

# CONSULTANCY

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## OUR MISSION

**"To be the National nodal point  
for the development and  
promotion of Consultancy"**

## OUR OBJECTIVE

**"To strengthen consultancy  
capabilities and promote  
services, enhance consultant-  
client interaction and act as a  
policy facilitator"**

## CONSULTANCY VISION

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## From DG's Desk

*"India can become a developed nation only if everyone contributes to the best of his or her ability and capacity. The mission is: in transforming India into a developed nation by 2020, what can be the role of every citizen in addition to the governmental initiatives of launching programmes for the vision of a developed India. "*

*- H.E. Dr. A.P.J. Abdul Kalam, President of India*

Well friends !! I have many events to share with you as detailed in this issue. We had these events during the last quarter (July-Sept' 04) in CDC and I am thankful to the consultants and the industry for supporting these programmes by way of sponsorship and participation. To be specific, the ADB Seminar on "Development of Domestic Consulting Services" held in Delhi and Mumbai during Jul.'04 had overwhelming response from the consulting community, who have also requested us to repeat the program often.

I am proud to announce the ensuing TCDPAP International Conference on "Development of Knowledge Infrastructure: Role of Consultants" scheduled on 11-13 October, 2004 in New Delhi. This is going to be a historic event, as the First Citizen of India is visiting CDC event for the first time. Yes. The President of India H.E. Dr. A.P.J. Abdul Kalam has kindly consented to inaugurate the conference.

We are thankful to the Principal Sponsor (ONGC), Main Sponsors (BPCL, HUDCO & Oil India Ltd), Sponsors (EXIM Bank, ICT Pvt Ltd, Indian Aluminium Co., NTPC, L&T ECG and PFC and Co-sponsors (CES (I) Pvt. Ltd., RITES, TCE, EIL, HSCC, NCCBM and TCIL). Over 250 delegates from home and abroad have already confirmed their participation in the event.

I look forward to receive an overwhelming response from the knowledge industry by way of active participation in the event.

**Somenath Ghosh**

## I. Knowledge Management in Knowledge Era

By

*S. C. Zutshi, Chief General Manager, HSCC (India) Ltd. and Member CDC*

Today's flavor seems to be knowledge and its management. In actuality not only are organizations (and nations) just discussing about knowledge/knowledge societies etc. but some have actually started to work on the same. It was Peter Ducker who said "information is data endowed with relevance and purpose. Knowledge is information that changes something or somebody – either by becoming grounds for actions or by making an individual (or an institution) capable of different or more effective action." Information, which is useful in achieving any human endeavor, is thus knowledge.

Information and knowledge are the thermonuclear competitive weapons of our time says Thomas A. Stewart and further adds that knowledge is more valuable and more powerful than natural resources - big factories or fat bank rolls. Knowledge is more important than raw materials. Knowledge can thus be considered as high-test information.

Focus on knowledge applies to nations, societies & organizations both for profit and not for profit. It is, however, important to understand the real value of knowledge so that appropriate changes are made in the policies of organizations and the application of management technology and leadership.

Knowledge with wisdom when applied all across the world shall free it from poverty, hunger, disease, ill will etc. It shall change the world into a real comity of nations without borders wherein humans shall endeavor to work for the common good. Knowledge in the words of Ackerman has unlimited opportunity to make a difference.

Knowledge economy is expected to promote collaboration and promote a business environment capable of reducing wastage of natural resources and also human effort in unnecessary duplication and reinventing the wheels.

Knowledge as a resource is not subject to the conventional economic law of diminishing returns. Its usage multiplies it and does not become scarce. Leveraging the knowledge capital through innovative ideas can be instrumental in creating a better future and can become the great equalizer between the haves & the have-nots of the world. It is expected to create a new economic world order based upon

knowledge, not just technology; innovation not solutions; value systems, not value only chains; customer success not just satisfaction and international collaboration, not competition as per Amidon.

### Knowledge Management

Capturing the expertise, experience and insights of people through an integrated approach of policies, procedures, documents, systems etc. is knowledge management. It is thus responsible for creating a repository of in-house knowledge, its transfer and sharing and leveraging in creating a culture of innovation. Knowledge Management concerns itself with creating a fertile ground in the organizations for knowledge to grow. Strategic competence of organizations thus is their ability to develop and foster an environment for development of competence in creating a knowledge economy through growth of intellectual capital. As knowledge is the greatest source of wealth, organizations (nations) should be concerned in investing in assets that produce knowledge and development of organizational intelligence.

