the influencer, the decider, the user to the monitor /evaluator within the organization. Andrew Sobel refines this further and recommends that Management Consultants think beyond just 'clients' to build what he calls 'relationship capital' - so he goes beyond clients to include counselors, catalysts,

collaborators and companions. No one is left out. And this helps to form teams where **it is just 'us'** rather than 'we' and 'them.'

The Fourth Submission

Good customer relations are greatly facilitated by TRUST.

It is the trust that the client develops in the consultant and the consultant has in the bonafides of the client.

A leading Asian industrialist once said: “the client - consultant relationship cannot be just a customer relationship.” *Consultants must not just treat companies like a customer. Both need to be on the same side!*

Actually, this is the essence of all marketing - but much more so in consulting.

Although they may both be on the same side, the Management Consultant must know, and also make clear, overtly and covertly - that he has *not come to stay*-either by prolonging the assignment needlessly; or by generating another assignment before completing the previous one. Trust increases when the Management Consultant shows that he has *come to help* the client *see the light, not run his life.* That he has come to teach the client how to fish, not to provide the fish. Trust is increased when the client knows that the Management Consultant *wants the assignment, but does not need it.* And like at any dinner party, the Management Consultant knows when to leave - a little earlier perhaps than when the host expects him to leave. It is then *clear* to both, that *consulting is not a substitute for management.*

The Fifth Submission

Like in the marketing of all products - consumer, industrial or services - customer relations are greatly improved and strengthened with the offer of the unexpected - and free!

These need not be large projects offered free. No Management Consultant firm can afford that. But Chinese restaurants will offer the 'fortune cookies' with the bill - and free. Some restaurants offer a free gas lighter with the bill. Sometimes a

Management Consultant who is visiting a location for some other assignment may offer to stay an additional day or two for another client and save the airfare for the client. It could be a multi thousand euro project - but *the client still values these small cookies given free*, - when in fact, he could have been charged!

It is the *small things that matter in relationships*. An occasional phone call to find out how things are going; a newspaper cutting which may be of interest to this past client, who may have missed this; sending a book which may be of interest; providing an introduction which may be helpful; steering business opportunities to the client. Sobel calls this *'being on the radar screen'* so that you are remembered by as many past, present and future clients as possible. As in all marketing however, there is only so much you can do, so you need to *prioritize with a focus on the core group*; and less on the *fringe group*; and even lesser on the *zone of indifference*.

In Conclusion

From such an approach and process, over a period of time, the Management Consultant metamorphoses from *'expert on hire'* to *'advisor extraordinary!'* as Sheth and Sobel describe so well. However it is a *long and arduous process*, and the Management

Consultant will succeed only if he strongly believes and has passion - for his profession and for his clients' success.

The consultant who was sought for his specialized advice on specific subjects of his expertise *is then asked for his opinion on total business strategy and policy*. The client values his opinion, even if it is a suggestion that the client consult another specialist that the Advisor recommends. Does that mean a permanent sinecure for the consultant? Not really. Some of this is at no charge. Some is charged for. Advice is sought when the Management Consultant may not be doing any work for the client at the time. *The relationship is fluid, trusting, and mutually beneficial*. It is a *bonding that can be plugged and unplugged at anytime* - without recrimination or rancour.

Finally, if both *client and consultant believe* with Peter Drucker that the *'only purpose for the existence of a corporation is to create and keep a customer'* and both work towards ensuring that this happens, in whatever field the Management Consultant may work - as a specialist or as a generalist; *they will dance the tango together to the musical rhythm of an optimum client-customer relationship!*

*It is always easier to talk
about change than to make it.*

*It is easier to consult
than to manage.*

-Alvin Toffler

Quality Improvement through Collaboration between Educational Research and Consultancy Institutions in India

Quality of educational, research and consultancy institutions in India plays a significant role in meeting the socio-economic goals for the development of our country. Except IITs/ IIMs/IIESTs/IISCs, quality of engineering diploma holders, graduates and post-graduates from majority of the technical institutions in India is not up to the mark. Most of the institutions do not have sufficient qualified and trained teachers and adequate infrastructures. Majority of the bright and meritorious students in engineering & technology leave India for higher education and research abroad due to better infrastructures, higher remuneration and due recognition of their work. Present status and quality of technical education, research and consultancy institutions in India has been critically examined with a view to improve quality of their products. Need for collaboration between educational, research and consultancy institutions in promoting quality has been emphasized.

Key words: Collaboration, quality, technical education, research, and consultancy, AICTE

Introduction

Although India has progressed a lot after independence, it is noticed of late that the quality of many of our educational, research & consultancy institutions is not so satisfactory compared to those in other developed countries in the world. While the quality of the products largely determines the health and status of the institutions, it is the quality of education and training that a person receives in educational, research and practicing institutions that transforms the person to become worthy, efficient and capable to deliver the goods to the society.

Many of the challenging problems being faced or to be faced in future by our country can be solved through demand driven research and its application in design and field application through consultancy. Majority of our engineers engaged in teaching, research and consultancy institutions have little opportunity to upgrade themselves while working and possess very little interest and motivation about the application of the latest technology, research and development.



S. K. Mazumder

Developed countries in the world have faced many a challenges and solved their problems through synergistic collaboration between the educational, research, consultancy organisations and other agencies dealing with the problems. Unfortunately, such inter-institute collaboration is very rare in our country. All institutions seem to work in their own water tight compartments and are mostly busy in performing routine type jobs in an isolated manner without pooling of ideas and resources from the neighboring institutions, resulting in inefficiency, lack of quality, cost escalation and time over run.

Present Status of Engineering/Technical Education in India

Engineering & Technical education in our country is offered at various levels by different categories of institutions, namely, (i) Industrial Training Institutes for technicians (ITIs) (ii) Polytechnics for diploma level courses (iii) Engineering colleges mostly for degree level courses (iv) Universities/IITs / IIMs /IISCs / NITs / IIESTs / Govt. & Pvt. institutes of higher education in engineering and technology.

Table-1 is a zone-wise and state wise list giving the numbers of technical institutions (NOI) in India (up to 2004) at undergraduate (UG) and post graduate (PG) levels approved by AICTE, except IITs, IISTs, IISc and IIMs. The table also gives a break up of the institutes under government/university control and private institutes. The last two columns in the table provides sanctioned intake at UG and PG levels.

Today, majority of our engineering graduates prefer IT, software, banking or similar types of jobs where there is very little scope to utilize the technical knowledge and professional training they receive from the technical institutions during the 4-year degree level program. There is a great deal of mismatch between our social requirements and the educational program and what the students learn from the educational institutions and what they actually practice in real life. According to a McKinsey survey report, multinationals find around 25% of about 4 lac Indian engineers employable.

Currently, our undergraduate program in engineering/technology is overloaded with heavy dose of theory in diverse subjects of stereotyped nature - often unrelated to the discipline of their specializations. The biggest deficiency in most of the teachers/instructors is lack of any industrial experience. In medical institutions, the doctors receive practical experience while completing internship in hospitals attached with the medical institutes under the able guidance of their teachers. In engineering education, however, no such facilities are available to gather practical experience while learning unless the institute has program of industrial training under the supervision of their teachers during summer and winter vacations.

Many of the institutes do not have requisite infrastructures and adequate number of faculty and supporting staff. There is a mushroom growth of engineering colleges offering degrees by some nearby university which has very little say or control in these engineering colleges as they are neither

financially nor administratively controlled by the university with which they are affiliated. It is to be carefully decided whether proliferation of private commercial type engineering colleges in the cities is preferred to technical universities for achieving quality of technical education in India. Recently, UGC organized regional conferences of vice-chancellors which culminated in a national conference of vice-chancellors on Oct. 10 and 11, 2007. They have recommended private funding in technical education in areas of priority in rural, remote and underprivileged areas (The Statesman, 2007). Bhat (2000) narrated some experiences of Public-Private Partnerships in social sectors through private funding.

Quality of our diploma holders (from polytechnics), AMIEs (from Institution of Engineers) and graduates (from Govt. & private engineering colleges) in India is not satisfactory. They are being engaged by many of the private companies with poor pay and perks compared to graduate/post graduate students coming out from IITs/IIMs/IISc etc. There is no practical/design classes for AMIE students resulting in an inherent draw back in their concept and confidence which are gradually built up in steps in the engineering colleges through laboratory experiments, tutorials, design classes, industrial training, project works etc. under the guidance of teachers. However, AMIE courses offer an opportunity for those students (from rural and semi-urban areas) who can not afford or compete with city students who attend special coaching classes for entry to engineering colleges. Are the coaching institutes really of any social benefit? Are they not killing our secondary and higher secondary education system?

It is true that the large requirement of our technical manpower can not be met by the government alone. However, it is to be kept in mind that substandard institutions turning out substandard products from public or private engineering colleges will in the long run be damaging many of the good things we

are planning for our socio-economic development. (RediffNews, 2006).

Quality of Higher Education in Engineering in India

From Table-1, it may be seen that there are 385 technical institutions in India (up to 2004) which offer post graduate courses in engineering with a total sanctioned annual intake of 32,752 students. They offer ME/M.Tech./M.Sc. (Engg.) degrees in different specialties in architecture, engineering, technology, pharmacy and management. Many of these institutions also offer Ph.D. program of minimum 2 years duration (after master's degree) and 3-years duration (after bachelors degree) - both full and part time. Institutes offering PG courses are also engaged in R&D works sponsored by Govt. bodies (e.g. Ministries, CSIR, UGC, DST, AICTE etc) as well as R&D projects referred by industries.

R&D works which act as a nucleus in all developmental activities are performed mainly by post-graduates. Except a few IITs, the faculty position and infrastructures available for teaching postgraduate courses are extremely poor. Most of our postgraduate students join the program as a last choice only when they do not qualify in other all India examinations or do not get any appropriate job. Under such circumstances, the quality of our post graduate students is far from satisfactory. The present status of our post-graduate education in engineering can be assessed from the fact that against a sanctioned intake of 32,752, actual intake was about 20,000 whereas actual outturn was about 10,000 only (AICTE-1999). The situation has further deteriorated with time since the post graduates have no motivation for higher study and research, principally due to lack of job opportunities.

All the advanced countries in the world have developed professional institutions in the pattern of universities with facilities for teaching, research and consultancy. Except a few IITs, such facilities do not

exist in majority of engineering institutions in India. The teachers are so overburdened with undergraduate teaching and other administrative and examination duties that they have hardly any time for research and development. It is of utmost importance to promote R&D in the educational, research and consultancy organisations as well as in the industries for improving quality - a key to our socio-economic development in a sustainable and environmental friendly manner.

Quality of Engineering Research Institutions in India

Although a majority of our engineers are engaged in construction and manufacturing industries, research and developmental activities in engineering and technology act as a nucleus around which all other developmental activities take place for further growth and excellence. Sound knowledge, information, initiative, hard work, perseverance and above all a spirit of creativity are essentially needed for pursuing research and development works leading to innovation and excellence. There is hardly any invention in the large numbers of our universities and technical institutions in the country. Unless the quality of our education and research in science, engineering and technology are upgraded further, we have to pay heavily in future for our neglect and the developed countries will monopolize the jobs related to research and development works. The country will be compelled to purchase the foreign know-how and will remain ever dependent on foreign technology and foreign products at an enormous cost.

R&D sector in India is largely dependent and controlled by the government. Unlike Japan where 95% of research funding comes from industries, almost 99% of research funding in India comes from the Government. Basic and fundamental research carried out in our educational institutions mostly end in publication of papers in journals and conferences without much application in the field, mainly due to lack of investment, improper co-ordination and

indifference by industries. While inventions are mostly accidental and not so costly, commercialization of invention and innovative ideas require huge capital investment and a great deal of co-ordination and hard work. While USA won many a nobel prizes in basic sciences/technology, industries in Japan encashed most of these inventions by investing, commercializing and making superior products through adaptive kind research. Universities and research institutes are good in R&D, but poor in delivery of R&D from labs to fields. Although efficient in delivery, Indian private industries are hesitant to invest in R&D due to risks involved. In India, the general trend is to purchase products of superior quality from abroad at exorbitant costs, although there are large numbers of research institutions in the country and there is no dearth of talent in our country.

Govt. controlled research institutes in India are in miserable condition since these institutes appoint scientists/engineers/technologists from the Govt. cadre posts, irrespective of whether they have requisite knowledge, expertise and aptitude in research. There is no proper scheme to improve and update their knowledge after their recruitment. Scientists and engineers engaged in teaching, research and developmental activities have little incentives commensurate to their knowledge, hard work and devotion. Engineers/ scientists/ technocrats posted in government run research laboratories often consider it as a punishment posting.

After the independence, educational institutions of higher learning were headed by persons of high integrity and character with a sincere desire to develop and excel. Today, many of these institutions are being headed by mediocre persons with political support or favor from top influential persons on cast/community/regional basis, irrespective of their merit. As a result, the topmost and meritorious brains that are really worthy and capable are leaving the country out of frustration and they are

immensely contributing towards R&D in the developed countries, thereby enriching the standard of their institutions. A mediocre or political person will always like to be surrounded by similar brand of persons resulting in gradual deterioration in the standard and reputation of the educational and research institutions. Present status of research in engineering and technology in a vast country like India can be assessed from the fact that the annual out turn of Ph.Ds in engineering /technology has decreased from 506 in 1979 to 374 in 1996 (AICTE-1999).

Quality of Consultancy Institutions in India

Consultancy organisations in India, in both public and private sectors, numbering 10,000 or more now, are rendering very useful services to the society today by doing most of the jobs which government departments used to do earlier, in a much more efficient and economic manner in a given time frame. It is, however, unfortunate that many of the consultants in India are reluctant to upgrade and modernize through collaborations with educational and research institutions in India for more effective use of their manpower, time and money. Currently, research and development in our country is generally confined to a narrow circle of academicians and end in conference or seminar & journal papers or reports with very little field application. The main challenge of transfer of such R&D from laboratories to field lies in organizing, implementing and directing the efforts in a well coordinated manner through appropriate collaboration.

Scope of consultancy services are steadily increasing in our country due to the govt. policy of gradual decentralization and private sector participation. The number of consultants in different disciplines in engineering and technology are steadily increasing day by day due to the government decision to improve upon urban and rural infrastructures. However, the quality of many

of the Indian consultancy companies is not yet up to the mark. The future of consultancy organizations depend on strengthening their R&D base, increasing use of information technology, improvement in their design capability by use of latest knowledge, software, organizing in house and external training program, quality improvement through continuing education as well as development of business and managerial skill. Analysis and conversion of information into efficient and economic design will be a key element for their success in future.

Collaboration between Educational, Research & Consultancy Institutions for Improving Quality

Research and development must have strong linkages with industry for meeting our socio-economic goals. Since university professors and the research scholars working under the professors comprise an enormous pool of expertise and resources, appropriate collaboration must be built up between the educational and research and the consultancy institutions for improving quality. University curricula also must be upgraded to cover the emerging areas in science and technology (Madramootoo, 2000). Inter-Institute collaboration between academic institutions and industries is vitally needed for improving the standard of both the educational and research institutions imparting knowledge and the practicing institutions making use of the knowledge (Chakraborty, 1999). This can be achieved through several ways e.g. exchange of faculties, supporting research funding, carrying research and consultancies jointly, exchange of knowledge, information and experience, participation in workshops and conferences; offering short term refresher type courses jointly with faculty drawn from both academic institution and industries, organizing training / orientation program, taking active role in strengthening professional societies; reading journals and contributing papers in the technical journals; writing text books / handbooks jointly; participating in the preparation of codes, manuals and guidelines etc.

Engineers in a consultancy organization or in the field can not keep themselves abreast with the latest research and developments except a few with an academic bent of mind. Similarly, an academic person has very little opportunity to gather practical experience, although he may be equipped with the latest mathematical tools and computational techniques. Collaboration between field organizations and educational institutions will help in pooling the resources together for the most economic, efficient and time bound solution of the problems being faced in different aspects of planning, design, execution, operation and maintenance of projects (Mazumder, Jan., 2007). Such collaboration eventually helps in development of innovative methods and inventions, new technology, new software helping further growth of profession for the national development. All the collaborating institutions get enriched and attain a new height to face any challenge posed by the government and the society.

Considering the challenging problems being faced by India, it is of utmost importance to promote R&D in the technical institutions, research & consultancy organisations and the industries for leveraging innovations and inventions - a key to our socio-economic development in a sustainable and environmental friendly manner. Inter-institute collaboration will improve the quality of our scientists, engineers and technicians who have to be equipped with wide technical knowledge based systems integrated with work experience, creative skill and dexterity in tune with the changing socio-economic and technological scenario in the fast changing world with global competition.

As an example of such inter-institute collaboration, author would like to mention about an MoU signed recently by IIT (Roorkee) and ICT, New Delhi, for conducting a joint research on 'Bridge Scour'. Under the scheme, IIT (Roorkee) will conduct physical and mathematical model study of scour based on field data to be supplied by ICT from 10 different bridge

sites. Scour estimated by the mathematical model will be compared with those measured at bridge sites by ICT for the purpose of validation of the mathematical model and updating IRC/IS codes. These codes prescribe Lacey's empirical (1930) method which over-estimates scour. (Mazumder, Oct., 2006) and there are several limitations of Lacey's method of scour estimation (Mazumder, Dec., 2007).

Post graduate students can carry out jobs related to the sponsored research and industrial consultancy works - a part or all of which may be included in their dissertations - both at Master's and Ph.D. level. It is principally due to the contributions made by these young and energetic scholars that the department progresses and the laboratories develop. It also helps in creating quality manpower essentially required for teaching, research and consultancy jobs.

A major problem being faced by our educational, research, consultancy and industrial institutions today is how to attract and retain qualified and meritorious persons. A large number of such persons leave the country for higher education abroad for better pay and perks, congenial environment for research, freedom of work and above all due recognition of their achievements. Post graduate study for teaching and research is the last priority in

India today. If this situation continues, our educational, research and consultancy institutions have no future and we are going to be dependent on foreign institutions for higher education, research and development.

Conclusions

After independence, India has made significant progress in almost all walks of life. Considering the future challenges, it is, however, extremely important to further strengthen our R&D base. The present status of our educational, research and consultancy institutions is not so satisfactory. Our meritorious students are going abroad for higher education and research in engineering and technology resulting in gradual deterioration in quality of institutions in India. If the current trend of migration of merit from India is not arrested, our country will be ever dependent on foreign know how and foreign products at exorbitant cost. Collaboration between educational, research and consultancy organisations in engineering and technology through appropriate encouragement, investment and co-ordination is essential for improvement of quality- a key for our socio-economic development in a sustainable and environment friendly manner.

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Table 1: State-wise Distribution of Technical Institutes & Intake at UG & PG Level, 2004

Regions In India	Different States in India	NOI			NOI		Intake	
		UG	PG	Total	Govt./ Univ.	Private	UG	PG
Central	1. Madhya Pradesh	69	19	88	13	75	20,210	1,897
	2. Chhattisgarh	23	2	25	6	19	4,020	54
	3. Gujarat	24	9	33	8	25	12,965	1,291
	Total	116	30	146	27	119	37,195	3,242
Eastern	1. Mizoram	1	0	1	1	0	120	0
	2. Sikkim	0	1	1	1	0	525	18
	3. West Bengal	39	13	52	19	33	15,477	1,300
	4. Tripura	1	1	2	1	1	180	54
	5. Meghalaya	1	0	1	0	1	240	0
	6. Arunachal Pradesh	1	1	2	1	1	210	54
	7. Andaman/Nic.	0	0	0	0	0	0	0
	8. Assam	3	7	10	3	7	750	365
	9. Manipur	1	0	1	1	0	115	0
	10. Nagaland	0	0	0	0	0	0	0
	11. Orissa	32	11	43	2	41	13,014	729
	12. Jharkhand	10	4	14	4	10	3,385	537
	Total	89	38	127	33	94	34,016	3,057
North	1. Bihar	7	4	11	3	8	1,905	528
	2. Uttar Pradesh	81	21	102	13	89	28,953	1,769
	3. Uttranchal	11	2	13	5	8	1,440	627
	Total	99	27	126	21	105	32,298	2,924
North-West	1. Chandigarh	4	3	7	5	2	800	443
	2. Haryana	39	11	50	9	41	12,785	631
	3. H. P.	5	1	6	2	4	1,260	73
	4. J&K	8	1	9	2	7	1,545	36
	5. New Delhi	11	7	18	6	12	4,330	783
	6. Punjab	41	11	52	11	41	4,880	942
	7. Rajasthan	38	6	44	9	35	15,045	704
	Total	146	40	186	44	142	40,645	3,612
South	1. Andhra Pradesh	236	44	280	3	277	82,970	4,216
	2. Pondicherry	6	2	8	1	7	2,370	137
	3. Tamil Nadu	300	92	392	20	372	80,417	7,126
	Total	542	138	680	24	656	165,757	11,479
South-West	1. Karnataka	111	42	153	19	134	46,375	3,188
	2. Kerala	89	11	100	40	60	24,413	1,080
	Total	200	53	253	59	194	70,788	4,268
West	1. Maharashtra	149	57	206	26	180	48,250	4,116
	2. Goa	2	2	4	1	3	740	54
	3. Daman & Dadar, N.H.	0	0	0	0	0	0	0
	Total	151	59	210	27	183	48,990	4,170
	Grand Total	1,343	385	1,728	235	1,493	429,689	32,752

Source: Compiled from AICTE website. List of Approved Institutes up to 2004

The Current Problems in Consultancy Industry and the Road Ahead

Organised Indian Consultancy operations, though started in the 60's, started functioning like an industry from the 90's when international funded projects became more prevalent in India.

Presently consultancy industry is facing a serious threat with demands on consultancy services increasing in volume and also in spread of coverage. With the increase in demand, availability of manpower has declined. This problem has been further aggravated with multinational consultants setting up offices in India for delivering developed country projects. As a result the salary levels are going up fast and availability of trained manpower is declining. It is essential that consultancy industry find out solution to this situation by combining their resources and planning their road ahead with active involvement of nodal agencies like Consultancy Development Centre.



Amitabha Ghoshal

Background

Indian Consultancy, as an organized industry, is reaching 50 years, having effectively started in the 60's when consultancy organizations came into being. In the earlier era, consultancy was person based and sustained on individual capabilities. After a shaky start in the 60s and with establishment of a few consultancy organizations for metallurgical and petrochemical projects, recognition started coming from the users and consultancy firms gradually became larger.

In the 90s, rapid growth took place with demands on consultancy services going up many fold, as the national investment increased in the infrastructure area. The appointment of consultants started being done on the World Bank and Asian Development Bank model and remuneration got related to input in man months as also reimbursement of expenses, in place of the lump sum model followed earlier. Nodal agencies, assigned the task of implementing infrastructure, like National Highways Authority of India (NHAI) and Urban Development Ministry, started appointing consultants for preparation of DPR and also for project management.

With this sudden spurt in projects and consequential demand, new consultancy organizations came into being and selection process moved away from Cost Based to Quality Based Selection (QBS) and in

some cases, to Quality and Cost Based Selection (QCBS). Emphasis was placed on the technical competency of the consultant firms, with limited weightage on the cost of services. This situation gave an impetus to consultants to improve their organizational set up as also encouraged capable new professionals to come into consultancy profession.

Current Scenario

The ever increasing demands on development, both for infrastructure as also for industry, resulting from growth of economy at a fast pace, have created new demands in recent times. With the advent of 21st century, Indian consultancy industry is facing the problems of plenty in terms of occupancy, concurrently with scarcity in manpower availability. While earlier, the demands were in limited sectors like Roads and Highways, selected industry sectors, Urban development etc. and, that also, primarily for externally funded projects, the demands on consultancy now have diversified with the launching of schemes like PMGSY - for rural connectivity; JNNURM - for integrated improvement of urban infrastructure and also with greater needs for power generation and distribution, and growth in core industries like steel and aluminum, chemical industries, petro-chemicals and textiles etc. The present situation has caused

restlessness in the consultancy profession and requires careful handling for sustaining the growth. It will be interesting to analyze the opportunities and threats that are faced today in our country by this sector.

Opportunities

The consultancy industry can now look forward to a much larger platform to operate. Today demands on consultants are not only to provide design or to find solution to difficult problems, the consultants are also required to participate in the framing of policies taking into account associated disparate issues like environment, ecology, social upliftment, resettlement as also determining financial rate of return, providing help in creating and strengthening Institutions for managing the wealth created, taking charge of the implementation of the projects and finally assisting in operation and maintenance on long term basis.

Pace of development in the country can, now, be projected with certainty and one can feel assured that there would be no major let down in the pace of development. With long-term development goals set up by the country, one can foresee the demands on consultancy industry with certainty.

Consultants, can therefore plan with long-term view and develop themselves with defined strategy, after identifying their own objectives and goals. The new demands and the perceived limitations in supply position have resulted in improved remuneration and fees for the consultants. With growing surpluses in the economy, the collection of fees have improved and there are fewer bad debts. One can see the situation is rosy for the consultancy profession in the long term. It is increasingly possible for engineering consultants to offer salaries that will stem the flow of manpower to other sectors (e.g. I.T.) and even abroad.

Threats

However, one should simultaneously analyze the threats as are already perceived. Threats to the industry are already there due to shortage of trained manpower. As consultancy industry had been subdued over a long period, development of professionals have not been in a systematic manner.

Today, with sudden demands on the consultancy profession the organizations are finding it difficult to deploy appropriately trained manpower. As a result demands on the trained manpower have increased many fold prompting quick turn over of staff across sectors and organizations.

The situation has been further aggravated with rapid influx of International Consultancy Organizations. Initially in the 90's, the International consultants were coming to India to participate in jobs generated by International funding agencies, where weightage was given on international experience. Indian consultants, even though faced threats from lack of international experience, could respond effectively by establishing that Indian experience is more relevant in the Indian scenario. The dependence on international consultants have reduced and Indian consultants are now securing such jobs by fair competition.

Recently there has been a new development - large international firms are setting up offices in the developing countries for delivering designs and documents for projects in developed country. Large operating units, manned with young and middle level professionals, are being opened for mass scale operations, that can be termed Knowledge Process Outsourcing (KPO). With few expatriate staff and a close communication link with their home office, the international units are delivering systemized but typical outputs, more like large manufacturing units. Consultancy operations are being planned on 'sweat shop' model. After obtaining these jobs in the international market, where fees are much larger than for Indian operations, they are able to pay much larger compensation compared to Indian scale, even if same are significantly lower than the international scale. Indian professionals are suddenly being exposed to international operations without leaving their shores.

With the lure of higher pay packet, many capable and savvy professionals are moving out from the Indian consultants in large numbers, ignoring the limitations of professional opportunity. Such international players are offering cash rewards to their employees for bringing in more people from

their known circles and therefore each departure from consultancy firm is followed by subsequent depletion of a larger group in rapid succession.

Indian consultants have, of late, been trying to match their salary scales with the international players and offering sizeable increases in the salaries to contain the threat. This in turn is causing imbalance in the income-expense situation and creating cash flow problem for them.

With the sudden departure of large number of professionals many consultancy firms are having imbalance in staff hierarchy and the capability of delivery even for ongoing jobs is being affected. The capability of Indian consultants are severely constrained and they are unable to respond to demands of the projects.

Road Ahead

Today it has become very important for Indian consultancy industry to make an objective analysis of the situation and anticipate future threats, to enable them to derive a strategy to tide over the situation.

In order to compete with foreign consultants for projects financed by international funding agencies, the Indian consultants have to upgrade their technical skill to global standards. The development and availability of such expertise of the Indian consultants have opened up a new vista in securing and implementing multi-facet jobs all over the world and even in very developed countries. The outcome of electronic communication has helped assimilating state-of-the-art knowledge easily and depatch of drawing and documents through e-mail to foreign countries overcoming the geographical impediments of day-night time barriers. The spread of Indian Consultancy to foreign lands and foreign projects holds a big promise for future of Indian Consultancy.

Considering the above aspect, some Indian consultants are trying to reach the global market directly and getting jobs from the international clients with higher fees. This will enable them to offer better remuneration to their staff and retain them. It would also allow them to send out capable staff for global assignments which would create a

sense of attainment and greater attachment to their organization. Working with local resources, Indian consultants will be able to face the International threat with assurance.

Indian consultants also need to explore networking their core strength across organizations so that they can deliver multidisciplinary jobs for international clients without having to expand staff strength in non-core areas. Nodal agencies, like CDC, can play a vital role by guiding and persuading consultants to network amongst themselves.

Consultancy industry had, in recent past, faced problems of manpower because of demands in the IT sectors, who employed fresh engineering graduate from all disciplines in large number, thereby reducing availability in the market. Shrinking of manpower at entry level is today being reflected in shortage of trained manpower in midlevel. Consultants have to review their salary structures and also make aggressive propagation of the advantages professional derive by staying in the fields of their core competence.

The new demands from national developmental spurt and simultaneous entry of international firms in a big way is proving to be a difficult challenge. It would be imperative for the consultants to have their own training facilities by which they can upgrade professional from one level to another. With proper training mechanism in place, it would be possible to upgrade diploma engineers and CAD operators to address some of the tasks assigned to engineering graduates. Similarly, young engineers can be successfully trained to deliver at higher levels of productivity in selective areas. To develop training facilities, agencies like CDC, CEAI can offer invaluable support.

The country is facing a challenge and it would be necessary for the consultancy industry to find out ways and means for providing quality services, both in India and at global forum, at faster pace. National level discussions and continuous interactions amongst industry leaders and academic/management institutions are therefore the need of the hour to tide over the present problem and to present a sustainable future for the Indian Consultancy Industry.

Project Consultancy

Consultants who offer professional consultancy are either self-employed or work for a consultancy firm, usually with various clients with varied requirements. It is generally accepted good corporate governance to hire consultants as a check to the Principal - Agent problem. Very often a consultant provides expertise to clients who require specific knowledge or service for a specific period of time. In different situations, companies implementing major projects may require additional experts to keep pace with additional works during the period. Most of the time the consultancy may be provided by a company with adequate resource of experienced consultants to clients on a larger scale to several skilled areas. This has the distinct advantage to both clients and consultant that it provides a pool of experts who can be mobilized in short notice, assuring the clients about the quality of the consultants mobilized. This arrangement gives the client access to experience and methodologies of the whole group of consultants.



Capt. Dominic Babu

Consultants with their expertise help companies to improve performance by carefully analyzing the existing situation and development of future plans. Consulting involves the identification and cross fertilization of best practices, analytical techniques, management changes and coaching skills, technology implementation, and strategy development. Most often consultants bring in formal frameworks or methodologies to identify problems or recommend more effective ways of implementing and running the projects.

Introduction

The expression Consultancy Service or consulting is mostly defined as service of intellectually and advisory nature provided by professionals using their professional skill to study, design and implement specific projects, advice clients, conduct training and help to transfer knowledge. Clients engage consultants mainly for the following reasons:

- Consultants offer very effective allocation of available resources by providing specialized services for a limited period without any obligation of permanent employment.
- Consultants, engaged for their professional expertise, transfer skills and upgrade

knowledge base of their clients during the execution of the projects. Knowledge transfer and training from consultant to client forms an important aspect of consultancy.

- Consultant can offer independent advice to the client on the most suitable approaches, methodologies and solutions for the projects.

Consultancy in projects involves various activities including formulating sector policies, institutional reforms, management and financial advisory services; and engineering and architectural design services. Consultant also requires providing project supervision, technical assistance, environmental management and training. Independence is the most important requirement of a consultant. It helps them

to choose technologies and best practices from various other projects and suppliers to satisfy the need of the client and protect their interests.

The Consultant and Consulting Organizations

The most common type of consulting setup is:

- Partnership
- Proprietary
- Limited liability company
- Government owned enterprises

A **partnership** company is a traditional firm formed by two or more individuals to practice their profession. In such an arrangement, it is important for the success of the practice that how well the partners are likely to work together as a team. Most often experienced senior partners of consulting firms who have well established relationship with many clients join together to establish their own organization on partnership arrangements. Due to the same reason, established firms, in order to retain talents, offer shares of the company to their employees and make them partners. However, the partnership Act makes all members of a partnership company personally liable for all obligations and financial debts incurred by the company whether or not the obligations arose from the shortcomings of only one of the many partners. All partners are equally liable for the consequences of the loss or wrongs done to any clients in the course of the practices and for the claims for negligence errors or omissions arising out of the same.

A **Proprietary** firm is a legal entity which applies to any one man ownership firm. If the professional practice is carried out under the name of the owners it is obligatory to supply this information as required to the clients. Failure to do so may lead to consulting contracts being unenforceable. A sole proprietary firm has the advantage of being able to raise loans against his personal assets to finance the practice. On the other hand, it also permits creditors to make claims on personnel possessions and not only against those possessions used for business purposes.

Lately, consultants are increasingly incorporated as **Limited Liability Companies** due to the advantages it offers as a company rather than a partnership. Such organizations have two fundamental features; that they are legal entities that exist separately from their members, and these members have no personal liability for firm's obligations including debts and any negligent act of the staff or share holders of the company.

There are many consulting companies which are directly or indirectly owned by Government. In some cases, rather than setting up a separate consulting firm, a government department or public sector organization may provide consulting services by creating a consulting arm to offer these services.

Consultants may associate with each other in the form of a joint venture or of a sub consultancy arrangement to complement their respective area of expertise, strengthen the technical responsiveness of their proposal and make available bigger pool of experts, provide better approaches and methodologies, and, in some cases to offer lower prices. Such an association may be for a long term or be for a specific project. If the client chooses to employ an association of consultants, the association must appoint one firm as the lead firm to represent the association; all members of joint venture must sign the contract and shall be jointly and severally liable for the entire assignment. The client shall not require the consultant to form associations with any specific firm or group of firms, but may encourage associations with qualified national firms.

Normally, individual consultants are engaged on assignments for which the experience and qualifications are the predominant considerations and team work or multidisciplinary approach is not essential. On the other hand, when integrated technical work and collective responsibility for the output of the consultant are important, such as preparation of a complex feasibility study, it will be most necessary to hire a consulting firm or an association of consultants. Individual consultants

are often considered for advisory assignments or technical opinions on specific matters in which specialist individual knowledge is the key issue.

Consultants can seldom begin the work immediately on signing the contract. A signed contract may not be effective until certain conditions such as approval from some higher authorities or donor are obtained. Consultants are often pressured to mobilize his resources before the contract is effective. Such practice is discouraged, particularly when mobilization of the staff and other accessories of consultant involve large expenditure.

The consultancy assignment may be delayed for a variety of reasons. The consultant must notify such delays to the client and explain the reasons for the same. If corrective actions require extra work, and the delay cannot be attributed to the consultant, the extra work done be paid for as specified in the contract.

Any shortfall or incomplete work on the part of the consultant should be rectified at no cost to the client. Further, the consultant is responsible for the technical integrity and objectivity of their findings and recommendations. The most preferred method of resolving the disagreements and disputes on technical matters is to substantiate dissenting points in his final report. Prior to final settlement, the consultant must complete the services, and the client must acknowledge the completion of the assignment.

Evolution of Consulting Services

A consulting firm provides valuable time and adds value for clients by providing them with well qualified professionals. Consulting companies assure their clients the skill and expertise of professionals as needed to monitor and evaluate their projects, as long as they need. The nature of this profession implies that the supply of services to a specific client is discontinuous and that situations of over or under capacity are the most serious problem confronting the consultant.

The growth of project consultancy services primarily related to the growth of manufacturing and construction activities. Expansion and investments on infrastructure such as transportation and environmental projects plays a major roll on generating demands for consultancy. The relationship between consultancy company, the client and the contractor depend much on the sectors in which the consultant work, the stage of the project and the national traditions. Some of the common types of contracts are the following:

- **Management Assistance Contract:** As per this type of contract, the consultant provides individual professional consultants to the client. The client is normally responsible for the economic and financial aspects.
- **Engineering Contracts:** This is the traditional type of contract in which the project consultant does the designing. The contract can be based on a fixed price, or a percentage of the project cost or a combination of these, depending on the size of the project. Consultants are normally encouraged to propose cheaper options and solutions.
- **Engineering and Procurement Contract:** This type of contract entrust the consultant with the responsibility of both design and procurement.
- **Engineering, Procurement and Construction Contract:** Very often this type of contract is used in complex projects where various sub contractors are employed. In this type of contract, the responsibility of supervision and coordination will be with the consultant.

Presently there is a trend towards the design- build contracts. This trend is very remarkably seen in capital intensive projects such as oil and gas, ports and power sectors and usually awarded on engineering, procurement and construction basis. This approach is beneficial since it reduces the construction time and the communication between client and contractors becomes less expensive.

Most often, the consultant is the mediator between client and the contractor. Working in this role, the consultant is often forced to take major decisions on behalf of the client, which may have financial implications. Many times this will result in basic human quality such as honesty becoming critical for suppliers. Further, in the international transactions, knowledge of different culture, tradition and expectations, as well as language skills plays an important role.

As regards execution of turnkey contracts, the consultant may make the choice and should only do so if the consultant has the confidence in the competence, resources and experience of his potential contractor. To achieve this level of confidence demands a serious and comprehensive pre qualification and tendering process aimed at selecting the best contractor for the project. To the extend the client might disrupt the design and construction process is the most fundamental area of concern for the consultant and the contractor working in a turnkey project. Consequently, in the event that the client orders the contractor to design or construct all or part of the work in a particular way, then the client must accept full responsibility for the consequences of his actions.

Roll of Consultant: Various Stages

There are various stages for a project to take its final shape from concept to completion. Each stage is shown below with respect to the overall objective of the completion of the project and the technical and scientific theory normally used for creating the same.

Pre Feasibility Study

In this stage, the client studies the need for the investment project. This study is a part of the overall planning process of the project. Once the projects are identified for funding support from international donors or financial institutions and the projects are to be carried out in developing countries or in the transition economies, pre feasibility studies usually involve participation of a consultancy firm.

A pre feasibility study involves a general study of the whole project and usually does not require a detailed analysis of the economic and technical aspects. Consequently, the tools used are mostly limited to simple drafting systems and word processing software. In case where it is important to illustrate difficult technical issues to public officials and other decision makers without technical knowledge various advanced presentations tools maybe used as required. It is important to note that, for a consultant to carryout pre feasibility and identification of a project, requires both large amount of general knowledge and competence and expertise acquired with many years of on site experience.

Feasibility Study

The feasibility study is carried out to asses the economic and financial viability of a project. The decision to implement the project or not is taken based on the finding of this study. The purpose and the objective of feasibility study is to collect all required information on the physical, economic, environmental and financial aspects of the project so as to evaluate the most suitable solutions, work schedule, cost, economic viability and environmental impacts. The feasibility study is often carried out in close liaison with client and consultant.

A small project team consisting of experts of relevant aspects of the project is deployed to carry out the feasibility study. The estimated cost of feasibility study is normally about 0.5 percentage of project cost. Data collection on the project, surveys of technical and economic nature and interaction with local authorities are a part of this study.

Project Appraisal Study

This study is done mostly on behalf of the funding agencies in order to asses the technical, economic and financial viability of the project. This study is a more detailed analysis than the feasibility study since the decision to finance the project is taken at this level. This assessment is done based on the detailed information collected at site and may

include meetings with various local bodies and statutory authorities directly or indirectly concerned. The appraisal study may be conducted by the representatives of the financing agency with the assistance of the consultants.

This appraisal study is more of an independent evaluation of the project and the financing agencies usually follow the standard format determined by the financing organization.

Basic Design of Project

Once the decision to implement the project is finalized, the next step is to prepare the basic design intended to call for the tender. Since this is meant for the purposes of tender, the design must contain as much details as possible and must be accurate to estimate the required physical works and the quantum of materials to be used. Further, during tendering process the prospective contractors may be permitted to submit alternative solution which may be more cost effective.

The preparation of basic design and estimation usually require much deeper study of the project and very detailed data collection. Further, at this stage, in order to have more detailed analysis of the project design and implementation, more frequent and extensive meetings with local authorities and clients will be necessary. The scientific and technical details employed in the finalization of the design require more specific knowledge and hands on experience and expertise than used in any of the earlier stages of the project work. Since the basic design is the basis of the tendering process and will require to be distributed to various prospective contractors, it must include reports with documentation of calculations, drawings, technical specifications, general conditions and other tender documents.

The size of project team working for the preparation of the basic design and the time taken will vary with the size of project. The estimated cost for the preparation of basic design is about 1 to 5 percentage of the total project cost depending on the complexity of the project.

Preparation of Detailed Design

The detailed design based on which the detailed estimate is done is a continuous process of the basic design. This detailed design is done for the purpose of actual construction after incorporating all the variations and alternatives proposed and hence the design must be accurate and will not be changed later. Detailed design will also include computation of all calculations, detailed drawings for construction, and quality assurances.

Depending on the choice of the client, the detailed design sometime is prepared by the contractor with the help of his consultant. In other cases, the detailed design is made by the project consultant for the client or contractor as the case may be. Hence when a project consultant is entrusted with the preparation of detailed design, their roles and responsibilities must be clearly specified. The services to be rendered by the consultants are specified with clear objectives with definite description of methods, interface with other activities, precise schedules, and a detailed breakdown of resources and costs, together with clear definition of deliverables.

For the preparation of the detailed design, depending on the site conditions and sector of the project, the consultant must have very accurate and clear knowledge of various factors such as local conditions, regulatory issues, political stability, economic and environmental issues. The estimated cost of detailed design services will range from 2 to 15 percent of the total project cost. The work on detailed design can be carried out in a different place from that of client and the project site once all the required data are available depending on the availability of expert and skilled project consultants.

Supervision and Commissioning of Project

Basically supervision of project involves control and monitoring of the work executed by the contractor. The objective and the responsibility of the project consultant in supervision of project are to ensure that the construction strictly complies with

the detailed design and specifications specifically as regards to the materials used and the quality of workmanship involved.

The responsibilities relating to supervision and commissioning is always discharged at site which include spot testing of equipments and materials. The supervision team deployed for such duties will consist of experienced professionals who are well experienced in construction and supervision of similar type of projects of same sector. In order to effectively execute the responsibilities, all technology assistance including computer and presentation tools be used as required. In supervision and commissioning, the division of responsibilities between project consultant and contractor differs from project to project. In the cases of design build contracts, the contractor will have more involvement in the whole project and the consultant will have only to carry out spot check and testing.

Construction and Procurement

The management of construction and procurement involves many varied activities connected with pre qualification assessment and tender process. Formulation of commercial and technical tender conditions in conformity with the particular project is a very specialized job which can be done only by a well experienced project consultant who has hands on experience with similar projects of the same sector. The services also include negotiations on contract conditions, planning time schedules, quality requirements, approval procedures, and quality assurances.

Most of the work as above requires absolute familiarity and understanding of local conditions and regulations, specially contractors, sub contractors and suppliers. For effective execution of the works, it is mandatory that the consultant be present at site and will require having regular meetings with local authorities, contractors and suppliers. In the case of very large projects with funding from international financial agencies, the guidelines stipulated by them for tender and procurement will have to be followed. The skills and

expertise required for the project management team is expected to be very advanced. The cost of these services may range from 5 to 10 percent of the total project cost.

Operations and Maintenance.

Operations and maintenance services involves commissioning and operation of the project. The main objective of this service is to ensure that the project is utilized in its optimum capacity and the required maintenance of plant and machinery is carried out in time. Further, the services may also include training of personnel of the client, assistance to carry out emergency procedures, knowledge transfer and control of schedule for systematic maintenance and evaluation of operational performance. Most of these works are to be carried out at site. However, the discussions and training on the theoretical aspects of project could be transferred at the office of the consultant.

Decommissioning and Removal

There are many projects which prior to concept or commissioning need to demolish or destroy some old structures and removal of debris. Also the demobilization and removal of equipments deployed for the construction and commissioning of the project also needs to be planned. The consultant must plan this activity very carefully with due consideration to the economic and environmental impacts. The planning and analysis of this operation require deep local knowledge and the dumping of the debris must be such that it should not in any way affect the environment and the local population. Monitoring of pollution while removing and during transportation the debris is a special component of the service.

The practical and actual division of the life cycle of a particular project could vary from that shown above depending much on the location, sector and economy involved. Further, the responsibility of execution of the project will have to be discussed with client and contractor so that responsibility of each party involved is clearly specified.

Selecting Consultant

It is important for any prospective consultant to understand the selection criteria of a consultant. The selection of a suitable consultant depends on the type of project but generally the selection must be transparent, fair, cost effective and free of conflict of interest.

- **Transparency:** as much information as possible must be made available public. A transparent process of selection eliminates all doubts about the quality of the winning team.
- **Fairness:** All contesting consultants are to be treated equally and all parties are supplied with the same information at the same time and evaluated with the same criteria.
- **Cost - Effective:** Cost can be minimized by selecting suitable method in selecting the service providers. Cost of the project can be minimized and quality of service maintained by choosing appropriate consultants.
- **Freedom from Conflict of Interest:** The selection process should avoid both actual and perceived conflict of interests. This is normally done by avoiding companies that may be involved as investors or consumers.

The consultant is expected to advise and provide variety of services to the client, depending on the nature of project under consideration. The consultant is to advise the client on the possible form of investment and participation. This involves identifying various constraints under which the investors operate in meeting their objectives and providing strategic advice on the most suitable form of implementation under these circumstances.

The process of appointing consultants commences once the work programme is finalized, budget prepared and source of funds identified. However, there are projects or clients which require services of consultants even to identify source of funds and to prepare initial budgets. Many funding agencies such as World Bank, ADB and others have their own norms to select advisors and other specialists. Most

consulting service assignments related to infrastructure projects requires advance policy planning and formulations. Since this preparatory process is expected to take time, the client may call for competitive bid for consultancy services, whether the consultants are expected to provide the market structure, develop the regulatory framework, and undertake institutional strengthening and capacity building. Most of the options available to clients to conduct the selection process are defined in the procurement and competition regulations of the country and by procurement guidelines for consultants specified by the donor agencies.

Consultant as Cost Effective Service Provider

It is advantageous for the consultant to provide different services to the same project or client since it will allow the consultant to spread its fixed costs across a larger sales volume. It may also be convenient for the client to purchase all services from one consultant or at least to allow one consultant be totally responsible for the project.

Innovations in information technology over the past decades affected a dramatic impact on the execution of consultancy services. Clients have resorted to the services of the consultant in adapting software solutions and telecommunication systems. Similarly, consultants are in the forefront in availing the maximum benefits from office and system automation for their own organizations.

Consultant must achieve quality management in all the works undertaken. Quality management involves all planning; preparation, work, testing, and recording actions essential to achieve the desired standard of service. These services are to be considered as an integral part of the package, having performed the work well. The requirements of effective quality management system are specified in documents such as ISO 9000 standards, which define the technical and administrative procedures and systems that a well run organizations must employ to provide a consistent standard of service and meet the requirements of the client and donor. The satisfactory implementation of the specified

Quality Management standards are certified by an independent accredited body which confirms that the organization has the system that conforms to all established standards and appropriate to the service it provides. Consultants and consulting organizations working as per quality management system offer greater assurance to clients that the consultant will perform as per established standards.