Unlike the father knows best style of management under the 'Taylorian' management, where workers were interchangeable and the only brain power being the managerial, the time has come for the organizations to develop organizational intelligence through the smart work of really smart people - that is converting from a supportive role to that of a role of star performers.

It is not possible to convert data to intelligence or wisdom as it has been said one man's knowledge is another man's data. However, we have to distinguish between intellectual capital and intellectual working capital i.e. facts figures, data etc. Intellectual working capital is a cost which needs to be minimized as it is prone to changes all the time just as in the case of cycle time, inventory management, working capital etc. It is important for organizations working in today's fast changing world, where it is said that even change is changing, to become open learning organizations. Competitive advantage shall only be with organizations that are quick to learn, unlearn and relearn in order to put that learning into action. The operative assumption as per Jack Welch of GE is that someone somewhere has a better idea, learn it and put it into action – fast.

### Knowledge Value – Hierarchy

It has been said that a hired hand is not a hired mind. What needs to be done, therefore, is to minimize tasks which do not need application

of mind i.e. change the work to add more value by, if necessary, outsourcing or automating. Any work or process which results in low value addition or done manually can be automated and in cases where the work may be valuable but can be done by any trained person can be outsourced. Knowledge organizations and for that matter knowledge societies shall capitalize through persons who add high value to the products and services and have roles in the organizations which can not be replaced.

Smart organizations build structural capital that is just enough and demand driven and not over do it. They avoid over investing. They, however, are extremely sensitive to the development of customer capital – the most valuable capital. Customer capital is measured by market share, customer retention (or defection), profit per customer (or loss) etc.

21<sup>st</sup> century organizations need to be innovative in their approach, as they shall be confronted with complex challenges due to kaleidoscopic change dynamics expected in the future. Innovativeness combined with greater openness, an atmosphere of learning & trust and the ability to measure performance remain the attributes most important for success.

Kiran Karnik, the NASSCOM boss, in a recent article states:

“A humane, free and tolerant society is a goal in itself, something which we should contribute to building and protecting. Enlightened self interest dictates that the corporate world should be especially interested in this. The knowledge sector, which is today among the primary engines of growth, is dependent upon innovation and creativity; the development of which is possible only in an ambience that promotes lateral thinking, diversity and dissent. Conformity and intolerance of differing view points will sound the death-knell for innovation, though they may seem efficiency enhancing for repetitive work in the short term. Their activity in the long run, even for such tasks, is doubtful.

Innovation must be the primary driver of growth for India. Our problem and the rapidly changing technological environment, both demand constant innovation. Even in the “traditional” sectors, innovation is the key to future growth. Those who prefer to look backwards and extol our glorious past will do well to note that the golden period was characterized by exceptional freedom, tolerance & diversity. For those who would rather look ahead, it is clear that the future will belong to those who invent and innovate. The corporate world needs to wake up: defending and expanding the sphere of freedom, celebrating diversity & engineering dissent, promoting tolerance,

are as much the job of business leaders & executives as of the intelligentsia.”

In order to be innovative organizations need both explicit and tacit knowledge. As tacit knowledge is tough to explain (and shall remain a right brain affair), is dependent on the thinker’s hunches & intuition is thus highly personal. Being very qualitative it has the potential to profoundly impact the future of organizations (societies). As tacit knowledge is dependent on the expert’s vision; at times this can go horribly wrong besides it has problems in communication.

True worth of the truly innovative organization is to constantly convert their tacit knowledge into a formalized body of knowledge; that is to convert tacit into explicit knowledge capable of being written down, easy to share and making it formal, systematic and quantifiable in order to be able to increase the organization’s immediate capabilities and increase in the ROI. The cycle of development of tacit knowledge and then converting this body of knowledge into explicit knowledge must go on continuously for the organization to remain truly innovative.

For creativity to flourish and be sustained shall need a very nurturing environment and commitment of the highest order of the top management of the organizations. The role of the top management (leader) thus is to provide an atmosphere conducive for creation of a fertile ground for truly innovative ideas to grow. A knowledge creating organization is possible where people are truly engaged as communities in the creation of innovative ideas; communities that dwell on shared practices, identity and mutual respect – the building blocks of a learning architecture. It has been said that it is crucial to treat organizations as constellations of inter connected communities and to understand and support the process by which learning communities evolve and interact. Top management (leader) is required to support this process if the organizations (societies) are to evolve as knowledge organizations (societies).