Cost and Budget Estimates

The cost and budget estimate of an assignment by estimating the remuneration to be paid to consultant staff and the direct and indirect expenses to be incurred by the consultant during the execution of the project. The estimated time for implementation and the staff time required to be derived from the terms of reference supplied by the client. The cost estimate is based on an estimate of the specialist experts and other support staff required to carry out the services taking into consideration the time required for each of them and making estimate of each related components. While preparing such estimates, it is often useful to have a bar chart indicating the time required to carry out each activity. This will also help to speed up the implementation of the project.

Conclusion

The most important aspect in the production and delivery of consultancy services is the availability of skills and human resources appropriate to the services expected to be delivered. The need for technical education and the existence of a well-educated workforce are factors which from the view

point of project consultancy preserve the character of the industry as a people business.

Consulting has become a source of innovation in the practice of project management, forming a bridge between academia, firms and experts in other fields. As a result project consultants employ a variety of tools and techniques to approach business problems.

Honesty and integrity is the key to any professional and social settings. Basic honesty results in trust, loyalty and well being of the company, as well as of the clients. In order to exude these qualities to clients, consultants must embrace codes of ethics, which ultimately lead to strong inter relationship between employees and clients.

Providing consultancy service to clients is a very demanding job. Consultancy is about providing new or extended skills and experience, as an extension of the knowledge and expertise already available to the client. The consultant most often act in the capacity of a trouble shooter.

The consultant will face a series of problems to solve technical, economic, legal, and managerial or any combination of these and solve them effectively. The consultant then communicates the findings to the client and must be prepared to defend his reasoning, however indigestible the conclusions may be to the client. In addition to this, a major part of the consultancy is to do with communications, both oral and written. The best advice in the world is wasted if the consultant cannot get his ideas over to the client clearly, unambiguously and as far as possible in an interesting way.

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Clusters in Developing Countries: Challenges of Entering Global Value Chain

This paper discusses the phenomenon of creation of cluster of firms in different industries as sources of competitive advantage and efficiency. In identifying typology of clusters, it highlights the stages in the sophistication of clusters and argues why cluster of firms in most industries in developing countries are in the early stages of development. There are significant differences in clusters from developing countries with regards their efficiency and spillover characteristics from those of developed countries. These differences are further apparent when sources of innovation and trust within clusters are explored. The paper discusses how these differences arise out of opposing pressures faced by cluster of firms from developing countries as they try to leverage benefits of localization while trying to be part of global value chains. Various issues of control including cost, protection of core competence while increasing flexibility, diversity and quality within a global value chain tend to influence the dominant multinational firm in the cluster to insist on strengthening vertical hierarchical relationships within a local cluster. The emergent cluster characteristics nevertheless seems to depend on the specific industry characteristics as also development of institutional mechanism, government cooperation and public and private policy with respect to the specific local cluster.



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Introduction

In developing countries the present context of cluster formation and growth is the globalization of business, liberalization of erstwhile closed and controlled economies and consequent hyper competition. This phenomenon is commonly referred to agglomeration (collecting in small mass) of small and medium enterprises in the “South” referring to developing countries (Dijk and Sverrisson, 2003). The agglomeration economy arising thereof is from increasing returns to scale obtained through interaction of firms in the cluster in a synergistic manner.

Definition and Characteristic of Clusters

Clusters have many different definitions. One way to look at them as geographic concentrations of interconnected companies and institutions in a

particular field, encompassing linked industries and other entities important for competition (Porter, 1998). Another way of looking at it is as geographical co-location.

A very different way of looking at clusters is to see them as social network topographies where economic transactions are overlaid by (or embedded in) other types of social relationship (Granovetter, 1993) like technological cooperation, long term subcontracting, common ethnic, linguistic, class, caste and school linkages. Therefore:

Clusters are relatively dense networks of enterprises and organizations, the value chains of which are connected but not necessarily through what we understand by economic transactions (Steiner, 1998).

Characteristics of clusters include specialized labour pool, specialized input suppliers and technological spillovers (Krugman, 1991). Reasons for emergence of clusters include local demand, prior existence of supplier industry, natural resource. Once formed clusters are reinforced by public and private institutional support for its growth. Clusters are supported by government policy facilitating training, financing, transfer and development of technology (Schmitz, 1995a; Krugman, 1991). Clusters provide economies of (i) scale and (ii) scope arising out of volumes of production and diversity of production respectively. An immediate advantage of this clustering is enhanced capacity of specialized firms for regional competition.

Benefits of Clusters

While definition and characteristics of clusters help identify cluster by delineating them from other forms of firm relationship, it may not capture the underlying advantages of cluster formation completely. It may not satisfactorily explain how spatial proximity of firms and other parties interact with cluster knowledge creation in a dynamic environment?

According to Collective Efficiency (CE) approach, being part of regional agglomerations in which actors are engaged in similar and complementary activities (Schmitz, 1995; Schmitz and Nadvi, 1999) can boost the competitiveness of Small and Medium Enterprises (SMEs). Being part of regional agglomeration has two subtly different aspects. One is the external advantage accruing to a firm in the cluster from its interactions with other firms and external agencies, government bodies and institutions, by virtue of being member of the cluster which it may not have done or had opportunity to do if not part of a cluster; the other being internal advantage accruing to a firm from within its own resources and not external interactions and synergistic combination or deployment but again by virtue of it being in the midst of a cluster of firms,

institutions and specific government policy framework.

Two of the external advantages of clusters include:

1. Economies of scale, scope and transactions- all kinds of cost advantages accruing from firms locating close to each other and
2. Technology or knowledge spill over- gains from exchange of information for which no explicit compensation or less than value of knowledge compensation is given to the producer of knowledge.

The advantages could be broadly categorized as cost advantages and spill over advantages respectively. While some of the cost advantages accrue just by virtue of being part of a cluster, others including almost all of the technological advantage as sources of growth and competitiveness in clusters, has to be proactively pursued as mere access to foreign technology, plant, machinery does not imply technological capability (Nelson & Winter, 1982; Dosi, 1988; Dahlman et.al., 1987). Tacitness of technology and that foreign technology is less than perfectly suitable for developing countries needs all the more proactive learning and transfer. The process is lengthy and costly and may involve accumulation of technological knowledge to choose, assimilate, adapt, and create from as also use the technical information, (Bell et.al., 1984). Besides firm specific factors, a number of industry-wide, macro-economic factors affect extent to which firms invest in technology (Lall, 1992). These refer to sector regulatory regimes, S&T infrastructure to overcome pervasive failure in market for innovation through public research, education and training.

Ultimately clustered firms should face lower unit cost of production than non-clustered ones due to increasing returns to scale (Schmitz, 1999b); should help reduce input costs as efficient, sophisticated input suppliers attach to clusters for volumes even reducing transaction cost (Stewart and Ghani, 1991). Impact of spill over from other firms having direct linkage to cluster in the form of labour mobility and formal and informal exchange of

information and ideas (Feldman, 1994; Von Hippel, 1988) should ultimately add up to availability of surplus funds to invest in technological efforts. Joining into research by pooling in resources, often complementary, sharing costs and risks, may bring in higher R&D investment overall (Baptista, 1998).

Discussing knowledge spill over also brings in issues of internal benefit accruing from firm behaviour. It refers to changing attitudes and motivation-favouring change over stability thus stimulating technological effort; human capital formation through informal learning by doing due to changing attitude to work favouring local production related technical knowledge and skill acquisition (Stewart and Ghani, 1991).

In investigating sources of success in clusters, studies in developing country setting like IT industry in Bangalore in India have revealed that New Economy factors like strong embedding of firms in local institutional networks has perhaps been overrated in cluster formation and argue that real advantage of clusters are found in knowledge creation and learning (Maskell, 2001) where low transaction cost emanate from culture of trust and reciprocal understanding. The informal interaction definitely does not form part of purposive joint action and hence any active collective efficiency.

Clusters do not symbolize all benefits, there is downside of clusters too like:

Strong competition among small producers in a cluster who are incapable of differentiating their products substantially and getting into a price war that effectively squeezes margins out of the business.

Non-existence of legal protection of innovation preventing realization of super normal rents out of it resulting in low priority of cluster members to undertake innovative activities voluntarily.

Typology of Clusters and their Evolution

Clusters in developing countries show greater social variation than those of developed countries i.e. between (say) Northern Italy and Southern Sweden, although clusters may not be identical but

technological sophistication with worker skill and management competence at comparable levels. Not just clusters, even individual enterprises within each cluster diverge widely in developing countries on these and other variables (Van Dijk and Sverrisson, 2003). This needs to present and explicate a typology of clusters in developing countries capturing the progress of their development.

Clusters operate at two levels;

- a) Economic transactions
- b) Knowledge exchange.

In developing countries while being part of a *local economy*, clusters also form part of global production chain allowing their input-output chain to span entire scope from local, regional to global transactions thus allowing not so local events to influence clusters. While small firms in clusters help each other by sharing large orders, produce components for one another, use common resources like knowledge and machinery, they do not include every member to the same degree (Knorringa, 1994; Sverrisson, 1990, 1997). Also not all such collaboration need be based on trust or similar attitude unless explicitly evident (Bagachwa, 1997; Knorringa, 1995). Often the relationships are vertical integration meshed in otherwise collaborative relationship (Scranton, 1997). Hence mere proximity of location need not necessarily imply firms collaborate in any concrete sense.

The clusters are in evolutionary sequence from Locational to Industrial District (refer Table-I) although not exclusive and completely distinct. Location and Local Markets are lower type of clusters that might move to higher type, moving from the fringe and ending in Industrial District. Alternatively they may even degenerate from higher to lower forms viz. Industrial District to Local Market.

Locational clusters are most common in developing countries where information flows freely due to cramped condition, closeness. The informal *bazaar* represents this. There is observational imitation as

also informal knowledge spill over. This just needs space and minimal infrastructure. This form of locational clusters are less prevalent in urban agglomeration except such enterprises as are moved physically closer together due to zoning or other regulation by authority and legislation. (Sverrisson, 1990, 1992; VanDijk, 1996, 1998).

Local market clusters have proximity of similar activities and cater to similar clients like timber market of Accra in Turkey. Customers converge as similar items are available at one place and suppliers come as numerous customers are available. Effort to differentiate is high though diffusion is through imitation but with some development dynamics (King and Aboudha, 1991). Industrial estates, handicraft zones etc where similar firms come together and government may provide credit and technical advice are examples of local market cluster (Klapwijk, 1997). This is the most common type of cluster in developing countries.

Local networks may have entire production process divided among small firms as in case of Agra shoe cluster. Accordingly these clusters have rudimentary division of labour among enterprises giving benefits of specialization within a larger value chain (Knorringa, 1995; Schmitz, 1989) like mechanization of activities using machines by renting machines that are newly developed or by changing the technology e.g. introduction of clay mixing machine in place of manual process of mixing. It could mean local competence development through people who have learnt to work with certain types of technology/machine, having migrated and changed job. However social limitations like social caste system in India could play a restrictive role in the formation of these clusters (Knorringa, 1995).

Innovative clusters are earliest forms belonging to industrial district category. They produce locally developed novelties, which can be exported or imitated elsewhere. For this they use 'reverse engineering' as imitative adaptation together with flexible production systems (Jacobsson, 1991). The

role of merchants and marketers in selling the innovative products increase in such clusters (Nadvi, 1997). With focus on quality there is factory type isolated and controlled production for superior/sophisticated clients attempted in these clusters making them part of larger industrial clusters.

Industrial Districts facilitate innovation and contribute to higher efficiency and hence rare in developing countries (Rabelloti, 1997b; Schmitz, 1996). Here within cluster cooperation is increasingly formalized and focused on competence infrastructure besides physical infrastructure. Cluster becomes an explicit and identifiable community. Sharing of information through formal and informal channels and trust based relationships become increasingly important. With socio-cultural support for such development important, the following three conditions are must for emergence of industrial district:

- a) a conducive socio-cultural milieu facilitating mutual recognition and trust
- b) traders and marketing agents functioning as structuring agents within cluster
- c) effective local government handling zoning and other issues.

Moving from location clusters to local market clusters

Agglomeration effect leads to competitive pressures, which convert flexibility in firms to sources of differentiation and competition. Through imitation route, details of material and methods are attended to and modified to bring more permanent innovations and deepens collective tacit knowledge about possible product alternatives and methods to make them. Complementarities and specialization, which results in evolution from lower to higher forms, may also be source of stagnation and loss of flexibility. To balance the two, considerable collective information processing capability is required in case of industrial districts.

Policy Steps

Evolution of locally staffed business support systems empowering local entrepreneurs to take advantage of changes in business environment is important. Such business support systems should be put in place through private initiative in cooperation with local government authority. Arrangements for technology transfer by liberalizing imports and provision of vocational/technical training to cater to labour division for clusters is a major role of government. Innovative clusters need regular interactions in associations, clubs and meetings with external agents. Reverse Engineering of global products may be route to innovation (Van Dijk and Sverrisson, 2003)

Local Cooperation Effects on Clusters in Developing Countries

In trying to find out if local cooperation in clusters matters, researchers, based on study of shoe and surgical instrument clusters in developing countries like Brazil, Mexico, India and Pakistan have observed

Local cluster level cooperation, though selective, leads to local external economies whereby

- Cooperating enterprises perform better
- Drastic changes like increased competitive pressure lead to increase in vertical cooperation as compared to horizontal cooperation
- Vertical cooperation increases most when major improvements in quality and speed are required

As Marshall (1920) had indicated, when producers cluster they can specialize in complementary stages of production process, they attract speciality suppliers of inputs and buyer, a pool of skilled labour emerge and new ideas and practices diffuse rapidly. All this indicating a joint effort by firms in the cluster, which is especially important, when clusters confront important turning points like emergence of global competition. At a local level, clusters can generate significant resources to create infrastructure of supporting services ranging from

training and educational programmes to international marketing and information providing agency (Scott, 1994). As suggested by Tiwari (1999) and Dei Ottati (1996a, b) major crisis forged closer vertical cooperation on input (supplier) side and output (buyer) side. This is to successfully implement product diversification; quality upgradation through coordination of specialized activities ensuring that cost increase associated is minimal (Best, 1990). The crisis being referred to arises due to globalization and manifesting in demands for better quality, flexibility and speed.

Types of inter firm cooperation are:

	Bilateral	Multilateral
Horizontal	Sharing Equipment	Sectoral Association
Vertical	Producer/ User improving Components	Alliance along local value chain

Vertical cooperation of the bilateral type increased the most with increased crisis. This included backward cooperation with suppliers/ subcontractors who are also part of the cluster. Multilateral horizontal cooperation at association level increased but varied across clusters having increased for Sialkot (Pakistan) surgical instrument cluster which imposed new quality standards on cluster members (Nadvi, 1999a) while remaining defensive and weak for a Mexican Association also facing globalization challenges. The causality between association formation/increased activity and improved performance was not clear.

As Knorringa (1999) indicated, vertical cooperation is more for high quality segment but much less for low quality segment. If the changes like design and marketing changes are feared to adversely affect international business then cluster members try and scuttle the change programme just as in case conflicts arising out of the change are not addressed. Vertical cooperation between manufacturers and suppliers increase quality and speed of production and hence performance.

The reason for increased vertical cooperation is clear. To respond to global competition, the entire

value chain has to respond to the vertical linkages as better quality and speed cannot be achieved by enterprises individually. Ultimately local upgradation strategies are more likely to succeed where cooperating producers face a multitude of buyers. Where a small number of buyers pull strings from outside, local joint upgradation strategies have severe limits (Schmitz, 2000).

Innovation and Clusters: A developing Country Perspective

Given availability of skilled manpower pool and knowledge base as root of cluster formation, the evolution of this pool and body of knowledge could be source of innovation. Whether it be sword, dagger and knife making knowledge as root of surgical instruments cluster (Nadvi & Halder, 2005) or high technology knowledge available from Stanford University and MIT for Silicon Valley and Boston Route 128 (Saxenian, 1994), there are aspects of *planned and unplanned activities* linked to issues of such development.

Innovative clusters in developing countries show large number of small/medium size units specializing in upstream and downstream products and processes located in close proximity. With formal institutions for contract enforcement underdeveloped, risks of doing business and market opportunity necessitates trust among closely knit firms to substitute for the deficiency in property right, contract and commercial law (Bazan & Schmitz, 1997).

Innovation in clusters need presence of sophisticated buyers as source of valuable information on emerging technologies and market (Porter, 1998). Risks of investment and failure are shared in clusters and together with cluster flexibility allow for members to experiment at lower cost. Together with this, government support by way of tax exemption, liberal labour laws, cheap inputs like electricity encourage small firm clusters to take risks of innovation to remain competitive. However this may compromise on quality of output till sophisticated buyers like export houses in case of

textile clusters of Pakistan demand upgradation while wanting to leverage on cost benefits of small firm clusters. Import cost of latest jet looms for weaving and labour costs made the large units unattractive. Trust and credibility helped small units to avail of credit facility while migrant worker skill helped purchase and refurbish second hand looms from large mills besides locally manufacturing spare parts to make the technology available and affordable to small units. As long as quality of output did not vary, much smaller life span of local makes and refurbished equipment did not matter due to high price differential with such equipment when imported. Public sector support helped provide centralized training to staff by hosting foreign experts. Family control of most of the firms provided both autonomy and control of innovative decisions besides fierce rivalry, price competition, employee poaching as social pride and status needed to be maintained. In the process some families came to dominate certain clusters like the “Chinioti Sheikhs” for textile industry in Faisalabad, Pakistan. While there is diffusion of new technology, the ways, means and reasons for it may be quite unique for clusters in developing country SMEs.

Trust in Small Firm Clusters

Given the pivotal role of trust in substituting for institutional and legal support for law/contract enforcement in the functioning of clusters, the natural tendency is to identify this trust to be of the characteristics type arising out of particular culture, caste, religion, ethnicity as a source of common identity and work ethos leading to non-confrontational social spirit and trust (Brusco, 1992; Granovetter, 1995; Swaminathan and Jeyaranjan, 1999). This include clusters like lorry building in Tamil Nadu, India dominated by *Asari* community (Swaminathan and Jeyaranjan, 1999) and conflict in Agra shoe cluster in India due to caste differences (Knorringa, 1996).

Doubts cast on such narrow definition of trust (Sengenberger and Pyke, 1992) has been upheld even in developing countries like India while studying IT cluster of Bangalore (Holmstrom,

1998). Lazerson (1995) argued that in Modena knitwear industry in Italy “mutual expectations of trust and confidence arise from repeated transactions...” So also was found in study of otherwise predominantly caste/community based chemical and engineering cluster in Vapi, Gujarat, India where a cluster dominated by caste *Bania* later on got blurred and according to Gorter (1998) “Common values are the basis of cooperation... They see and present themselves first and foremost as an educated elite of small and medium scale industrialists who contribute to India's development... and not because they belong to certain caste..” In the domestic pump cluster in India, formal intervention by bank as financing agency was needed for standardization of product and membership to caste or religion did not solve the problem.

From the discussion above, there are broader and general basis of trust beyond characteristics like knowledge and institutions. Knowledge, institutions or even common characteristics, automatically do not get translated to trust. There is a process of trust formation involved. While characteristics based trust is due to common ethos, knowledge based trust evolved through common experience and institutions brought actors together.

Hierarchies- Alternative to Clusters

It is seen so far that developing economies face challenges of globalization whose needs include firms to respond to changes with speed and flexibility without sacrificing quality while economizing on cost. Accordingly benefits in clusters can arise mainly from vertical cooperation between manufacturers and suppliers who are both part of the same cluster. In a situation where the manufacturer or buyer is a MNC requiring the supplier to also be part of its 'global value chain' it needs to be seen how and to what extent the traditional benefits of a 'local cluster' can be gainfully leveraged for competitive advantage.

Humphrey and Schmitz (2002) reviews the major issues facing cluster of firms in the small and

medium sector of an economy while they try to participate in “global value chains”. On the one hand, this entails looking at the capabilities required to successfully participate in a global value chain, on the other it looks at specific characteristics of SMEs as they exist as part of clusters in developing economies as different from developed economies.

Humphrey and Schmitz (2002) raise the question “what is the scope for locally upgrading strategies where producers operate in global value chains?” While role of inter-firm cooperation and local institutions in enabling up gradation of clusters is important, so is the role of global buyers and chain governance in the global context. Not only is literature optimistic about the possibility of strengthening competitiveness through local or regional industrial policy (Cooke and Morgan, 1998), it is also argued that the only enduring basis for competitive advantage will be localized and based on tacit knowledge (Maskell and Malamberg, 1999).

While acknowledging the continuum from *Arm's length relationship to Hierarchical governance*, firms as part of global value chain, focus on *quasi-hierarchical* form of governance showing asymmetry of power and competence in favor of one party (preferably the MNC buyer). Cluster literature emphasizes local level governance and role of incremental upgrading through interaction between firms and with local institutions concentrating on improving product and process that come from within the cluster. However global value chain emphasizes that local players learn a lot from global buyers about how to improve their production processes, attain consistent and high quality and increase speed of response (Keesing and Lall, 1992; Schmitz and Knorringa, 2000).

Gereffi (1999) highlights that upgradation of textile clusters in Asia included (1) assembly of imported inputs (2) increased local production and sourcing (3) design of products sold under the brand of other firms (4) the sale of own branded merchandise to internal and external markets. Critics like Martin

Bell of SPRU, University of Sussex argue that while stages (1) and (2) are not controversial, stages (3) and (4) cannot be taken for granted as such up gradation may encroach on multinational buyer's "core competence" and may be discouraged if not obstructed (Schmitz and Knorringa, 2000).

While in some industries like electronics, firms are contract manufacturers for many global giants, based on capability in process technology, component purchase and minor product design capability (Sturgeon and Lee, 2001), in others like footwear, dependence on few large customers for sale and design is high (Schmitz, 1999). While in the former case switching cost for suppliers is low, in the latter case they are very high leading to a *quasi-hierarchical* linkage. Also in case of exports, the capabilities required are far higher than those required for domestic markets creating a gap that is critical to be bridged.

Discussion and Conclusion

Clusters are a set of interconnected organizations, members in a value chain or a part of a social network that bring benefits of agglomeration through synergistic cooperation between firms. These arise due to easier availability of specialized labour, inputs and technology spillovers singly or together when adequately supported by public and private institutions, government policy and support in human resources, finance and technology transfer. In clusters, successful agglomeration of complementary activities lead to enhanced competitiveness of local SMEs arising from both external interactions with members of the cluster and internal improvement in efficiency from increased competitive pressures. The cost benefits to clusters primarily arise out of economies of scale and scope while those of technology and knowledge spillover arise from tacitness of knowledge resulting in reduced transaction cost, increased mobility of labour and joint R&D. Many of these benefits accrue to clusters in developing countries for different reasons and combination of sources than

those in clusters from developed countries.

Fierce price competition among cluster members using undifferentiated products together with unavailability of rent due to weak contract enforcing authority resulting in low priority for innovation may be some of the characteristics of clusters from developing countries. Therefore in clusters from developing countries there could be less of a role for institutions and more for knowledge creation and learning as sources of advantage primarily using the route of informal interactions. Accordingly developing country cluster may exhibit considerable social variations in imparting work skills and management competence as compared to more uniform, formal ways adopted in developed country clusters at both levels of economic transactions and knowledge exchange. Therefore evolution of clusters in developing countries has not moved beyond the first three stages: mere 'locational benefits of crammed existence of too many firms leading to information flow; 'local markets' where large demand and supplies of specialized products in one location leads to convergence of buyers and suppliers to that place; finally manifesting in the 'local networks' with rudimentary specialization of firms and introduction and diffusion of new technology and skills in the network. These transactions are heavily dependent on social linkages for existence like the social caste system in India as different from developed countries where clusters have evolved to the level of 'industrial districts' that have focus on product and processes, formal relationships, factory type production and competencies. Collaborations in developing country clusters have not moved beyond imitation to permanent innovation by leveraging on collective tacit knowledge as they lack in collective information processing and local business support systems that empower entrepreneurs to innovate through private and public cooperation.