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- 3 Knowledge Roles: The CKO and Beyond – Thomas H. Davenport
- 4 Knowledge Management – Internet Time Group
- 5 Global Momentum of Knowledge Strategy – Debra M. Amidon
- 6 Creating a World Trade of Ideas: A Global Knowledge Innovation Infrastructure – Debra M. Amidon and David J. Skyrme

## II. Development of Knowledge Infrastructure: Role of Consulting Industry

by

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### Introduction

For years, companies have strived to manage knowledge more effectively, the primary motivation being improved business performance (Choi and Lee 2003). In the 21st century, physical infrastructure is necessary, but insufficient. In today's economy, what companies produce is not as important as what they know and how they apply that knowledge (O'Dubhchair, et al. 2001). Knowledge has become perhaps the most important factor determining the standard of living - more than land, tools or labour. Today's most technologically advanced economies are knowledge based. Knowledge is the key to being competitive in global markets. The use of knowledge is becoming more central than ever to economic and social development due to rapid technical progress, globalization and the development of information and communication technologies. The need for developing countries to increase their capacity to use knowledge cannot be overstated. In this context, developing countries including India are being confronted with the unprecedented challenge of transforming itself into a knowledge-based economy, defined as "an economy, which is directly based on the production, distribution and use of knowledge and information."

Knowledge and knowledge management are identified by both business strategists and policy-makers as a key resource in today's knowledge-based economy. Apart from the mere generation of new knowledge, the competitiveness of most industries and firms depends increasingly on the ability to apply and translate knowledge in innovative products, production processes and service delivery systems. Today's competitive global environment efficiently distributing knowledge in a National Innovation System is at least as important as creating new knowledge. This understanding will gradually be reflected in a new knowledge infrastructure and the role played higher education institutions, research institutions and consulting firms within this changing knowledge infrastructure.

Consulting firms as firms with a high level of codified and tacit knowledge embodied in their staff who are engaged in generating and communicating information to meet a specific need of a client i.e. consulting firms are independent organizations that render services to private firms, which have high information content and

that are to a considerable extent customized to the specific situation. They are active in networking. The information is created from their own knowledge and combined with the knowledge and information gained from the client and from previous clients, universities and state laboratories and others with whom they have contact and make contact. Thus they enable the client to achieve a further innovative step and/or a higher level of performance.

### Knowledge Infrastructure

An organization manages its knowledge through a knowledge infrastructure. A knowledge infrastructure connects different members of the organization with different sources of internal and external knowledge. A knowledge infrastructure is one of the organization's core tools and, like the nervous system, it links the other tools. A powerful knowledge infrastructure strengthens the capabilities of the organization; without one, an organization functions at diminished capacity. Knowledge infrastructure is essential, first, to the production and diffusion of scientific and technological knowledge, secondly, to education, training, and skill development, and, thirdly, to standardization, regulation and protection of technical activities. The key parameters of building knowledge infrastructure are collecting and organizing the knowledge, making it available through systems, and reusing it to improve the execution of projects. Development of knowledge infrastructure is done in three phases (Sivan 2001) as shown in figure 1.

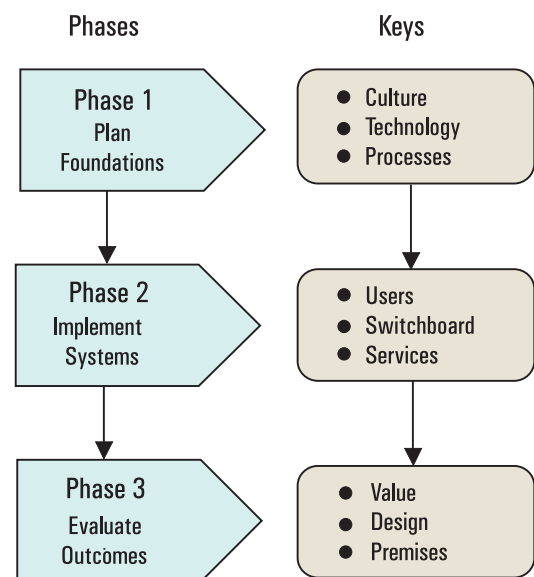


Figure 1 Development of Knowledge Infrastructure

As in building any infrastructure, the first phase is planning, in which those leading the knowledge management initiative lay necessary foundations of culture, technology and processes. This leads to the

second phase, actually building or implementing the systems. It includes an active connection of three main components, the users of the knowledge infrastructure who access knowledge services through a knowledge switchboard. With the systems in place, the organization is ready for the third—and often ignored—phase, evaluation. It demonstrates the value of knowledge services allows re-designing of the knowledge infrastructure and, ultimately, influences an organization's premises, which are rooted in its vision. Evaluation, ultimately, leads to modifying plans and refining systems in order to meet the organizations needs better. All the nine keys provide a good, solid, sustainable knowledge infrastructure which allows the organization to plan, implement, and evaluate its knowledge management activities.