To be more effective, developing country clusters need increased local cluster level interactions through club, associations and government

participation in training and R&D. Innovative clusters in developing countries, like textile clusters of South Asia, are characterized by a fragmented industry where a small number of SMEs specialize in upstream and downstream activities, locate in close proximity and heavily depend on 'trust' to transact among closely knit firms in the absence of formal institutions and a poorly developed Intellectual Property (IP) regime. Innovation needs risk and cost sharing by members of cluster on one hand and demand for and reward of these innovations by sophisticated buyers on the other besides government support by way of tax exemption, liberal labour laws and cheap inputs. While some studies point to the dominant role of characteristics like culture, caste, religion and ethnicity as basis of trust and hence development of clusters in developing countries others denied this, attributing formation of clusters there to knowledge generation and role of institutions reinforced by confidence built over repeated transactions.

Whatever the nature of clusters in developing countries and their lifecycle, their consistent quality output at lower costs in the textile industry as also surgical instruments and shoe clusters in Asia have attracted business partnership from multinational firms and included these developing country clusters into the global value chain. These SME clusters are preferred to large integrated producers who consistently incurred higher import and financial costs and were less nimble. However their

inclusion upstream in the global value chain saw many developing country clusters face increased cost pressures forcing them to cooperate vertically with their global buyers. There is evidence to show that under pressures of global competition, pressures of diversification and consistent quality can best be met at lowest cost through vertical cooperation between firms in a cluster. Often local collaborations arise not out of local proximity, trust and dependence benefits discussed before but are externally imposed as part of a global value chain. Hence vertical hierarchical relationships are enmeshed in some sort of collaborative relationship. Hence the strength of vertical linkages in clusters between supplier and buyer firms in global chain, particularly in high precision industries like automobile where design and processes are controlled by downstream multinational vehicle assemblers, put pressures to replace clusters as cooperative networks with vertical hierarchies involving local supplier in developing countries like India (Mitra et al., 2006). In such case any competence development at local cluster level, threatening the 'core competence' of the global firm in the cluster, is discouraged. These linkages may vary with the nature of industry as well. Low switching cost in electronics industry allows electronic component firms maintain robust local clusters while participating in global chains whereas higher lock in and asset specificity in automobile component industry hampers development of strong local cluster in developing countries (Mitra, 2007).

Table- I

Major Typology of Clusters

<i>Type of Stage</i>	<i>Observable Indicator</i>	<i>Main observable benefit</i>	<i>Technical dynamics</i>
Locational	Proximity of firms	Information exchange	Imitation
Local Market	Many similar activities	Access/ Competition	Product Development
Local Network	Division of labour	Specialization	Complementarity
Innovative	Local Novelties	Adapting	Reverse Engineering
Industrial District	Formal cooperation	Collective Competition	Collective innovation

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Public Private Partnership-Role of Consultants with Particular Reference to Health Care Services in India

The Article discusses the benefits of Public Private Partnership (PPP) with particular reference to health care programmes. The term “private” in PPP denotes non government agencies like Corporate Sector, NGOs etc. The roles and responsibilities of Public Private Partner may vary from sector to sector. The Potential benefits of adopting PPP include CostEffectiveness, Higher Productivity and Accelerated Delivery etc. It has been realized that a synergy between public support and private initiative can help multiply the productivity or resource utilization.

It is also a well known fact that public and private sectors in Health can potentially gain from one another in the form of resources, technology, knowledge and skills, management practices, cost efficiency etc. For the success of PPP there is need for clear understanding between the partners about mutual benefits as well as a clear understanding of the responsibilities and obligations between the partners. One of the persuasive arguments in favour of PPP in the Health sector is the promise of better quality of services through clear customer focus. The private sector is also seen to be easily accessible, better managed and more efficient than its counterparts. Keeping in view the fact that 72.2 % People live in rural areas, it has been suggested in the article that to fill the gap in the availability of Quality Health Care in Rural Areas, the State Government may hand over the management of SubCentres, Primary Health Centres and CHCs to NGOs while the expenditure is met by the Government.

The consultants comes into picture to function as a bridge between the Public and Private Partner by providing assistance to both the parties with relevant information required by each other. For this purpose the consultant should be familiar with the formulation, appraisal and approval procedures and rules and regulations on Government involvement in PPP.



R. Raghavan

What is PPP

Public Private Partnership or PPP is a mode of implementing government programmes/schemes in partnership with the private sector. The term private in PPP encompasses all non-government agencies such as the corporate sector, voluntary organizations, self help groups, partnership firms, individuals and community based organizations. PPP, moreover subsumes all the objectives of the

service being provided earlier by the government, and is not intended to compromise on them.

The roles and responsibilities of the partners may vary from sector to sector. While in some schemes/projects, the private provider may have significant involvement in regard to all aspects of implementation, in others, he may have only a minor role. Some of the differences between Public Private Partnership and Privatization are enumerated below:-

Public Private Partnership	Privatization
i. Involves full retention of responsibility by the government for providing the service	The responsibility for delivery and funding a particular service rests with the private sector
ii. Continue to retain the legal ownership of assets by the public sector	Ownership rights are sold to the private sector along with associated benefits and costs
iii. The nature and scope of service is contractually determined between the two parties	Nature and scope of service under privatization is determined by the private provider
iv. Risks and reward are shared between the government (public) and the private sector	All the risks inherent in the business rest with the private sector

Potential Benefits Expected from PPP

- i) **Cost-Effectiveness:-** Since selection of the developer/service provider depends on competition or some bench marking, the project is generally more cost-effective than before.
- ii) **Higher Productivity:-** By linking payments to performance, productivity gains may be expected within the programme / project.
- iii) **Accelerated Delivery:-** Since the contracts generally have incentives and penalty clauses vis_à-vis implementation of capital projects/programmes this leads to accelerated delivery of projects
- iv) **Clear Customer Focus:-** the shift in focus from service inputs to outputs create the scope for innovation in service delivery and enhances customer satisfaction.
- v) **Enhanced Social Service:-** Social service to the mentally ill, disabled children and delinquents etc, require a great deal of commitment than sheer professionalism. In such cases it is community/Voluntary Organizations (VOs) with dedicated volunteers who alone can provide the requisite relief.
- vi) **Recovery of User Charges:-** Innovative decisions can be taken with greater flexibility on account of decentralization. Wherever possibilities of recovering user charges exist, these can be imposed in harmony with local conditions.

- vii) The following excerpts from the speech of our Prime Minister recently show the seriousness on the part of Government of India to bring into fore the need for increased PPP programmes.

"The successful implementation of our social and human development initiatives requires greater public private partnership (PPP). This is yet another important initiative of our government. Both in infrastructure development and in social and human development, we have encouraged such partnerships. A synergy between public support and private initiative can help multiply the productivity or resource utilization."

"We have been deeply concerned about the efficiency of utilization of public funds especially in infrastructure development, education and health care. We have been looking for ways to combine our concern for equitable outcomes with our concern for efficient utilization of outlays. PPPs are an effective means of combining these two considerations." (PM's speech in the Times of India dated the 25th October 2007)

- viii) Various State Governments have initiated the process of PPP in various departments. Partnership with the private sector has emerged as a new avenue of reforms partly due to resource constraints in the public sector of Governments across the world. There is growing realization that given their respective

strengths and weaknesses, neither the public sector nor the private sector alone can operate in the best interest of the health system. Further, public and private sectors in health can potentially gain from one another in the form of resources, technology, knowledge and skills, management practices, cost efficiency etc. The Tenth Five Year Plan envisioned in detail the need for private sector participation in the delivery of health services.

Conditions for the Success of PPP

- A clear understanding between the partners about mutual benefits
- A clear understanding of the responsibilities and obligations between the partners
- Stability of the political (Government) and legal climate (laws)
- Regulatory framework that is followed and enforced
- Capacity and expertise of the government at different levels in designing and managing contracts (partnerships)
- Appropriate organizational and management systems for partnerships
- Strong management information system
- Clarity on incentives and penalties

PPP in Health Care Services

- i) Public Private Partnership (PPP) in the context of health care is an instrument for improving the health of the population. "Public" means Government organizations functioning under state budgets, "private" would mean profit/non-profit organizations/voluntary sector and "partnership" would mean a collaborative effort and reciprocal relationship between two parties with clear terms and conditions to be achieved mutually understood and agreed upon objectives following certain mechanisms.
- ii) Different models of PPP are contracting (contracting-out and contracting-in); franchising social marketing; joint ventures; subsidies and tax incentives; vouchers or services purchase coupons; hospitals

autonomy; build, operate and transfer (BOT); philanthropic contributions; health co-operatives; grants-in-aid; capacity-building; leasing; and social health insurance. Among the above variations contracting is most common

- iii) One of the persuasive arguments in favour of PPP is the promise of better quality of services through clear customer focus. Further, investments in the health sector can be increased through mobilizing public and private capital.
- iv) Over the years the private health sector in India has grown manifold and today it provides 93% of the hospitals, 64% of the beds in the hospitals and 85% of the doctors. Further 80% of the outpatients and 57% of the inpatients are covered by the Private Sector (World Bank Report 2001). Some of the studies indicate that the quantum of health services that services particularly in the private sector have shown a trend towards high cost, hi-tech procedures and regimens. However the private sector is also seen to be easily accessible, better managed and more efficient than its counterparts. It is necessary to regulate and involve the private sector in an appropriate/private mix for providing comprehensive and universal primary health care to all, keeping in view the overwhelming presence of private sector in health.

- v) *PPP in Rural Health Services* - As per 2001 Census, out of 1095 million population, 743 million (about 72.2%) lives in rural areas. It is a known fact that the health care services provided by the Government through primary health centres and community health centres do not meet the needed health care services to the population due to shortage of qualified healthcare personnel, lack of equipment etc. The private doctors practicing in rural area charge exorbitant rates and the people are also exploited by unqualified practitioners (quacks). Under the PPP option, the State Governments may hand over the management of sub-centres, primary health centres and

CHCs to NGOs while the expenditure is met by the Government, in addition to supervision and course correction wherever required. The National Health Policy as well as the National Rural Health Mission do provide for enlisting NGO Co-operation for tackling rural health care services

Role of Consultants

- i. Consultancy services constitute an important segment of the service sector. The development of consultancy profession in India has been quite significant during the past few decades and a large number of consultancy organizations, consultants/domain experts are now available in the country. The Department of Scientific and Industrial Research of Ministry of Science & Technology, Govt. of India has, through Consultancy Development Centre, prepared a database of consultants/consultancy organisations to cover various sectors like agriculture and rural development, banking and finance, construction, education, health & demography, management and others. This database is available on www.consultantindia.gov.in
- ii. In the field of setting up of health care educational institutions like medical college, dental colleges, nursing colleges, paramedical colleges and establishment of hospitals (both general and super specialty hospitals), a number of private organizations having sufficient financial back-up, intend to take up such projects have involved consultancy organizations in the process. They have not however been showing the desired interest in taking up such projects as a partner with the public sector, perhaps due to their apprehension on account of bureaucratic lethargy, corruption, strict legal frame work and lack of leadership skills etc. on the part of government/public sector.
- iii. The PPP should be looked at as a measure towards administrative reforms. The consultants come into picture to function as a bridge between the public and private partner by providing assistance to both the parties

with relevant information required by each other and by allaying the fears of both the parties. In this context, the consultant is expected to possess and improve necessary professional experience in developing PPPs.

- iv. The consultant/consultancy organization should be :-
 - a) familiar with the PPP methodology and framework for resource generation;
 - b) familiar with the formulation, appraisal and approval procedures for PPP projects (including relevant concession agreements, due diligence process, value for money audits, public sector comparator etc.);
 - c) familiar with the following with respect to PPP projects
 - complex project agreements
 - tendering arrangements
 - detailed legal and contractual agreements
 - risk management and contingent liability issues and
 - financial analysis of complex project proposals etc;
 - d) demonstrate expertise in infrastructure development financing including ways of securing long term /short term loans from financial institutions;
 - e) familiar with relevant policy and regulatory framework so as to enable the development and delivery of efficient infrastructure services;
 - f) experience in working with policymakers at all levels of government, with particular reference to determining appropriate methods of structuring PPPs and team leadership skills;
 - g) familiar with public sector processes and rules and regulations on Government involvement in PPP;
- v. for the PPP to be successful, both the partners should take the assistance of consultants/consultancy organizations specially qualified, abreast with the rules and regulations in the subject and possessing experience in carrying out the allotted projects.

On Preliminary Investigation for an Interference of Piers Foundations

From a simplified computational work based on the theory of linear elasticity for the three bridge pier foundations placed over homogeneous soil media, it was seen that an increase in the vertical normal stresses near the pile caps of one central (BMICP) and two sides (NHAI) bridge piers with the drawing BMIC/NHAI/STRU/1.7 remains very close to that obtained by the corresponding isolated single foundations of the same size with the same loading. The magnitude of the elastic settlement along the centre line of NHAI pier was also found to remain close to that of an isolated foundation without any effect of foundation interference. However, a marginal increase in the elastic settlement along the centre line of the BMICP bridge pier foundation was noticed due to an interference of two adjoining NHAI pier foundations.



Dr. Jyant Kumar

Introduction

Nandi Infrastructure Corridor Enterprise (NICE) Limited is presently implementing the Bangalore-Mysore Infrastructure Corridor Project (BMICP). At the chainage: 16+ 350, the BMICP peripheral road will be intersecting with the existing Hosur Road at an angle of 23°. At the interchange of the two roads, a BMICP interchange over bridge has been planned as per the drawing: BMIC/NHAI/STRU/1.7 as shown in Fig. 1. At the same time, National Highways Authority of India (NHAI) is also intending to build an elevated highway which will be laid (parallel to the existing Hosur Road) above the BMICP over bridge at the point of intersection. At the point of the intersection of the BMICP interchange bridge with the proposed elevated highway of NHAI, three piers (two side piers for NHAI over bridge and one central pier for the BMICP over bridge) have been planned. The central pier is proposed for the BMICP interchange bridge whereas the two outer piers have been suggested for supporting the elevated highway of NHAI. As per the drawing BMIC/NHAI/STRU/1.7, the centre to centre span between the central pier and the corresponding east & west piers of the BMICP interchange bridge will be 33.0 m and 30.0 m,

respectively. Pile foundations have been proposed for the foundations of BMICP interchange bridge pier and the two outer piers of the NHAI elevated highway. As per the drawing BMIC/NHAI/STRU/1.7, for each of the two outer NHAI pier foundation, eight number of RCC piles of diameter 1.5m, with a 14.0 m x 5.5 m pile cap, have been planned. On the other hand, for the BMICP interchange bridge pier, eight RCC piles of diameter 1.2m, with a pile cap of 10.75 m x 4.7 m, seem to have been recommended. The clear spacing between the edge to edge of the two adjoining pile caps, for the central and outer piers, is 4.625 m.

It is known that for the three foundations, placed side by side, for a given applied pressure on each footing, the magnitudes of the footing settlement and the corresponding increment in the vertical & horizontal stresses at any depth below the footing surface increase continuously with the decrease in the spacing between the footings (Stuart, 1962; Graham et al., 1984; and Bowles, 1997). In the present study, by examining the magnitude of the elastic settlement of the pile cap and increment in the vertical normal stresses, it was intended to find whether any stress interference exists due to the construction of the central pier foundation of the

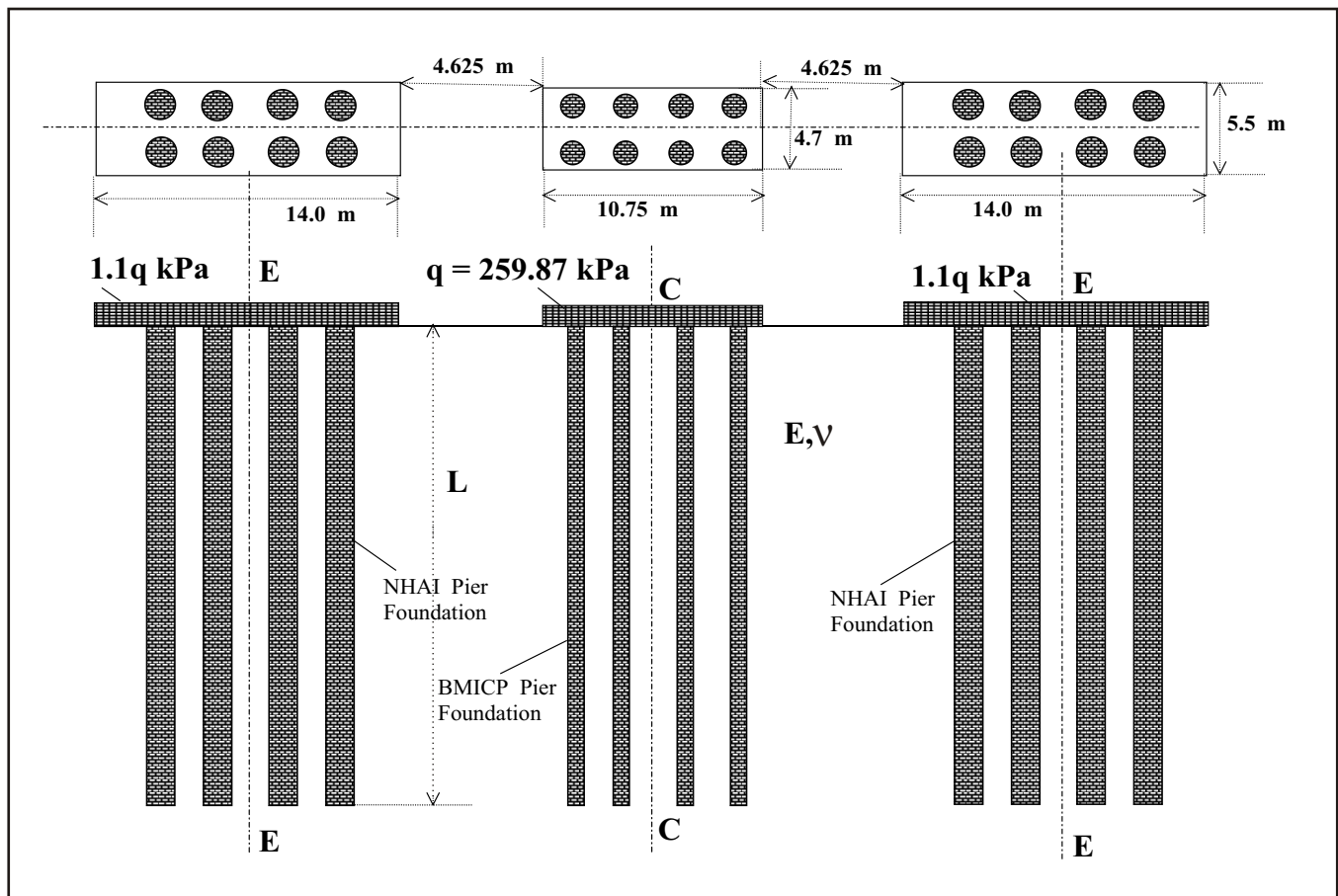


Fig. 2 : Pile cap and loading pattern for three adjoining piers as per Drawing: BMIC/NHAI/STRU/1.7

rock strata mostly comprises of either clayey sand or soft rock strata. It is expected that a major part of the settlement is expected to take place in very short span of time after the foundation is being loaded. Therefore, the determination of elastic (immediate) settlements will be useful in carrying out the design of the foundations placed on such strata.

Foundations as per the Drawing BMIC/NHAI/STRU/1.7

The foundations which seem to have been presently proposed for the BMICP pier as well as for the pier of the proposed elevated NHAI highway are shown in drawing: BMIC/NHAI/STRU/1.7. The dimensions of the pile cap for the two outer piers of the elevated highway are 5.5 m x 14m. On the other

hand, the dimensions of the pile cap for the central pier for the BMICP bridge are 4.7m x 10.75m. As per the available information, the maximum expected design load on the pier base for the BMICP bridge is 13,130 kN. Accordingly, the average footing pressure on the central pier foundation becomes equal to $q = 13,130 / (4.7 \times 10.75) = 259.87 \text{ kPa}$. The central span length (34.0 m) of the proposed elevated highway is marginally greater than that of the two span lengths (30.0 m and 33.0 m) of the two adjoining BMICP bridge piers. Due to greater height, the elevated highway is expected to exert larger load on the pier for the span length same as that of the BMICP bridge. As an approximation, the average footing pressure on the pile caps of the two

piers of the elevated highway was assumed to be equal to $1.1 q = 285.857 \text{ kPa}$. It should be noted that, on the basis of the assumed footing pressure, the design load for the outer pier becomes equal to $285.857 \times (5.5 \times 14.0) = 22010.989 \text{ kN}$, which is approximately 68% greater than that of the central pier foundation design load. The soil pressure at the base of the pile cap was assumed to be uniform. The loadings considered in this study are only to arrive at the comparisons of stress distribution and settlements of different foundations; the actual loads can always be different than those used in this study.

Analysis

On the basis of a computer program developed for the three closely spaced flexible foundations placed over an elastic half space, computations were carried out so as to determine an elastic settlement and an increment in the vertical normal stress at different depths along the vertical lines C-C and E-E as shown in Fig.2; the lines C-C and E-E pass through (i) the centre of the central pier of BMICP bridge, and (ii) the centre of the outer piers for the elevated highway of NHAI, respectively. The work of Poulos and Davis (1974) can be referred for the methodology needed to compute the settlements and stresses at a given depth for a rectangular loaded area.

Computations were also simultaneously carried out for an isolated pile cap having (a) dimensions of $10.75 \text{ m} \times 4.7 \text{ m}$ for the central pier and with $q = 259.87 \text{ kPa}$, and (b) dimensions of $14.0 \text{ m} \times 5.5 \text{ m}$ and with $q = 285.857 \text{ kPa}$ for the outer pier; the footing pressure in either case was assumed to be uniform below the pile cap. For an isolated pile cap, it was assumed that the adjoining foundations exist at a very large spacing so that no effect of interference will result. The values of the elastic displacements and the increment in the vertical normal stresses were simultaneously obtained at the centre of the foundation at different depths.

Results

The results were obtained for two different values of Poisson ratio (ν), namely, 0.15 and 0.30. It should be mentioned that the increment in the vertical normal stress (σ_v) due to the applied load on the foundation does not depend on the magnitude of the elastic modulus (E) of the underlying soil/rock mass. On the other hand, the results for the elastic displacements were obtained by keeping $E = 500 \text{ Mpa}$ (approximate value assumed for a soft disintegrated rock); no increase in the magnitude of E with increase in depth was considered in the study. It should be mentioned that the displacement (δ_E) for any other value of the elastic modulus (E) can simply be obtained by using the following expression; $\delta_E = \delta_{500} \frac{500}{E \text{ (in MPa)}}$ where δ_{500} is the

magnitude of the elastic displacement obtained in this study for $E = 500 \text{ MPa}$. The results providing the values of the elastic displacement and the increment in the vertical normal stresses are presented in Figs. 3-6. From these results, the following observations were being made:

1. The magnitude of the vertical displacement and the increment in the vertical stresses along the lines C-C and E-E decrease continuously with an increase in the depth; the maximum values of both the vertical displacements and the vertical normal stresses exist at the level of the pile cap itself.
2. The increment in the vertical normal stress along E-E and C-C in any of the cases does not depend upon either the magnitude of E and (ν).
3. An increment in the value of (ν) from 0.15 to 0.30 brings a very insignificant decrease in the magnitude of vertical displacement.
4. The vertical displacement along E-E for the proposed foundations per the drawing: BMIC/NHAI/STRU/1.7 becomes almost the

same as that for an isolated pile cap without any effect of footing interference. The vertical displacements along C-C were found to be marginally greater than that of the isolated foundation. The interference effect, which seems to be only marginal, is reflected mainly on the central foundation whereas the corresponding effect of interference on the outer pier foundation is found to be almost insignificant.

5. The magnitude of the increment in the vertical normal stress both along C-C and E-E for the proposed foundations per the drawing: BMIC/NHAI/STRU/1.7, has been found to be very close to that of an isolated pile cap without any effect of interference.

Remarks

The study in this report only provides the results with an assumption that the vertical pressure at the interface of the pile cap and underlying strata remains uniform, and the pile cap lies over a linear elastic soil medium. No attempt has, however, been made to determine the actual settlement of the pile foundation incorporating the shortening of the pile itself (Poulos and Davis, 1980) and in the presence

of either the effect of the moment or the dynamic loading due to moving vehicles on the base of the foundations.

Acknowledgment

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Conclusions

The preliminary study was able to bring the fact that an increase in the vertical normal stresses along the centre vertical line of any of three pile caps with the proposed drawing BMIC/NHAI/STRU/1.7 remains very close to that determined by the corresponding isolated foundations of the same size with the same loading. The magnitude of the elastic settlement along the centre vertical line of NHAI pier was also found to be very close to that of an isolated foundation without any effect of foundation interference. A very marginal increase in the settlement along the centre vertical line of the BMICP bridge pier due to adjoining pier foundations was, however, noticed.

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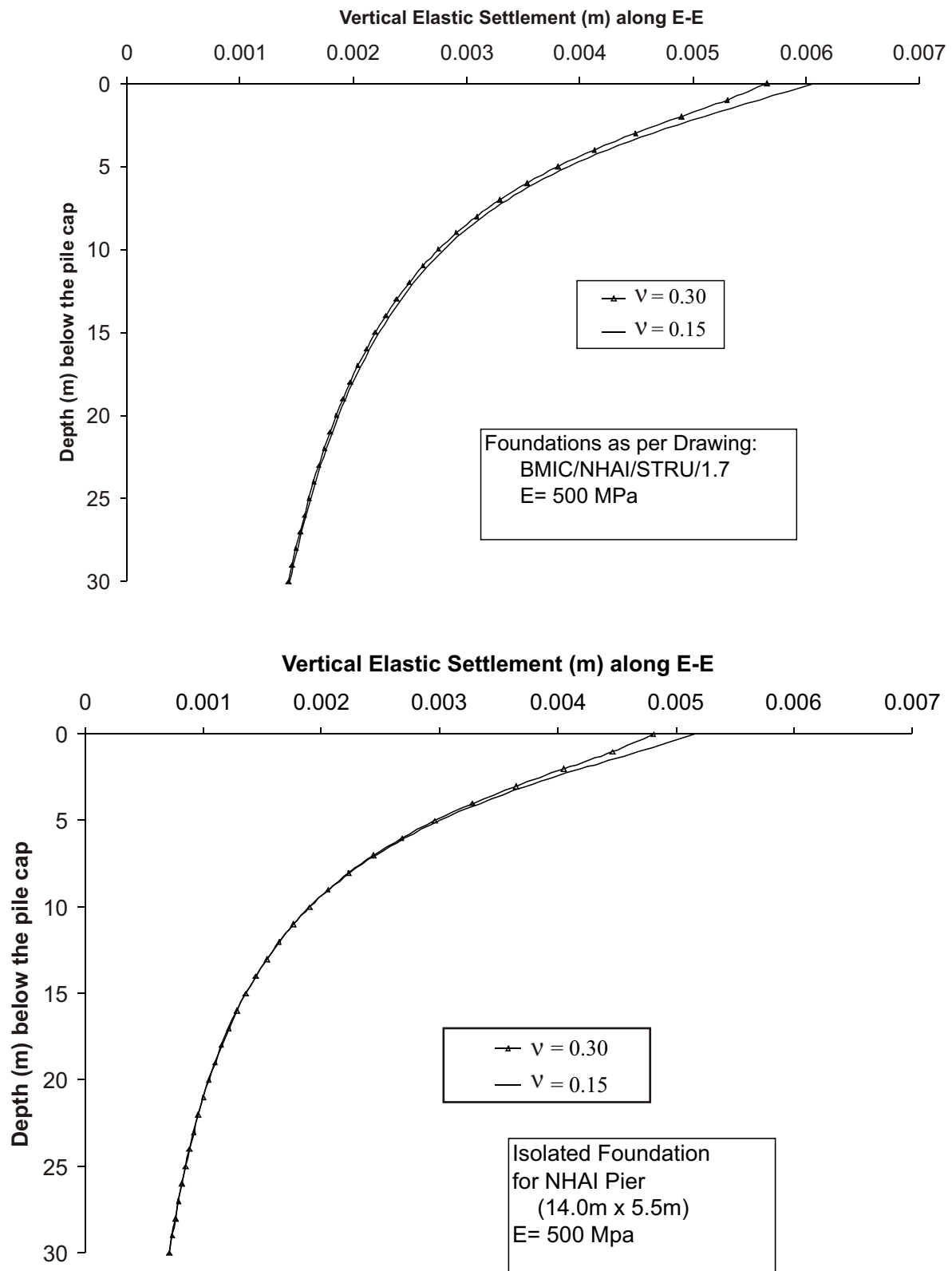


Fig. 3: A comparison of vertical elastic settlement along E-E (centre line of the NHA Pier)

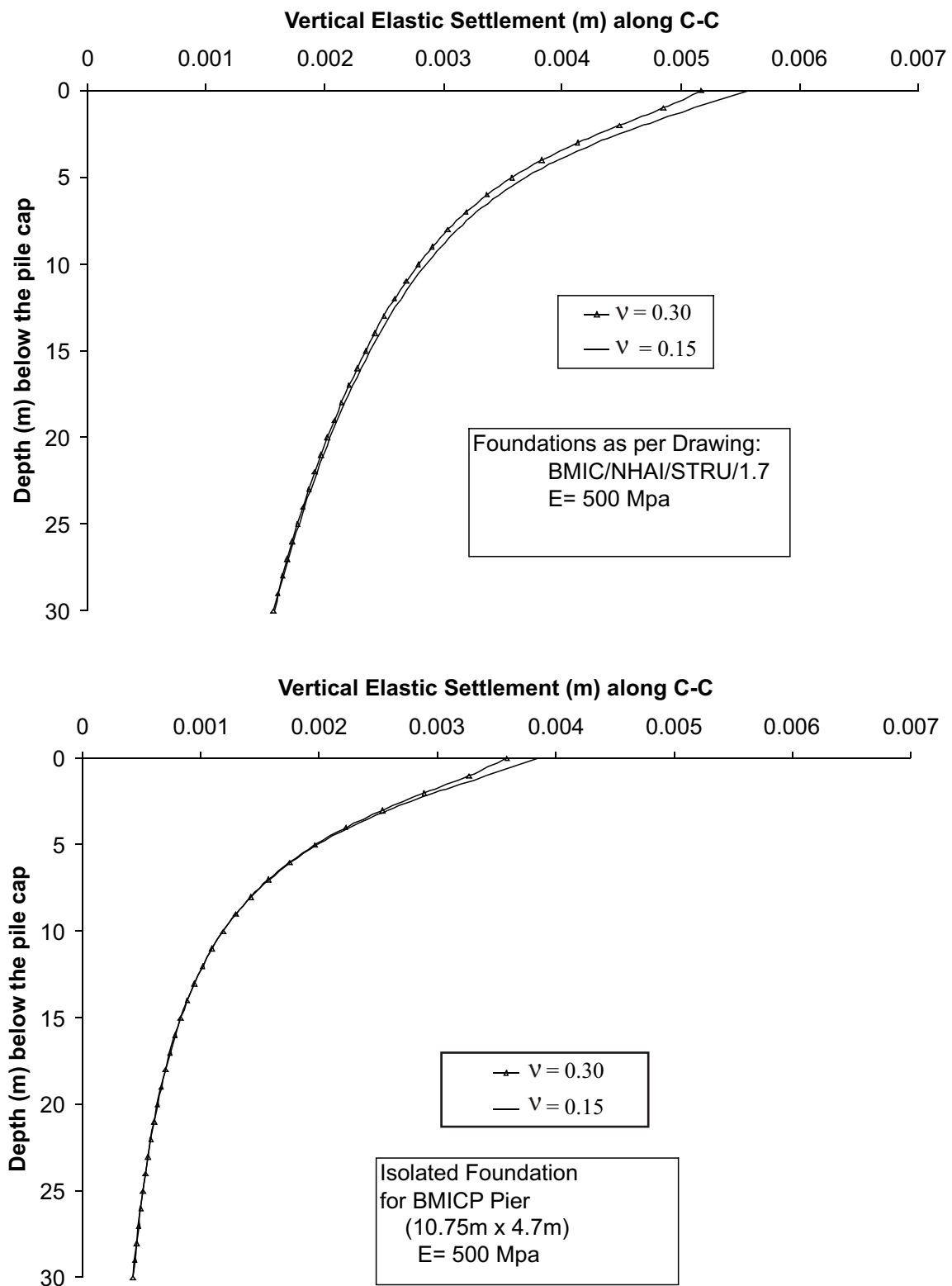


Fig. 4: A comparison of vertical elastic settlement along C-C (centre line of the BMICP Pier).

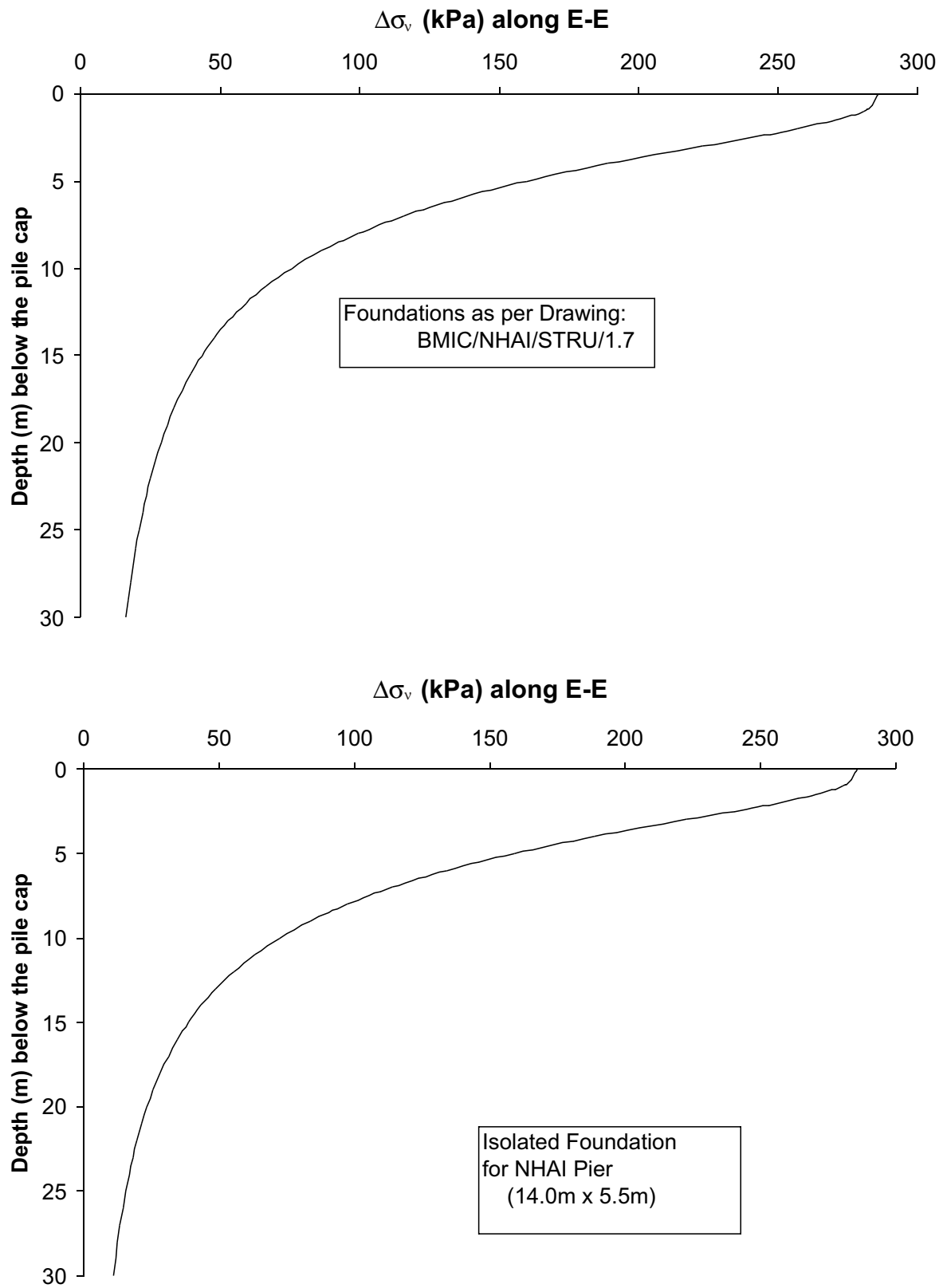


Fig. 5: A comparison of increment in vertical normal stresses along E-E (centre line of the NHAI Pier).

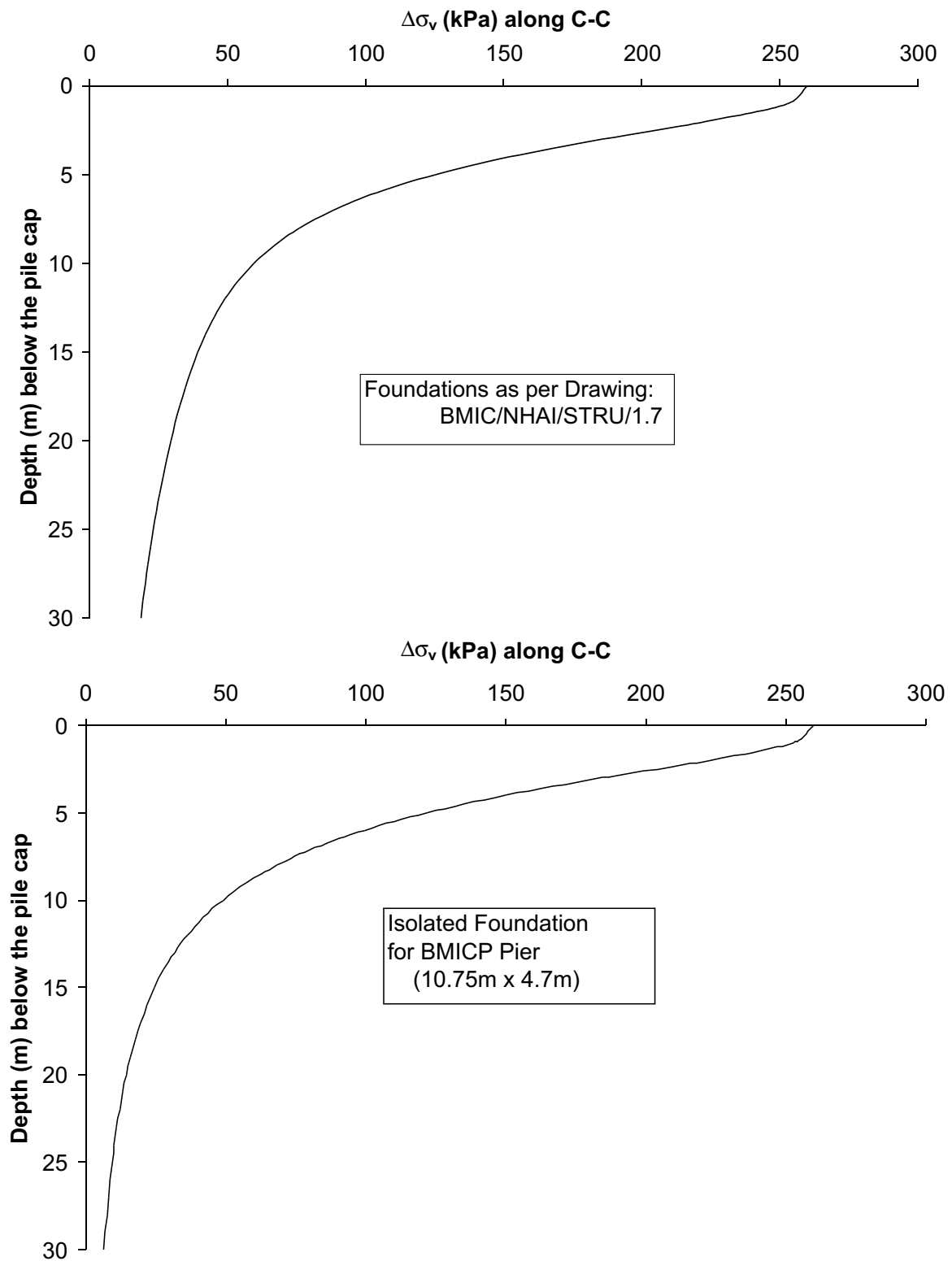


Fig. 6: A comparison of increment in vertical normal stresses along C-C (centre line of the BMICP Pier).

Knowledge Management Initiative in PDIL

The rapid development in data crunching, storage and access is providing a new horizon for managing data and information and further structuring them in knowledge that can be exploited towards our business goal. Knowledge Management (KM) provides a tool for managing the knowledge assets of a company and exploitation of the same to meet the long term goal and successfully handle the complex area. KM has more importance in a Consultancy environment where it is said that all the resources of the company go down the stairs in the evening (employee carry most of the assets in their mind and leave the office in the evening) and organisation needs to suitably implement a strategy by which business can run uninterrupted with least impact of attrition. KM is a long term initiative and can sit over the implemented quality system to make it more effective. Implementing KM will need a fresh look at the organisation structure and reorienting it to support KM. The paper discusses basic concepts of KM and some of the issues that play an important role in the KM initiative. As a case study, the thinking process at PDIL (Projects and Development India Ltd., A Govt. of India Undertaking) has been discussed with a detailed description of KM of vendor/supplier information.



R.G. Rajan

Introduction

Knowledge Management may be looked upon as the explicit and systematic management of vital knowledge and its associated processes of creation, organisation, diffusion, use and exploitation.

Since the advent of human civilization, knowingly or unknowingly, knowledge has played an important role in taking informed decision in all walks of life, be it economic, political, and social or any other matter. Exploitation of knowledge has fuelled growth of business even in basic products of civilisation like steel, cement and other metals and heavy chemicals. Managing and safeguarding knowledge has always been a key issue and society has, over a period of time, tried to take care of knowledge assets by formalizing it through patent and Intellectual Property Rights. Knowledge is not an issue of Individual or a Limited Company but is a global asset requiring adequate attention and this is what gives rise to Knowledge Management popularly known in short as **KM**. The article is an attempt to discuss issues in KM with special emphasis on managing knowledge in consultancy business.

Why KM

Way back in 1993 it was recognized that 'Knowledge has become the key economic resource and the dominant, and perhaps even the only, source of competitive advantage' - (Drucker).

Technology growth leading to cost effective solution for managing the KM processes are playing a key role in the KM initiative. KM may be used for ensuring better management of Intangible and Knowledge asset protection besides being a key success factor in today's competitive market place. Organising and analyzing the information in central computer data base of an organisation provides a convenient methodology for readily sharing of information throughout the organisation, instead of being confined to the department or locations responsible for generating the information. KM is essential for consultants because:

- Most of the work is based on information.
- Organisation competes on the basis of knowledge.

- Service and products are getting increasingly complex with significant information component.
- The need for lifelong learning is an inescapable reality.

Data, Information and Knowledge

While discussing KM, it is pertinent to touch three key concepts, Data, Information and Knowledge. Data include facts, images, sounds, numbers etc, and generally need some restructuring for being suitable for a decision making environment. Information is the filtered, formatted and summarized data that could be interpreted into a meaningful framework whereas knowledge is the information that has been authenticated and reshaped for practical use. Knowledge is more comprehensive than data and information. It is a mix of contextual information, value, experience, expert insight, and grounded intuition that actively enable performance, problem solving, decision-making, learning and evolving. Knowledge exists in two forms, tacit and explicit.

Tacit Knowledge is personal, context-specific, and difficult to formalize and explain. Know-how, crafts, skills are typical form of tacit knowledge. Human beings create mental models, e.g., schemata, paradigms, perspectives, beliefs and viewpoints, of the world by making and manipulating analogies in their minds. Commutative store of the experience, mental maps, insights, acumen, expertise, know-how, trade secrets, and skills set, understanding and learning that an organization has acquired in course of time may form the wallet of tacit knowledge. All knowledge originating from experience and past, that has not been formalized for diffusion, use and exploitation falls in the category of tacit knowledge. The challenge that we face is to convert tacit knowledge into explicit knowledge.

Explicit Knowledge is codified knowledge and refers to knowledge that is transmittable for use and exploitation. Documents, reports, memos, messages, presentations, database schemas, blueprints, architectural designs, specifications, etc are typical examples of explicit knowledge.

It has been observed that explicit knowledge is only 20% of the knowledge available in any organisation and 80% of knowledge is hidden in form of tacit knowledge, may be in individuals mind, individuals note book or documents that can not be traced when needed. It is universally accepted that converting tacit knowledge to explicit knowledge is tough though not impossible.

Typical explicit knowledge available in consulting organisation may be grouped as below :

- Process know-how
- Procedure
- Work Instructions
- Standards
- Drawings
- Documents
- Cost data
- Man-hours required for activities.
- Vendor Details.

Procedures and work instructions are expected to cover all the available know-how acquired by organisation. Drawing and documents are expected to be repository of generated drawing/documents over period of time as well as obtained from external sources and identified for use/reference in future. Man-hour and cost data is essential ingredient used by organisation for bidding against client requirements. The suggested grouping is broad and generally applicable. However organisations may suitably group and classify the available explicit knowledge.

Knowledge Creation and Cycle

Knowledge creation and cycle is represented by the diagram in Figure-1. Theoretically the diagram appears simple but practical implementation of same has many hurdles and issues. These will be discussed in following part of this paper. For implementing KM, the identified hurdles and issues have to be given adequate consideration and methodologies evolved to overcome the same.

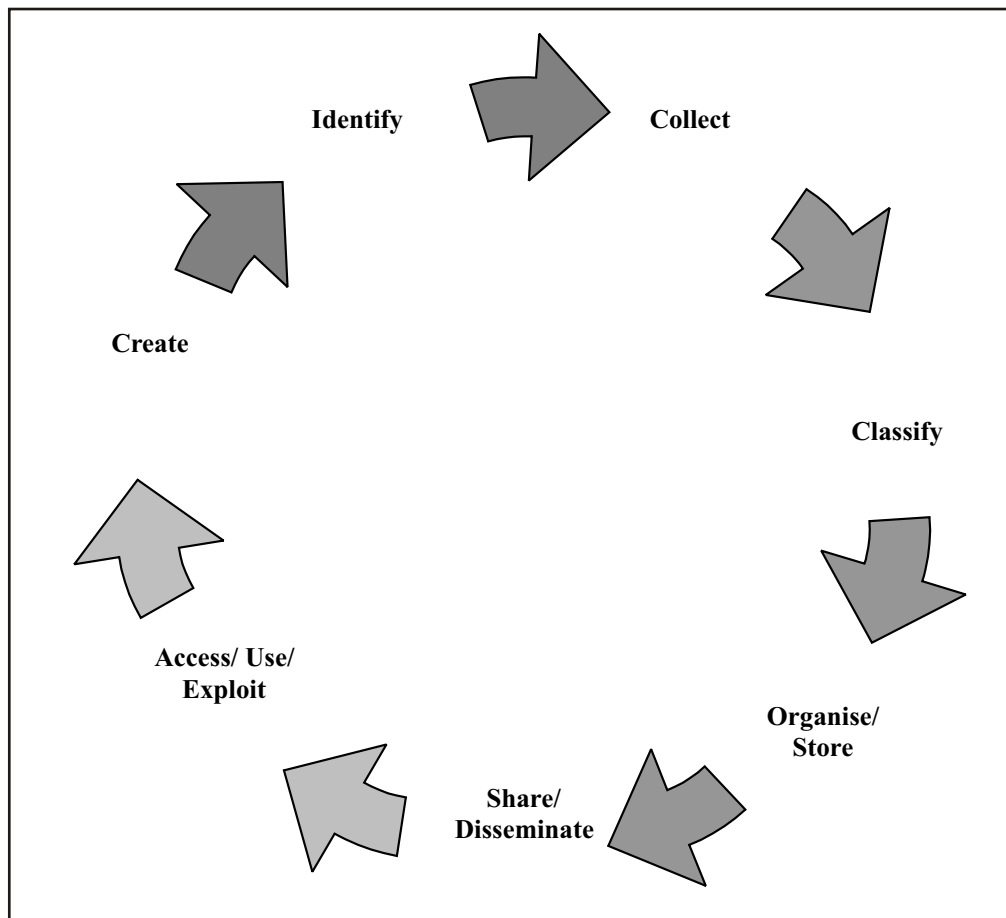


Figure 1 : Knowledge Creation Cycle

Knowledge creation requires special thrust on sharing existing knowledge, knowing what you know, knowledge for innovation and creating and converting knowledge to explicit knowledge.

Knowledge Packaging

Translation and structuring of available information into usable knowledge may be achieved through six steps to ensure packaging of knowledge

1. Identify knowledge, identify specific topics or general domains and then find knowledge that address those subjects.
2. Segment the audience: entails identifying target recipients for the knowledge and sorting them in groups by their respective needs.

3. Customize the content: select relevant information from the knowledge base and tailor it with the appropriate level of detail for each segment.
4. Choose the appropriate format, such as paper, electronic, video, or multimedia.
5. Organize the content, lay out the table of contents, index, or search engine.
6. Market-test the format and content, have a pilot group check the knowledge package for clarity, usability and overall value.

Who needs KM

Establishing the need to go for KM requires critical examination of following issues and few 'yes'

answers to these issues leads to need for KM. Typically, there will be more than a few reasons in favor of KM and there will be very few organisations that will fall out of purview to implement KM. Of course for some organisations the requirement for KM will be a primary business imperative. KM is business process reengineering and in the business environment, is closely related to the operating model of the organisation. For a design, engineering & consultancy organisation, the operating model could be Core Business Processes, Organisation Set Up and Management System, Technology Handled and Working Culture. Few exploratory issues for establishing need for KM could be:

- i) You go through Business Transformation? (BPR, TQM, TPM, Culture)
- ii) You deal with Intellectual Assets/Capital?
- iii) You are a learning organization?
- iv) Yours is a Knowledge-intensive organization?
- v) Innovation is important for you?
- vi) You have Information?
- vii) Attrition bothering you?
- viii) You deal with high tacit knowledge?
- ix) People resist voluntary knowledge sharing?

Advantages of Knowledge Management

KM, when implemented in a planned manner provides the following benefits:

- Better decision making
- Reduced costs
- Faster response time to key issues
- Improved productivity
- Shared best practices
- Fewer mistakes
- Less redundancy
- Increased worker independence

- Agile Enterprise
- Effective use of Computers/Systems
- Collaborative Climate
- Enhanced customer relations
- Improved service
- Knowledge reuse

Most of the advantages are direct result and objective of identification and management of knowledge base. Information Technology provides the infrastructure through which creation, storage and access/use/exploitation is done. Availability of identified knowledge, at right places and at right time, helps in faster decision, improved services and host of other benefits.

KM at PDIL

When the activities of PDIL, an Engineering Consultancy Organisation, having pioneering contribution in the field of engineering, fertilizer and chemical plants, are examined in the perspective of the nine parameters described in '**Who Needs KM**', the answer to all the parameters are a big '**YES**'. After implementation of revival package (being a BIFR company & on the brink of being closed), PDIL has seen exit of approximately 65% of its work force in the year 2003 and started a new journey with remaining 35% personnel. The downsizing of workforce, the need to look aggressively at business opportunities, the need to reduce cost and improve efficiency have led to business transformation and cultural changes. As part of this, PDIL is looking at all fronts, utilising all the opportunities for an untiring journey to a bright future.

In terms of intellectual assets and capital, PDIL is marketing a series of Catalyst used in Fertiliser and Oil Refinery. These catalysts are being manufactured with know-how developed by PDIL. Besides, capability to handle projects based on wide process know how has been acquired by virtue of handling projects to serve fertiliser, oil, gas and heavy chemical sectors. The capabilities acquired

over a period of time are the basic Intellectual Asset for survival in competitive environment. For PDIL, every project is a learning platform. New technology, new methodology, new challenges to meet client's ever growing expectation forces PDIL to keep on innovating new methodology for completing the project in scheduled time frame and within the planned cost. PDIL has a good amount of information on cost, technology and project cost. With the bubbling business scenario worldwide, all engineering consultants are facing problem of attrition. For PDIL the problem is more acute because of high rate of superannuation and early exit of new recruits, staying only for about 18 months on average before looking for new pastures. The work of PDIL being highly knowledge based, the problems of voluntary knowledge sharing and high

level of tacit knowledge are considered bottlenecks.

The general flow of information and interaction in PDIL has been depicted in Figure-2.

The KM initiatives at PDIL are being designed in a modular manner for creating knowledge islands which have been identified as:

- i) Process knowhow
- ii) Procedures and work instructions for carrying out tasks and use of high technology softwares.
- iii) Internally generated drawings/documents,
- iv) Drawings/documents received from vendors and having valuable information for future use,

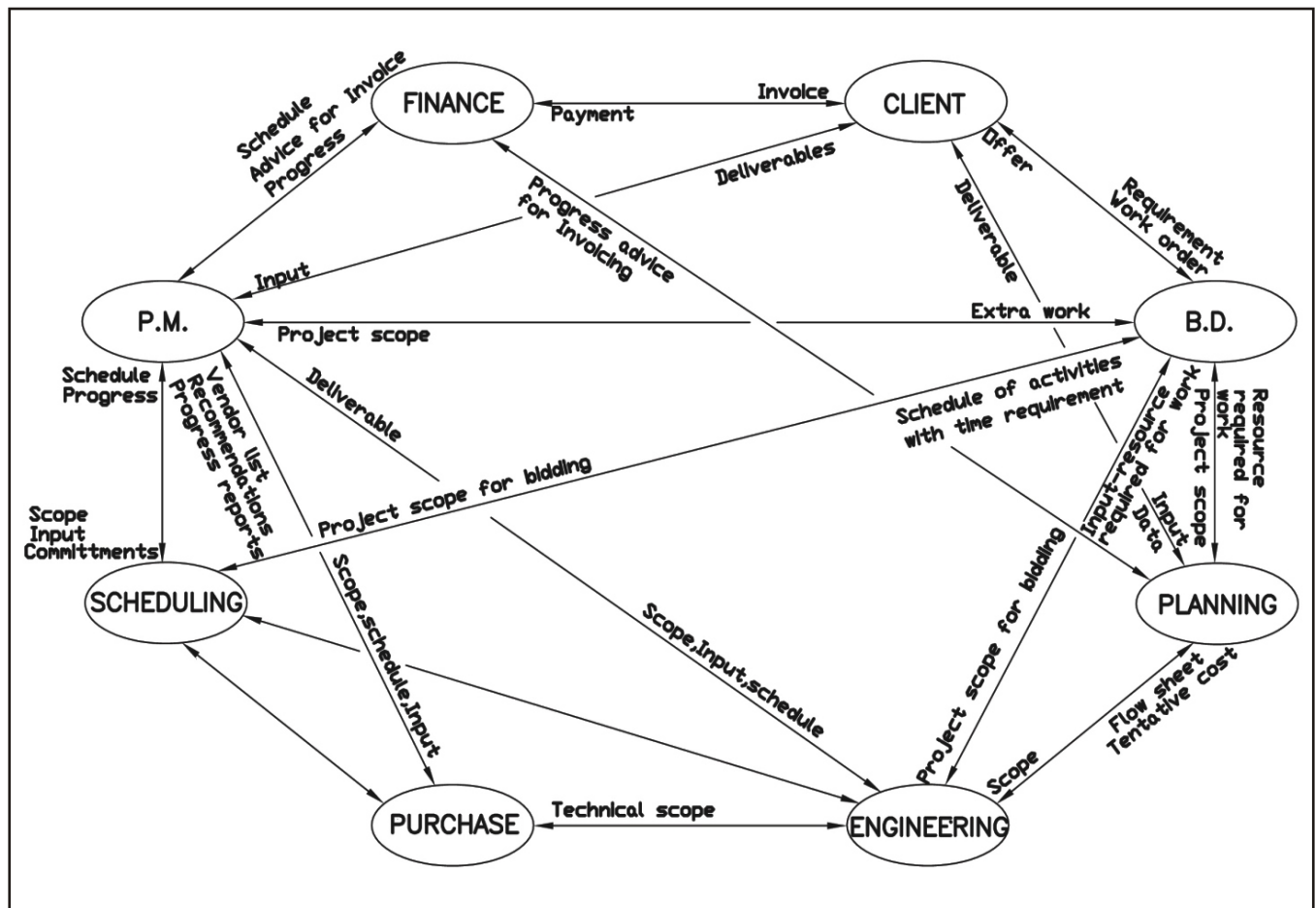


Figure 2 : Project Information Flow

- v) Vendor data
- vi) Business intelligence and experience information
- vii) Cost data
- viii) Human resource usage information.

All the knowledge gathered will be made available on line for viewing/use by designated personnel. Filing, access and control of all the knowledge items shall be strictly as per company guidelines reducing the risk of loss and misuse. All the offices of PDIL shall be connected using lease line/VPN. The initiative will reduce the need to maintain multiple hard copies that occupy space, are difficult to trace at critical hours and mostly are man dependent and therefore takes time in retrieval. Reference to these documents is not possible from outside the office and therefore on business trips engineers have to carry with them all the information that may be required. The basic IT infrastructure being planned to be used are Data Storage and Backup, 24 hrs x 365 days anywhere IT resource availability, scanners, appropriate band width and creation of customer portal. Extensive use of intranet is being planned to be deployed for share/dissemination of knowledge. The intranet will provide a forum for discussion and a separate area for handling knowledge in different islands.

The issues in KM being planned at PDIL for Vendors/Suppliers Management are discussed in detail in following Para as an example.

The issues being faced by PDIL in respect of Vendor/Supplier: For an engineering consultant like PDIL, vendors/suppliers of different equipment and services is a very important external factor contributing to timely completion of projects. Accordingly, PDIL is maintaining a master vendor/supplier list and this is controlled by Materials Management (MM) Department at NOIDA. The issues being faced are:

- i) Intervention of MM Department NOIDA is required to obtain a list of probable vendors.

- ii) All change requests, in relation to address and contact detail, have to be made to NOIDA and there is no methodology to review all such request. Changes in contact address, contact persons are very frequent and requires immediate attention.
- iii) Enquiry may be issued to vendors from whom the last tender papers were returned due to addressee not being found. This will result in inadequate response, wastage of time and money, especially in case of foreign vendors. Project tenders are voluminous and considerable effort is required in preparation of the complete set.
- iv) No response/inadequate response resulting into delay in purchase. There is no convenient mechanism to know about response of vendor in past.
- v) There may be vendors in the list who have gone out of business and therefore are not responding to our request.
- vi) It may be required to identify more vendors for equipment/services for which response is less.
- vii) Key management information like no. of vendors, no. of pending requests, average processing time for registration of vendors, no. of new vendors registered in past one year/specified period, requests rejected, average man-hour spent in processing request, no. of change requests received and status of these.

Due to issues mentioned above, lot of tacit knowledge, gained over a period of time, plays key role in purchases and finalization of vendors for particular supply/service and the process is heavily man dependent.

Some of these issues like on-line status of request by vendors for registration as supplier of goods/services are on priority for all Public Sector Undertakings. Besides, host of the information are required for handling regulatory issues imposed by Rights to Information Act (RTI).

How PDIL has planned to tackle the issues:
Deployment of Portal, using Microsoft Portal Software on intranet with separate area for identified KM islands has been planned along with

deployment of web based software for interaction with knowledge base. The schematic diagram for system handling the vendor/supplier is presented in Figure-3.

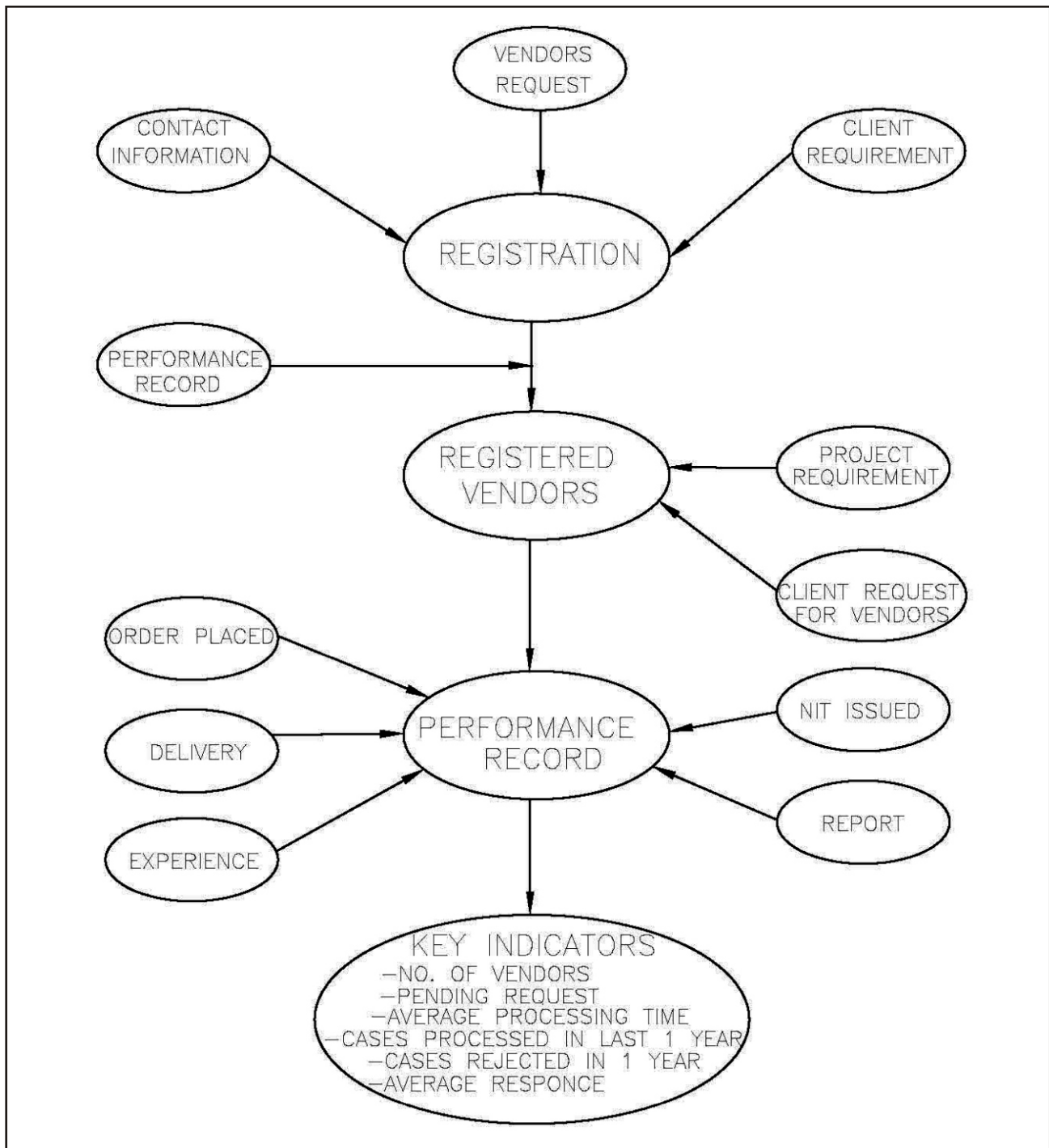


Figure 3 : Proposed Vendor System

The system is planned to provide the following:

- On line statistics to senior/designated personnel on identified key indicators which are.:
 - i) No. of registered vendors
 - ii) Pending request for registration
 - iii) Average processing time for registration.
 - iv) No. of registration cases processed in last one year/specified time.
 - v) No. of requests rejected in past year/specified period.
 - vi) No. of tenders issued in past one year/specified period, with no. of vendors involved and response statistics.
 - vii) Average man-hour per vendor registration
- List of vendors as per project requirement
- Access of information on 24 x 365 days basis
- Change request. This may be in respect of contact details or any other business parameter. The originator can monitor request done by him. On central basis all pending change request may be monitored.
- Vendors performance on response, cost and delivery of services, to the extent they have performed in past PDIL tenders.
- Drill down to lowest level detail from the key issues presented by system. Say in case of rejected request, who were rejected, when they had requested for registration and when they were communicated regarding rejection, reasons for rejection, scrutinizing team. In brief the system will have drill down

capability to lower and more elaborate detail from brief detail presented for higher level management.

- Innovation methodology used by individuals to obtain better response against tenders.
- Information about new vendors/suppliers of high technology goods required by PDIL.

The system will provide all the information on dynamic basis. Thus if any other office of PDIL is reviewing suitability of a particular vendor, it will be able to get pending change request, past response of vendor and all other past performance data even if the information has been generated and fed to system few minutes back. The system is expected to provide help in taking initiative to reduce the bottleneck in execution of project by way of: identification of products/services where there is need to identify more vendors; easy communicating with vendors of critical items on projected requirement; need to look into hard copy files for management issues etc.

More Initiative at PDIL: Regular talks are organized at the departmental level for discussing the developed procedures and other available expertise. PDIL is looking at more options to encourage knowledge sharing among employees by use of incentives in various forms and increasing awareness. The untiring journey of PDIL from a Rs 360 million turnover company in 2001-02 with huge losses, to an expected Rs. 550 million turnover in 2008-09 with net profit margin of around 20%, and a corporate plan to increase the turnover of company to many fold in coming years to make PDIL a company with global footprint, will require KM in a big way. PDIL has started the journey on the road of KM and is prepared to exploit the possibilities to fuel the planned growth.

India - Land of Opportunities

"India has seen rapid growth of its industry and economy over the past ten years or so. However, with the lack of corresponding development in the infrastructure and the big gap in demand and supply in the power sector in India, the pace of growth has been considerably retarded and it is now recognised that measures are to be taken to rectify this situation. Otherwise, major bottlenecks will develop in meeting future aspirations.

Danish firms have expertise and equipment to offer India in this regard and several engineering companies have been operating in India for years. Danish expertise includes roads and bridges, civil aviation (airport development) and ports.

In the energy sector Danish companies have a high potential for growth in the Indian market in regard to new products, equipment and technology. Within renewable energy, the larger Danish wind and solar energy companies have already established a strong presence in India. However the market potential is still huge and the scope for entry of companies producing ancillary equipment for the sector still remains untapped. Similarly, Danish companies within biomass and cogeneration need to have a closer look at this market.

This paper takes a closer look at the possibilities for Danish consulting engineering companies in India".



Soren Holm Johansen

India is definitely entering the global arena. With a population of some 1,027 million people, India is now after China the second country in the world to surpass the one billion mark, making up 17 per cent of the world's population. The Indian economy has posted an average growth rate of more than 7 per cent in the decade since 1996. Potential output growth is currently estimated to be 8½ per cent annually and India is now the third largest economy in the world. Consequently, India is capitalizing on its large numbers of well-educated people skilled in the English language to become a major exporter of software services and software specialists¹.

The boom in the IT industry has encouraged companies all over the world to focus on this country, which is experiencing an annual growth of six or seven per cent. This is an exciting development, with a scope and speed that were difficult to imagine when the Indian economy seriously began to open up in the mid-1990s.

Danish-Indian Relations

Denmark and Danish companies recognize India's capabilities to emerge as a major economy in the 21st century. Specifically, Denmark has shown interest in encouraging mutually beneficial cooperation with India in the knowledge-based industries, particularly biotechnology and information technology, besides non-conventional energy resources, food processing, shipping and pharmaceuticals. Denmark ranks as the 19th-largest foreign investor in India, ahead of countries such as Russia, Canada, Spain, Austria, Finland, and Ireland².

Danish consulting engineers have also turned their attention to the Indian market as part of the Danish industry's ambitions to expand to new and interesting markets. Danish consulting engineers currently experience a large growth in export services driven by market growth in the Middle East, Europe, and Asia.

Danish engineering companies have been present in India for quite some time. Already in 1997, Ramboll established the company L&T-Ramboll together with Larsen&Toubro, India's largest contracting company. Today, L&T-Ramboll has about 150 employees, who are almost exclusively Indian engineers. L&T-Ramboll enjoys a unique platform from which to take advantage of the massive upgrade in India's infrastructure, which the Indian government has initiated with funding from private investors. Our activities cover just about all aspects of the Indian infrastructure, from airports to motorways. And we are currently designing new building developments at two airports in Hyderabad and the IT city of Bangalore, which has an infrastructure that is currently among the most overloaded in India.

In terms of harbours, L&T Ramboll is in connection with developing two large, completely new harbours called Gangavaram Port in the sub state of Andhra Pradesh and Karaikal Port in the sub state of Pondicheri, and we have also carried out the detailed design of about 400 km of motorway. All of them are involved in a national motorway project covering no less than 47,000 km of motorway, which will link India's largest cities. Of the approx. 47,000 km of motorway, about 10,000 are completed or in progress. Finally, we have taken part in several bridge projects. The most significant of these is the detailed design of the 4.2 km combined road and rail bridge over Brahmaputra and 4 large railway steel bridges in Kashmir with a total length of app. 3.5 km.

Also present in India is the Danish engineering company Kampsax India - located in Gurgaon (Haryana) close to Delhi International Airport. Kampsax India which is a member of the COWI Group is the largest private sector production centre for photogrammetric mapping and GIS in India with a production capacity of about 500,000 hours a year which enables Kampsax India to handle both large-scale production assignments and minor assignments.

Since the foundation in 1994, Kampsax India has grown substantially and with around 350 highly qualified employees, it possess the ability to provide

a wide range of quality solutions of all types for production assignments within photogrammetry, remote sensing, GIS and for digital mapping.

Telecommunications is Exploding

Investments are not only being made in the transport-carrying infrastructure at the moment. Today telecommunication is a very important part of a country's infrastructure. India is experiencing a veritable telecom revolution, which means that a steadily growing part of the Indian population will have access to mobile telephony. Only 100 million of India's approx. 1.3 billion inhabitants currently have a mobile telephone, but over the next three years, that figure is expected to exceed 400 million, equivalent to almost 300,000 Indians receiving mobile coverage - a day.

This dizzying prognosis is the background for Ramboll Telecom choosing to establish a subsidiary in Gurgaon near Delhi in 2006, with a view to offering our unique mast design to Indian clients. The pressing need for expanding the mobile network in India will require the establishment of an enormous number of masts and towers in the years ahead. A total of 50,000 new mobile masts every year. Even though Ramboll Telecom has only just entered the Indian market, our towers have already been approved and bought by various operators. Our clients include IDEA, Quipo, Essar, TVS, Tower Vision and Nokia Siemens Network, and our portfolio is growing.

Future Markets for Danish Engineers

Solid waste management

There has been a significant increase in Indian municipal solid waste (MSW) generation in the last few decades. Due to rapid urbanization and uncontrolled growth rate of population, municipal solid waste management has become acute in India. MWM as an essential service is given low priority. Lack of financial resources, institutional weaknesses, improper choice of technology and public apathy towards MSW has made this service far from satisfactory. The current practices of the uncontrolled dumping of waste on the outskirts of towns and cities have created a serious

environmental and public health problem, endangering water quality.

The per capita MSW quantity generated daily ranges from 100 g in small towns to 500 g in large towns. The increased MSW generation can be ascribed to changing lifestyles, food habits and change in living standards. The amount of waste generated per capita is estimated to increase at a rate of 1-1.33% annually. The total waste quantity generated by the year 2047 is estimated to be about 260 million tons per year. That is more than five times the present level of about 55 million tons. The enormous increase in solid waste generation will have significant impacts in terms of the land required for waste disposal. It is estimated that if the waste is not disposed off in a more systematic manner, more than 1,400 km² of land, which is equivalent to the size of city of Delhi, would be required in the country by the year 2047 for its disposal³.

There is an urgent need in most Indian cities to change, restructure or intensify the waste collection systems. And there is an apparent need for promoting new ideas and concepts of SWM in waste collection, segregation and waste transportation.

Denmark is a pioneer in waste management. Thirty years of experience in meeting ever-increasing waste treatment and waste disposal requirements have made Danish companies highly qualified in waste management. Moreover, for more than 15 years, local authorities in Denmark have been responsible for planning and providing adequate infrastructure for disposing of all types of waste, both household and industrial. In future, Denmark's waste management strategy will focus on even better use of the resources present in waste and on better waste quality, including waste minimisation.

Several key areas of Denmark's waste management strategy have served to inspire common EU regulations. Danish companies have thus gained a strong export foothold.

Waste management unites companies and public authorities, and this gives Danish consulting firms a leading edge. One advantage is that Danish consulting firms have a solid basis for providing

know-how, master planning and institutional setup both nationally, regionally and locally.

Danish consulting firms possess adequate building and construction know-how as well as experience, not only in design and planning, but also in regard to requirement specifications for a wide selection of plant and site types. Denmark can boast suppliers in almost any product area, be it collection and transport equipment, different types of shredders and compactors, composting plant equipment, biogas plants, incineration plants or landfill membranes.

Incineration is an area in which Danish companies can supply virtually any equipment from grates and boilers to flue gas purification systems. The strong foothold in incineration plants is firmly rooted in Denmark's deliberate choice to incinerate waste and exploit the energy obtainable in waste suitable for such incineration. Furthermore, a number of companies in Denmark are also able to supply both individual equipment and entire systems. Finally, Denmark seems to have a strong position in biogas waste management. The reason is that Danish companies are leading edge suppliers in this area, particularly because of their know-how accumulated through the treatment of liquid manure and different industrial residue products from sectors such as the food industry.

Renewable Energy

There is no doubt that sufficient energy plays a huge requirement for the continued Indian economic development. Every sector of economy-agriculture, industry, transport, commercial, and domestic-needs inputs of energy. Energy consumption is heavily rising and dependency on fossil fuels such as coal, oil and gas is seen as a threat for economic development and environment. New sustainable energy sources are needed.

Fortunately India is blessed with a variety of renewable energy sources. The main ones are biomass, biogas, the sun, wind, and small hydro power. Municipal and industrial wastes are also seen as useful sources of energy.

India is implementing one of the world's largest programmes in renewable energy. The country ranks

second in the world in biogas utilization and fifth in wind power and photovoltaic production. The total installed capacity of power generation from various non-conventional energy sources reached about 6,800 MW in 2005. Currently wind energy is the leading renewable energy source in India followed by small hydro power and biomass. India is the fifth largest wind power producer in the world after Germany, the USA, Denmark and Spain, with a wind power generation capacity of 3,600 MW (March 2005). The Wind Resource Assessment Programme (WRAP) is one of the largest programmes of this kind in the world⁴.

The Danish engineering industry offers a wide range of world-class competencies within the field of renewable energy. This stems among other thing from the experiences gathered nationally over the past three decades. Denmark has gone from being 99 % dependent on sources of foreign oil to becoming completely energy self sufficient. Thirty years of focused energy policy, implemented after the 1973 oil crisis, have catapulted Denmark ahead of most other nations in the use of renewable energy technology.

In regard to the wind energy industry it employs 20,000 people nationally. The sector has a combined turnover of 3 billion euros for the manufacturers, and the Danish wind energy sector occupies 40 % of the world market. Apart from its established successes in wind energy, Denmark has also strong research activities in future technologies such as hydrogen and fuel cell, with leading edge research programmes at the Danish Technical University.

One of the main objectives in the energy area today is to promote the use of renewable energy and every year, renewable energy accounts for an increasing part of the total energy consumption. This development has put Denmark at the forefront of the

development of alternative energy sources and fuel cells.

One example is Ramboll, which since the development of the first turbine towers in 1986, has evolved rapidly with projects worldwide. Today Ramboll is among the leading consulting engineers within the field of wind energy.

The Future Awaits in Mumbai

Ramboll is expecting more from India than promising markets. The country has a lot of highly skilled engineers who will enable us to offer our clients lower-cost, flexible capacity and therefore better consulting.

In 2006, we were the first consultants in Denmark to establish a production department in Mumbai, which is to design jobs for our Danish and European clients. The department has been established within the framework of LT-Ramboll and the plan is for this production department to serve the Ramboll offices in all the Nordic countries.

In addition to providing even more competitive prices, our production concept means that we can draw from a comprehensive and highly qualified Indian workforce at a time when the battle for highly skilled employees in Denmark and the rest of Western Europe has become intense. We also believe that the concept can be an important driver for internationalising our work processes, which will become a condition for consulting within the foreseeable future. A future where projects - national and international - are carried out by international project teams in which people work together across various cultures and professional traditions.

India is a land of opportunities in this context, too. At Ramboll we are well on our way to exploring them. More Danish consulting engineers will soon follow.

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Select Dimensions of Corporate Governance Effectiveness- The Electronics Medium



Vinayshil Gautam

As would be widely recognized, corporate governance refers to the relationship that exists among the different stakeholders of a given enterprise. In doing so, it helps define the direction and the performance of the corporate entity. Accordingly the main constituents involved in the process would be the CEO/ management, the board of directors and the shareholders. Among the segments, which influence this governance process, number the staff, suppliers, financiers, and clients/ customers. Indeed, the wider community in which the enterprise is ensconced significantly impacts the governance process.

The role of the government is also critical because the process of the governance of a given nation is determined by the values, action, processes and structure of the government. Since this paper also seeks to look at the comparative experiences of corporate governance through the electronics medium, in a comparative frame, between India and Singapore, it may be useful to look at some of the salient elements.

The success of Singapore is widely recognized in terms of the corporate entities being attracted to it to set up their headquarters in that island. India on the other hand is seen as slow moving and somewhat large for immediate action. Add to it the dimensions of the freedom of the press and a uniquely democratic system - one can see how it is so different to China and India.

Yet, even at the dawn of the present century, Singapore was under tremendous pressure in terms of its financial reporting practices and till as late as 2005, it was trying to fashion its regulatory processes for ensuring good governance. The widely known disastrous experiences of corporate fraud in the preceding years originating from US were difficult to forget. As a bottom line, a corporation is an instrument or a body by means of which capital is acquired and is used for investing in assets leading to production of goods and services for appropriate distribution. The expected return is profits for the firm, enhanced value/ gains for the shareholders.

Good governance requires 1. Information and power to the share holder. 2. Equity and probity in decision making 3. credibility and reliability in product or service characteristics and its claims .The governance procedures are to be directed towards ensuring this. They may range from legislation on who should sit on the audit committee to how remuneration of the CEO should be fixed .It may examine the role of the external auditor or a competent institution may give a set of guide lines on how the financial results should be announced .Yet each of these processes are amenable to manipulation and the heart of the matter is who gets on to the Board and how 'independent' the independent directors really are.

In effect this kind of ‘good governance’ norms are conceived, codified and ‘implemented’ only so far as the listed companies are concerned. There is a vast array of ownership patterns other than those of the listed companies.

There are sole proprietorships, partnerships, private companies, public companies, cooperatives and the like. In each case there would need to be a listing of the constituencies to which there must be accountability. There would also be need to ensure, that the accountability is real and the visitations on account of violations are real.

The role of institutions such as the Security Exchange Control Board or even the Organization of Chartered Accountants can only be limited, in such a context. There is the accountability to the customers, to the norms of the profession, where the service or the product is positioned, and various others. Seen in this larger back drop, the role of the electronics medium can be both of an enabler and a disabler.

The choice of the segment where the electronics medium should be used would be critical in deciding where the use would serve a purpose and where it would create a dysfunctionality. Consider the example of Moser Baer India Pvt Ltd, an Indian company. It believes that corporate governance refers to the processes and structure by which the business and affairs of the company are directed and managed. JK Tyres and Industries, another corporate entity in India believes that business and IT have become inseparable. The key areas where it spends its energies in running its corporate governance through the electronics medium is first and foremost the information requirements of the board, audit and other committees of the board. Similarly, the legal and the statutory compliances and disclosures need of the company get priority attention. It leads to better investor relations. As the chairman of their investor grievance committee, the author doesn’t recall any meeting of the Committee in years, which has lasted for more than 15 minutes. This is essentially because there are very few

customer grievances. When there are, they are usually, effectively handled before it comes before the Committee. In 85% of the meetings, there are no agenda items to handle. Similarly, the entity uses the electronics medium to enable quicker decision making by the executives and for the purpose of monitoring of the transactions of the key executives.

The corporate regulatory processes in India have been well established for a period of time now. This has happened both through government legislation and by proactive work of the professional institutions.

As compared to this, the first Singapore code of corporate governance became effective from January 2003. The scandals in Informatics Holdings, China Aviation Oil, Auston International, Accord Customer Care, Citiraya - the Singapore watchers will recall-left a deep impact on the corporates of Singapore through 2004 and 2005. The turnaround of the Informatics Group was significant.

Established in 1983, it was a response to the enormous demands for skilled IT manpower and knowledge based workers. It had presence across Asia Pacific, Africa, Middle East, Europe and US. It is now a blue chip company in informatics numbering amongst the top twenty of the overall best managed Singapore companies. The current market capitalization in Singapore of \$ 470 million is significant. With its core business activities of training and educating for IT related services and franchise, the demand of its product is almost limitless.

The essential outcome of the use of the electronics medium in this company has been speed in every action, giving it enormous competitive advantage. It has however led to stretched goals and the inevitable turnovers have followed. Compare this to Moser Baer India Ltd., which focuses on using the electronics medium in corporate governance for performance and accountability (conformance).

Moser Baer is almost ruthless in observing its legal obligations. Be it adoption of corporate governance

code, compliance of secretarial standards issued by the Institute of Company Secretaries of India; voluntary compliance of corporate governance norms by the unlisted subsidiary companies; formation of various board committees beyond statutory requirements, i.e., Capex committee, banking and finance committee, CSR committee, corporate governance committee, its all there. The result has been immense credibility in its national and international operations. It even went to the extent of getting a voluntary corporate governance audit by international finance corporation!

When this is matched with the appropriate strategy, then the return to the stakeholders is rich. Diversification at the right juncture to mitigate the risks of the stakeholders, supported by the tools of electronic governance has come in very handy. It has entered the solar cells and modules manufacturing with plant 80MW capacity in 2007 and diversification to home entertainment, which is the extension of the optical media. This has been coupled with the strenuous attempts at harnessing the intellectual capital.

As corporate governance takes center stage across boardrooms around the world, it is recognition of the role of technology in playing a key role in helping organizations achieve their business objectives.

If one considers risk management as a critical component of corporate governance, the role of the electronics medium becomes even clearer.

It needs to be recognized that the use of the electronics medium would itself be a factor of the kind of infrastructure of the region, in which the enterprise is based. It would also depend on the kind of support the government policies provide, for recourse to the electronics medium. Usually the scale of operations of the enterprise involved, are a useful indicator in determining the breadth and the reach which the electronics medium should have.

Further, the organizational capabilities for working through with the electronics medium have to be gradually built up. The health of corporate governance is also bound to be a factor of the general

organizational climate and the over all efficiencies of the organizational structure and processes.

Empirical experience testifies to the utility of switching over to the electronics media, gradually. Using it first in the communication processes helps. There has to be a sensitive mechanism of determining its applicability and analyzing the feedback. Clearly the system cannot be designed for the sake of suiting the technology!

The use of websites, internet and conference calls across geographies would seem a common place. The more critical issue is, of using, the electronics medium for proactive purposes—for purposes of promoting business and stimulating organizational growth.

In the ultimate analysis the strength of the contents of the usage are nearly as important as the technology enablement.

Clearly, beyond the regulatory features of corporate governance there are the issues of the desirable characteristics of honourable professional conduct. Indeed, honourable professional conduct should also be extended to cover competent professional conduct. This would require continuous skill up gradation.

Use of electronics medium would necessarily involve setting up IT controls in the organization. It is not just the application and access control or the anti virus control. It involves issues of distributed and centralized systems. Indeed, meeting the resistance which so often takes place—besides on other occasions—when an attempt is made to put the entire backlog of data on the new medium, is an important challenge. All this calls for an imaginative approach to document management systems. But that, as the expression goes, is another story.

The journey towards creating dependable and secure technology systems has just about begun. It is obvious that corporate world is entering into an extended period of dualism. To deal with it requires patience, knowledge and the ability to ‘stay on line’.

TITLE : Change Management - Altering Mindsets in a Global Context
 AUTHOR : Nilakant, V.; Ramanarayan, S
 PUBLISHER : Sage Publications
 REVIEWER : Dr. Aneeta Madhok, Dean, Centre for Human Resources,
 S.P. Jain Center of Management in Dubai and Singapore



Everybody is interested in the management of change. Most organizations are caught in a reactive response to the changing environment and forget that they can strategise to proactively respond to change in a way that is constructive for the firm and it takes advantage of the trends that shape corporate and economic existence. The challenges of crafting such a proactive response are tremendous and have been the source of much work of management consultants across all verticals and in all domains of management. As India stands on the upturn of an exponential growth that is going to catapult its economy as a major player on the entire planet, this book is not only well timed in its debut but also well placed in its presentation of a practical and relevant model for management of change in organizations. This view is fully endorsed in the foreword by Finance Minister, P. Chidambaram.

The authors Nilakant and Ramanarayan have previously published a book titled Managing Organisational Change, which was written in the early forming and storming years of the current spate of globalization that began in early 1990's with the liberalization of the Indian economy led by Manmohan Singh who was then the Finance Minister. Given the scenario of today, when many Indian companies have transcended national boundaries and are well on their way towards becoming global transnational firms operating seamlessly across the globe, this book brings home some lessons that could be well learned by others on similar growth paths. Unlike the previous book, this

one endeavours, in the authors own words, to bring lessons from across the globe that can be relevant and practical for all, including Indian organizations going global. The authors claim that the research based knowledge contained in the book is about not just structural changes (as in mergers, de-mergers, organic growth) and not just about process changes (as in quality improvements, lean production, logistics etc.) but about changing the living and growing reality of the organization (as in mindsets and ways in which people think and act in organizations).

Going back to basics in change management theory, the authors trace the fundamentals of Kurt Lewin's theoretical foundations of change management as being the state achieved by the dynamic outcome of competing forces for change and stability. Further drawing upon Anthony Giddens postulates, and those of Edgar Schein, to build upon Lewin's model the authors make a case for Lewin's second contribution to change management theory in emphasizing the role of action research and dialogue in the change management process to create new organization routines and mental models. With these fundamentals in place, the authors Nilakant and Ramanarayan propose their own change management model that proposes a holistic form of leadership that builds on four pillars: Appreciating Change, Mobilising Support, Executing Change and Building Change Capability. The criticality of leadership in the change management process envisages four roles of the change leader: Cognitive

Tuner, People Catalyzer, Systems Architect and Efficacy Builder.

The book further goes on to bring much data from best practices across the globe, vignettes of corporations who managed change successfully and unsuccessfully, economic and industry analysis, and much more research, and makes a compelling case for each of the four aspects of the change management model proposed by them. Appreciating Change is about understanding the various factors in the environment that drive change, business and industry cycles as additional forces of change, and the ways and means to develop a change agenda. Refining the change agenda comes through understanding the mental and business models underlying the appreciation of change process. Mobilising Support comes through persuasive communication, influencing processes, creating compelling reasons for change, and many other processes that are laid out by the authors. The case for mobilizing support in the change process is placed as an imperative to build a chain reaction among the people that make the organization so that change management becomes self sustaining and resistance to change is overcome and ownership of the change process is embedded deeper in the mental models that drive organizational routines. Executing Change is the crucial stage in the change management model proposed and poses many challenges. A framework for executing change is built upon a case analysis of a failed change management attempt and proposes developing cross functional linkages, aligning policies and removing structural impediments to change, developing new routines for innovation and improvement, attending to human aspects of executing change, and, the role of the change leader as a systems architect. Building Change Capability through the self efficacy, focus and energy of the leader, framing challenging goals, creating ownership, structuring activities for learning, and, promoting learning to build a positive behavioural context. A descriptive model of the

components of change capability is also proposed by the authors.

Some treatment is also given to leadership processes in the concluding chapter of the book. The role of appreciative enquiry in building positive organizational scholarship is described as certain qualities of leadership character and conduct. A few examples of leadership framework from companies are presented in an attempt to build a leadership development framework. Four core leadership roles are analysed in the context of creating a mindset for change management.

There are many audiences for this book. Students of change management and organizational development, academicians who teach and research the subject, managers who deal with influencing organizational response to change, and consultants who act as external change agents in enabling this organizational response. The book is academic in nature to the extent that it provides a model and research to support the assertions of the authors. There is a good review of literature and organizational data to support the model and its postulates. Students researching the topic would be delighted to find ample and accurate referencing and amazing linkages of data to concepts. Teachers would find that the models proposed have depth of thought and philosophy implicitly placed in the contents of the book. Consultants would find plenty of nuggets of information and concepts to enable them to develop their own line of thinking and would add to the substance they bring to the client interface in the change management process. Managers would benefit by cognitively clear concepts that help create clarity from the chaos that change brings. The application and interpretation of the models, however is not dealt with. The bridge between theory and practice is left untouched. To this extent, the book is one additional perspective for the audience segments targeted and helps each one of them develop a commonsense approach to

organizational change management. Another question that arises upon reading of this book is that of newness or novelty. The approach is logical and rational, but sometimes looks like old wine in new bottles displayed differently. Apart from new verbiage and simplicity of jargon-less expression, there is not much new thinking that the book has to offer. The role of the leader in leading the change management process has been looked at with a fresh lens. However, the criticality of leadership in the change management process, though stated, does not seem to emerge as there is only one last chapter in which some of the issues are discussed. More attention needs to be given to this as it is normal experience that organizational response to change cascades from top down.

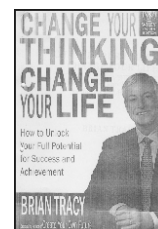
Organisations need to respond proactively to changes in the environment and the models proposed by the authors in the book do address this issue. However, the reality is that many organizations have today woken up to the realization that they need not be recipients of change, but also can lead the changes and the trends that are set for others. Organizations create change as much as they are impacted by it. Anticipating the future has been the success mantra of many. To be on the cutting edge of new pioneering management processes and lead from the front is something that this book does not address. Innovation is about leading change, not just following it.

TITLE : Change Your Thinking, Change Your Life
AUTHOR : Brian Tracy
PUBLISHER : Wiley India
REVIEWER : Rajiv Khurana, Management Consultant

Nobody knows more than what we know of ourselves. The strength of this statement can become a limiting factor in a closed mind 'in love with oneself'. Brian Tracy, top professional speaker, with over 32 books perhaps aims to 'shake up and

Change is evolutionary and revolutionary. It is constant and relentless. There is never a starting point and a finishing point. An ancient Chinese proverb says 'You never enter the same river twice'. Each time an organization looks inward and outward, it's a changed situation. The model presented by the authors builds on the Kurt Lewin model that assumed an ice cube metaphor for change management as a process of unfreezing, changing and refreezing the organization, its routines and mental models through processes of appreciating change, mobilizing support, executing change and building change capability. In reality all the four happen simultaneously, rather than sequentially and it is a multi-pronged multi-faceted and multi-dimensional approach led by wise and sagacious leaders that will build and embed proactive organizational response to change. Change management in such frames assumes a beginning and an end where organizations can be refrozen into the desired shape and achieve equilibrium. Change management theory has evolved beyond this frame to embrace reality that change is like the metaphor of a river and organizational efforts for a planned change management intervention need to address a constantly changing environment and equilibrium is dynamically balanced. Current and future thinking on the subject will project this trend as organization theorists and change management experts also evolve in their perspectives.

—★★★



wake up' people from their cozy inertia. It was, Henry Ford, who said, "Whether you think you can or think you can't...you're absolutely right!"

The right usage of the pearls of wisdom in this right book, in the hand of right people trying to put their

thinking in the right direction can only bring right results at the right time period. Go and buy the book now. Let me expand a bit more to add some more weight to my 'right' statement.

Change Your Thinking, Change Your Life focuses on the importance of setting goals, expanding your thinking and imagining your own unlimited potential. It presents powerful principles that will help anyone get on the road to a better, more fulfilling professional and personal life. These principles will help show you how to dream big dreams, take charge of your life, become wealthy, and achieve every goal you can set for yourself.

The basis of the book is about improving the way you think to get stronger relationships, become better at your career, increase your happiness, and generally achieve more success. From having role models, goals, dreams, and developing excellence in your chosen field to listening, strategic thinking, time management, getting “the edge”, and earning more, it all stems from changing the way you think and is there in the book. The author provides references to several university studies and other types of research to back up the principles he provides and to help explain his lessons.

Professionals who have experience in facilitating personal development may find the book too simple

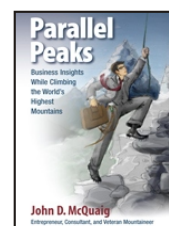
and generic with already known 'bullets of wisdom'. Well, keeping the bullets is one thing and using them to attack the bottlenecks of life is another. Reading the book like a novel is not the right approach for it. Read it, re-read it, plan your actions, act as per your plans and re-visit the learning from the book, reflect on your experiences and you will find explosive wisdom churning inside you.

Each chapter offers inspirational stories and principles that get you thinking, backed up with action exercises that help you train yourself to think and act like the successful person you truly are. Every principle helps you change your thinking in a positive way. Every exercise brings about a positive change in the way you see yourself, the world, and your future. Soon, you'll begin to see unlimited possibilities in your future. These principles will show individuals how to delve into their inner resources so that they can not only identify realistic goals but develop a plan on how to achieve these goals.

The Author claims that just like you can learn to ride a bike or play chess, you can also learn to control your thinking and control your life. Take him seriously. Life is yours, changing your thinking is in your hands, enjoying the benefits of change lie in front of you. Go for it!

—★ ★ ★

TITLE	:	Parallel Peaks - Business Insights While Climbing the World's Highest Mountains
AUTHOR	:	John D. McQuaig, Entrepreneur, Consultant and Veteran Mountaineer
PUBLISHER	:	HRD Press, Inc, 22, Amherst Road, Amherst, Massachusetts 01002
REVIEWER	:	Ramesh S.Tyagi, Chairman, The Institute of Management Consultants of India (Delhi Chapter)



The book consists of ten chapters and essentially covers three broad areas: experiences of the author as a mountaineer, Business Plan for small enterprises and some key business management concepts. The author has made an attempt to link

these together and explain the business planning and management concepts through analogy of mountain climbing.

The author pursued mountain climbing for 15 years and describes in detail his experiences of climbing

summit of mountain Kilimanjaro in Tanzania. He trekked the heights of Kala Pattar in Nepal and also Mount Baker, Northwest Washington. The book contains black and white photographs of author's expedition to these mountains.

In the first chapter the author outlines eight key business concepts and links these to success in mountain climbing. These are: Vision, SWOT analysis, Planning and preparation, own story writing, a supportive team, an experienced guide, taking it one step at a time and luck.

The second chapter deals with the concept of 'vision' and 'shared vision' for mountain climbing and as applicable to business.

Third chapter discusses SWOT analysis of business in general terms. It covers structure, strategy, culture, products and services, people, systems, processes and external opportunities and threats, competition, technology, customers etc. Some examples from small business are included.

Fourth Chapter explains the concept of **one page business plan which covers** vision, mission, objectives, strategies and action plans. Author includes one page business plan which he used for climbing Kilimanjaro and compares with one page business plan for Northwest Electronics.

Chapter five is titled 'writing your own story'. The concept of 'working on businesses' is explained in this chapter. Working on business involves stepping

back from the business doing some proactive planning and thinking about it. The example of McDonald's is included to explain the concept.

Chapter six deals with 'team work', which is important for business success as also for success in mountain climbing, sports and games.

Chapter seven explains the importance of a coach and mentor for success of business.

Chapter eight includes the business concepts of 'key performance indicators, metrics and objectives explaining that unless you have a means of measuring an activity, process or result, you have no effective way of managing it. This chapter explains the concept of the balanced score board in brief as applicable to small business.

The author in chapter nine says that final key to summit is 'luck' and illustrates with some examples as to how luck plays an important role in success.

Last chapter is about putting the plan into action. The author concludes that pursuing your dreams with relentless passion will result in success staying on top of your progress.

The book provides conceptual framework for preparing Business Plan for small business and will be useful to the entrepreneurs and the students who can learn the basic concepts of Business Planning and analogy of adventure of mountain climbing and key business concepts.

—★ ★ ★

TITLE : 59 Checklists for Project and Programme Managers
AUTHOR : Rudy Kor and Gert Wijnen
PUBLISHER : Gower Publishing Limited
REVIEWER : Rashim Arora, Senior Consultant, QAI India Ltd.



59 Checklists for Project and Programme Managers is an informative book to help budding and seasoned Project and Programme Managers to understand key points to be addressed while managing projects and Programmes. Though the name of the book suggests that it is a list of checklists. However, only some of

the Chapters are checklist based (the title of the Chapter states if it is Checklist based Chapter). In the entire book, the focus remains on explaining the approach & concept and then for doing the actual work for the Project and Programme, effective usage of Checklists is explained. It acts as a ready

reckoner at every stage of the Project or Programme for novice and seasoned Project/Programme Managers alike.

The First chapter of the book explains the key differences between different kinds of activities that are performed in an organization. It explains the key differences between a Project, Process and Programme.

From thereon the book is divided into 3 distinct parts. Part I mainly deals with addressing aspects related to both Project and Programme management. This part is succinctly explained in Chapters 2 through 5. It starts with explanation of various roles involved in the project and types of Organization Structures along with their benefits. Then, the book talks of usage of checklist to Organize the Environment and Team so that the work of the Project and Programme can be carried out. Once the Environment is in place, the Project or Programme Manager has to effectively lead the team. So, the book very beautifully explains the various concepts and checklists to be used for effectively managing the team.

Part II of the book (Chapters 6 through 8) focuses on managing the Project. It starts with a Chapter (Chapter 8) on approach to manage Projects. It explains the result-oriented nature of a Project. It also describes the breakdown of the Project into various Phases for better management of the Project activities and deliverables. 2 subsequent chapters are Checklist based Chapters that include a number of checklists that can come handy for a Project Manager to initiate, plan, execute, monitor & control a project.

In Part III of the book (Chapter 9 and 10), the Approach and Checklists for managing a Programme have been aptly explained. It focuses on the basic premise that Programmes are Goal Oriented and that they need to be revised along the course of the Programme as needs of the Programme become clear. Again, it is followed by a Chapter on Checklists which can be effectively used for managing Programmes starting from the start to implementation and then finally to the closure stages of the Programme.

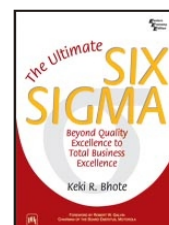
—★ ★ ★

TITLE : The Ultimate Six Sigma, Beyond Quality Excellence to Total Business Excellence

AUTHOR : Keki R. Bhote

PUBLISHER : Prentice - Hall of India Pvt. Ltd.

REVIEWER : Dr. S.N. Nandi, Management Consultant



Sometimes some books leave so many marks in our minds; we can not ignore them even though we may not agree with some of their contents. The Book 'The Ultimate Six Sigma: Beyond Quality Excellence to Total Business Excellence' authored by Keki R. Bhote, Indian edition of which is published by Prentice-Hall of India Private Limited, New Delhi (2007) is one such book. The author is associated with Six Sigma movement around the world for the last about three decades since its origin. In fact, he is one of the developers of the concept and its eventual

developments in the well known company of its origin- Motorola of U.S.A.

'Sigma' is a Greek symbol denoting variation in any happenings. 'Six Sigma' implies very little variation to happen in any occurrence. Six Sigma concepts have now evolved into a management philosophy where every employee working in each area of a business continuously improves his contribution to business performance to achieve near perfection. This is holistic application. After working at Motorola over a long time, Bhote has now been

serving as a consultant worldwide to promote his such holistic approach which he terms as 'The Ultimate Six Sigma' This book is one such piece of consolidation of his long experience on this subject.

The book under reference has in total 17 chapters divided in 2 parts. For review purposes the entire content could be broken into 3 sections. The first 5 chapters which the author himself has categorized under Part I contains clarifications on definitions and concepts and over and above on evolution of Ultimate Six Sigma, from original statistical six sigma through 5 Hyped Six Sigma's, as the authors puts it, The Ultimate Six Sigma involves, as the author shows, effective application of six sigma principles and related tools and techniques in all facets of a business- namely, Customers, Leadership, Organization, Employees and Business processes as continuously guided by self-assessments/guides at each steps in order to achieve not only customer loyalty but also creation of good will from all other stakeholders.

In the subsequent 6 chapters, which the author has placed in the beginning of part II, he explains expanded application of many developed management concepts and a wider spectrum of tools and techniques in connection with customers, leadership, employees, organization, and measurements. The author has done a great service to numeral six sigma professionals by mobilizing number of useful concepts developed in various functional disciplines like customer loyalty from marketing, inspirational leadership, empowerment and industrial democracy from human resource management, etc. Similarly, he suggests and demonstrates application of various measures and measurement dynamics from Industrial Engineering, Quality & Productivity Management. He also presents emphatically the significance and

role of his own approach known as Shianin/ Bhote approach to Design of Experiments.

The chapters 12 to 16 discusses application of all the above mentioned concepts and tools & techniques to business processes-Design, Manufacturing, Supply Chain Management, Field services and Internal organizational processes. The last chapter 17 outlines the results in terms of various parameters that are most relevant in an organization with the genuine application of ultimate six sigma.

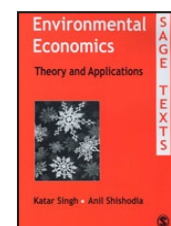
This book is not for beginners who may like to know some essentials about six sigma .This is meant for advanced studies to guide the practitioners about the multifaceted application of six sigma concepts. Each topic discussed in a chapter has been treated with practical suggestions followed by a case study on a typical global benchmark organization where the same topic has been used with success. Discussion on each topic is supplemented by a self-assessment questionnaire which could as a checklist for review.

Many readers may find this book strewn with highly aggressive and self-proclaimed presentations with figures of overstated achievements. Cut-off values for many parameters under sigma levels are also arbitrary. But many of his statements, according to reviewer, may need to be considered in the light of a fact that author is one of the accomplished originators and possessed with rich experiences of successful implementation of the concept in many successful organizations all over the world.

However, this book is very useful for advanced users-Master Black Belts, Consultants and Practitioners in the field of Six Sigma Management. It is an important addition to arsenal of books in a consulting Firm.

—★ ★ ★

TITLE : Environmental Economics: Theory and Applications
 AUTHOR : Katar Singh and Anil Shishodia
 PUBLISHER : Sage Publications
 REVIEWER : Dr. Surender Kumar, Faculty, TERI University, New Delhi



The book provides a fairly comprehensive yet crunchy treatment of both theoretical and applied aspects of environmental economics with Indian case studies. It synthesizes basic concepts, theories, tools and techniques of the discipline. The book discusses each and every aspect in a simple easy to comprehend language with real life examples and illustrations. The authors claim that the book caters to the needs of students, teachers, researcher, policy makers and environmental managers.

The book contains 14 chapters. It provides a list of the glossary of important terms related to the discipline also. The book can be divided into two parts; part I deals with the theoretical concepts of environmental economics and the sector specific problems are discussed in part II. The part II also discusses the global and regional problems. It provides an analysis of the New Environmental Policy 2006 also.

The introductory chapter, Chapter 1, outlines and discusses the subject matter of environmental economics. It presents definitions, scope, distinguishing characteristics, rationale of various concepts and tools. It outlines the growth story of the discipline over the period of time. The chapter also provides a quick look of the environmental problems that the country is facing today. Chapter 2 discusses the relationships between the environment and economy. It illustrates how environment is affected by and is affecting the economic outcomes. It discusses the concepts of sustainable development and sustainability and shows that the present trajectory of growth and development followed by the country is not sustainable.

Chapters 3 and 4 deal with the basic concepts of microeconomics which are required for the understanding of environmental economics. The

theories of public goods and externalities are the foundations of environmental economics. Chapter 3 presents the consumer and producer behavior in a very concise way. Ill-defined or non-defined property rights are considered the root-cause of most of the environmental problems. The chapter tries to define the property rights. It also delineates, in brief, the requirement of government intervention and the failures of market and public policy.

Microeconomic theories of individual behavior are discussed in chapter 3; chapter 4 presents an overview of the theories of collective choice. Chapter 4 discusses the concepts of welfare economics like social benefits, social costs, social welfare function, Pareto optimality, compensation principles etc. This chapter presents the 'tragedy of commons' in Indian context and shows that lack of property rights over the global commons is the cause of their degradation. The chapter discusses the Coase theorem and theory of collective action also. It also shows that externalities can be internalized through the government interventions in the form of taxes and subsidies. The tax-standard approach is cost effective in comparison to command and control measures.

Environmental valuation and regulation is the core of environmental economics and these two aspects are discussed in chapters 5 and 7 respectively. Environmental valuation means assigning value tags to environmental services. Environmental services are both tangible and intangible; they provide use and non-use values. Markets do not provide values of environmental goods and services, therefore, for the valuation of environmental goods and services we have to use non-market valuation methods. Moreover, the valuation involves the estimation of both benefits of environmental improvements or damages due to environmental

degradation and costs of improvement in environmental quality or abatement of pollution. Chapter 5 provides an overview of various valuation methods with suitable examples. However, the chapter fails to list the comparison in various methods, and the complications involved in the operationalisation of each of the method etc. Moreover, the authors miss an important area in the valuation, the estimation of abatement costs¹.

Environment plays a crucial role in determining the well-being of the people and conventional national accounting only partly consider the environment in its accounting procedure. Chapter 6 provides an overview with the example of forest resource accounting in SEEA framework. It says that with some modifications the existing national accounting framework can be used for the joint resource and economic accounting.

Chapter 7 outlines the various instruments of environmental management. The chapter discusses both direct control and economic instruments. The chapter shows that macroeconomic policy instruments such as monetary and exchange rate policies can be powerful instrument for allocation and distribution of natural resources. Education and moral persuasion also play a crucial role in correcting the environmental degradation. It also provides a brief discussion on institutional requirements and international treaties. Although the chapter delineates various instruments but it fails to provide an operational framework for the environmental policy.

Chapters 8 to 12 deal with the problems of various natural resources. Chapter 8 is devoted to the discussion of land resources. It discusses the reasons behind the land degradation and the ways for its restoration. It emphasizes on the watershed approach for restoration of land resources. It advocates, following 'tragedy of commons', creation

of property rights in common lands. It fails to recognize the role of institutions in maintaining common property resources.

Chapter 9 talks about water resources; their availability, pricing, and the pollution. Water pricing can be used to prevent the misuse and misallocation of the resource. Moreover, it explores the role of property rights and price instruments for correcting the externality in the sector. It advocates for creation of a pleasant policy, legal and institutional framework for the development and management of the resource.

Chapter 10 is devoted to the discussion on forest resources. This chapter discusses trend and situation of forest resources in the country. It provides an account of the role of forest resources in the economy. It finds that the lack of property rights is the main cause of degradation of forest resources and discusses the role of various public policies and market based instruments for the restoration of degradation of these resources. It also discusses on the role of governance and participatory management policies in the sustainable management of the forests in the country.

Chapter 11 outlines the situation of fishery sector in the country. It discusses the role of fishery sector in the economy. Fisher sector in India comprises both marine fisheries and inland fisheries. The chapter also presents an overview of the problems that the sector is facing. It provides an overview of the government policies in the sector. It discusses the role of various public policies, markets and institutions for the sustainable development of the sector.

India has a huge wealth of biodiversity which is degrading and need is to conserve the resource, and chapter 12 discusses all the issues concerning the biodiversity conservation. Biodiversity plays a

¹ See M N Murty and Surender Kumar (2004) *Environmental and Economic Accounting for Industry*, Delhi: Oxford University Press, for details on various valuation methods and their operationalisation. The book provides a comprehensive account of various valuation methods of environmental benefits and costs of environmental improvements/degradation.

major role in the prevention of degradation of ecosystems that are under threat due to human and natural actions. The chapter outlines various measures for conservation of these resources. It also provides an overview of various national and international policies and treaties.

Chapter 13 is devoted to the discussion of regional and global environmental problems. It discusses the problems of acid rain, ozone depletion and global warming. It provides an overview of the causes and

possible solutions for these problems. The last chapter provides a critical analysis of the New Environmental Policy 2006 and discusses what should be the components of an ideal environmental management policy.

The book is indeed a comprehensive text for students at undergraduate and postgraduate levels. It successfully imparts lessons in the area of environmental and resource management.

—★ ★ ★

TITLE : “The Trusted Firm” - How Consulting Firms Build Successful Client Relationships

AUTHOR : Fiona Czerniawska

PUBLISHER : Wiley India

REVIEWER : Ashok Puri, Regional Director, Kaizen Institute, New Delhi



The book covers various aspects of the Management Consulting business such as the role of consultants, especially the consulting firms; the consulting opportunities; consulting management strategies, the consulting process, particularly the delivery; consultant client relationship; important marketing issues; culture and value issues in the consulting firms.

Content of the book has been analysed in terms of its Strengths and Weaknesses:

Strengths

- Interesting start / introduction, especially the fact that success belongs to the consultant but failure belongs to the consulting firm
- Good examples of consulting practices in the beginning
- Some statistics also to support the claims that the author makes
- The analysis of client consultant relationship is very well done
- The Promise Pyramid explains very clearly the delivery parameters of the consultant
- Gives insights on the importance of relationship between the consultant, client & the firm
- Looks into the positive / negative sides of Consulting & Consulting Firm
- It talks of three very important basic building blocks ; Delivery, Trust, Relationship
- Talks of importance of the infrastructure of the firm like environment for consultants etc.
- The flow of the chapters is sequential and well connected but at the same time can be read individually as well, like People, Process and Values , in this very order
- Focuses on minute details in a client consultant relationship like moments of truth, teamwork, trust soft skills, self motivation, trust & empathy
- Tells us about contradictory attributes a consultant has e.g. ability to listen and dictating the clients to implement improvements

- Talks about attributes and policies, that a consulting firm should have like recruitment, retention and remuneration
- Very clearly defines Do's / Don'ts of a consulting firm
- Talks about importance of thought leadership in a consulting firm
- Aspects of teamwork is very vividly defined during consulting delivery
- Topics of innovation & values have been covered, which are generally missing from consulting books
- Examples are given but the reader is generally interested in case studies (From Start to Finish), which is missing
- How to groom consultants within a consulting firm to become better consultants and good leaders is not very clear
- The book is not visual e.g. it talks about Carnegie Mellon's Capability Maturity Model, but as a reader it is difficult to comprehend or visualize the model, the 5 Levels
- Does not tell us about how does a firm increase its knowledge base e.g. does not mention anything about tie ups, mergers etc, especially in countries like India, Russia, Africa etc

Weaknesses

- All examples of big consulting companies like Accenture, EDS, IBM etc but no guidelines for small consulting firms
 - No focus on how to carry out consulting in developing countries. Issues in developing countries are much more different
 - Tells us about “What to do” and not “How to Do it”
 - In Innovation chapter, examples of innovative projects done by any firm are not shared in the book
 - How to market / sell a firm's capability is not mentioned
- Overall, the book can be read by the top executives of consulting firms for knowledge. Consulting students can use this as a good reference book.

—★★★

Contributors' Profile

Dr. Aneeta Madhok

Dr. Aneeta Madhok, MBA (XLRI), PhD, CMC, Dean, Centre for Human Resources at the S.P. Jain Center of Management in Dubai and Singapore, is an academician, and a professional trainer and teacher in the field of Organizational Behavior and Human Resources Management. Dr. Madhok graduated with a degree in Psychology Honours from Delhi University and completed her MBA in Human Resources and Organisation Development from XLRI, Jamshedpur. She has to her credit over 70 publications including refereed articles, consulting projects, newspaper articles and book reviews published nationally and internationally. She is a member of the Executive Committee of the International Council of Management Consulting Institutes, and chairs the Professional Standards Committee of ICMCI. She is also the immediate Past President of the Institute of Management Consultants of India, fellow of Sumedhas Academy for Human Context, a Certified Management Consultant and has been the recipient of scholarship awarded by the Foreign Commonwealth Office of the United Kingdom, and the Best Management Teacher award of the Bombay Management Association.

Dr. Mary Ipe

Dr. Mary Ipe holds Ph.D. from Tata Institute of Social Sciences (TISS), Mumbai and has eleven years experience in academics with reputed business schools (ICFAI Business School and Goa Institute Management) and ten years experience in management consulting with Tata Consultancy Services. Her areas of consulting include Human Resource Management, General Management and Organizational Restructuring. She has various publications to her credit in the area of HR, Consulting and General Management. She is currently working as the Associate Dean of ICFAI Business School, Kochi with responsibility for Research & Publication.

Dr. Mukesh Doble

Dr. Mukesh Doble is a Professor in the Department of Biotechnology at IIT Madras. He holds B. Tech and M. Tech degrees in Chemical Engineering from IIT, Madras and a Ph. D. from University of Aston in Birmingham, UK and has carried out postdoctoral research at University of Cambridge, U.K., and Texas A&M, U.S.A.

Dr. Doble has authored or coauthored four books, 120 technical papers in International journals, filed 3 patents and presented in more than 50 National and International conferences. He is a recipient of Herdillia Award for “Excellence in Basic Research” from Indian Institute of Chemical Engineers.

Walter E. Vieira

Walter E. Vieira is a senior management consultant who started the first Marketing Consulting firm in India in 1975. Earlier he spent 14 years in Industry with Glaxo, Warner, Boots. MAS Group does marketing strategy consulting; training in sales and marketing; assistance with cross cultural issues in USA, the Middle East; South East Asia; and India; across a wide range of industries. Mr. Vieira was the first President of IMC-India and the first Asian to be elected Chairman of the world apex body ICMCI. He was conferred the Lifetime Achievement Award (IMCI) 2005. He has published over 700 articles and eleven books, three of them with C Northcote Parkinson.

S. K. Mazumder

S. K. Mazumder, a Civil Engineer from Calcutta University, obtained his M.Tech and Ph.D in Dam & Water Power Engineering from IIT Kharagpur. He has served in various capacities with lead academic institutions and government departments. Prof. Mazumder has published about 95 technical papers, written one book, edited one publication and contributed for an AICTE publication. He got several awards for his papers from the Institution of Engineers (India).

Amitabha Ghoshal

Amitabha Ghoshal is currently Director and Vice President, STUP Consultants Pvt. Ltd, had graduated in Civil Engineering from B.E. College, a 150 years old revered Engineering Institution, located near Kolkata, India. During his 50 years of professional service he had been responsible for Planning, Design and Construction of many major structures in the country and abroad. Two of the most important bridges he had been involved are the new cable stayed Second Crossing across River Hooghly near Kolkata and a unique re-habilitation scheme for the war damaged

2 KM long Hardinge bridge across the Lower Ganges, in Bangladesh. He has been responsible for taking Indian Consultancy services to more than 15 (fifteen) South East and South Asian countries, and to many of them for the first time for Indians. He is a Fellow of Institution of Engineers, (India), Institution of Civil Engineering, (UK) and a member of American Society of Civil Engineers. He is currently the Chairman of the Kolkata chapter of the Consulting Engineers Association of India.

Capt. Dominic Babu

Capt. Dominic Babu is a master mariner with several years experience in the marine field. After his short service commission with Indian Navy, he has served merchant navy for several years in various capacities. On leaving the sea, he worked for Cochin Port Trust and also served Govt of Kerala as Deputy Director of Ports. In the Private Sector, he has worked in the field of development of inland waterways, port construction and dredging.

Currently he is with ABS Marine Services Ltd, a marine management company as a consultant for marine projects and shipping operations.

Sumit Mitra

Sumit Mitra is presently working as Assistant Professor with University of Wollongong in Dubai.

R. Raghavan

R. Raghavan is presently the Executive Director of SRM Education & Financial Consultants Pvt.Ltd. and has over 20 years of professional experience especially in academic, administrative as well as research work. He is also the Founder of various institutions such as SRM Institute of Management Technology, MRDAV, Amarpali Institute of Hotel Management etc.

Dr. Jyant Kumar

Dr. Jyant Kumar, Associate Professor, Civil Engineering Department with IISc, Bangalore, has obtained Ph.D in Geotechnical Engineering from IISc, Bangalore and has more than 15 years of professional experience with various leading academic and research institutions including University of Southampton, UK. Dr. Kumar has published 51 technical papers and was nominated as a Member of International Advisory Editorial Board of Iranian Journal of Science and Technology an International Journal.

R.G. Rajan

R.G. Rajan is a Chemical Engineer from Institute of Technology, Banaras Hindu University, and MBA from Strathclyde Business School, Glasgow, U.K. is presently Chairman & Managing Director of Projects and Development India Limited (PDIL). Shri Rajan has about 27 years of experience in the field of Conceptual Design, Process Design and Project Management. Areas of expertise include Gas Pipelines, LPG Pipelines, Gas Processing Plants, Petro-chemicals etc. He started his career with Engineers India Limited where he worked for five years. For the next 21 years he has served GAIL (India) Ltd. New Delhi where he rose to the position of Executive Director (Project Development). He is a Six Sigma Black Belt holder and an Energy Auditor, accredited by Bureau of Energy Efficiency. He has to his credit several articles in reputed national journals.

Soren Holm Johanson

Soren Holm Johanson is currently Managing Director of Ramboll Denmark, part of the Ramboll Group. He is 52 years old and holds a masters degree in economics. He was elected President of the Board for the Danish Association of Consulting Engineers (FRI) in 2006. Mr. Johanson has more than 17 years of experience in various capacities with Ramboll Group. He also served as the Head of Section at the Danish Ministry for Energy stationed in Brussels 1984-1986 as energy attaché at the Permanent Representation of Denmark to the EU.

Prof(Dr.) Vinayshil Gautam

Prof (Dr.) Vinayshil Gautam is a Professor of Organization, Strategic and Entrepreneurship Management, Dr.Gautam was the first Head of the Department of Management Studies. He has authored and edited over two dozen books and published over a hundred research papers.

Dr.Gautam has worked as the Founder Director of the Fifth Indian Institute of Management at Khozhikode and leader Consulting team for 7th IIM at Shillong. Having designed and set up the comparative management research programme in Asia, he has made significant contribution to Organization Management Studies, entrepreneurship and start up venture efforts in the institute.

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