The first key in each phase focuses on the individual person in the knowledge infrastructure. The middle key in each phase focuses on context, also called the ecology of knowledge management, which is the setting of the knowledge infrastructure. The last key in each phase focuses on the organization. Taken together, the individuals (knowledge users), the context, and the organization are the centers of focus, because all three create the knowledge management system. Following sections deal with the consulting industry and their role in development of knowledge infrastructure.

### **Imperatives of Consulting Industry**

Consulting firms have a relatively long history but they have been growing significantly in numbers and in scope of specializations as the complexities of managing firms in highly competitive technical and regulatory environments have multiplied. The shift of information intensive activities from within a firm to what were termed producer services as a result of these complexities was noted from the 1970s as a new division of labour in which there was a decline in manufacturing employment and an increase in that of certain services, information intensive in their functions.

As global competitive pressures continue to increase, organizations that effectively manage their knowledge assets and continuously improve their knowledge transfer processes will gain substantial competitive advantage. To stay competitive in the increasingly competitive world markets, enterprises know that they must develop better techniques to manage knowledge, which is increasingly becoming their greatest asset. To successfully respond to these pressures companies hire consultants. These consultants help the companies to react flexibly to diversified and changing structures of market demand and the "learning ability" of enterprises which often

seen as the most important factors in re-organizing structures and processes, where flexibility and quality are the benchmarks. In addition, increased innovation and renewal of companies through consulting firms puts a lot of emphasis on the management of knowledge. Knowledge in the form of corporate policies, market competition analyses, products, technologies and especially the skills, know-how and expertise of employees, is considered the source of innovation and growth.

Today, a transition is underway in developed economies around the world that is changing the fundamentals of economic performance and prosperity i.e. obtaining value from the creation, sharing and use of knowledge is becoming an increasingly dominant factor in determining which economies prosper and which do not. This capacity for systemic "innovation" is set to be a differentiator of competitive performance of countries and of regions for the foreseeable future.

Competitive performance (including through innovative activities) is a process of gathering, evaluating and combining knowledge and information and of incorporating the output into good practice in each function and into innovative products and services. Consulting firms are therefore engaged in more than the narrower knowledge transfer to innovating firms. Organizations use consultants to help accomplish significant goals, such as facilitating organization change (Smith, 2001) for implementation of total quality management, business process reengineering etc. They cover a wide spectrum of specialist expertise. Some consulting firms make a direct technical input to an innovative new product or process; some propose organizational change and some design new marketing strategies.

### **Consulting Firms as Bridging Institutions in National Innovation System**

In many industries, the pace of innovation has accelerated in recent years, not just because of rapid progress in science and technology but also because of increasing competitive pressures to speed up new product development times and to achieve cost-savings in development and production which will enable enterprises to compete on price at the same time as they seek to enhance product quality and performance. These competitive pressures provided strong motivations for enterprises to hire consultants for various specialist services to meet such needs. Consulting firms have also attracted considerable attention in recent years. First, because they employ great numbers of highly qualified laborers. Second, because they may have a strong impact on the competitiveness of the private firms.



One important aspect of the competitiveness of firms is their innovation capabilities. It is well recognized today that in the world of international competition a country's ability to create and sustain a "national system of innovation", which contributes to the innovation performance of its firms, is of great importance. Two main "parts" within this system of innovation can be identified, the public part and the private part. In the public part, the public knowledge infrastructure of universities, research institutes and other governmental agencies is the core whose function is to generate new knowledge and in the private part, private sector of industrial firms represents the idea of the national innovation system. Industrial businesses have long been involved in the generation of knowledge and for much longer in gathering knowledge and information from other firms and the public infrastructure in order to carry out their main function within the national innovation system of creating economic wealth and development through innovation.

Consulting industry as knowledge intensive business service is a part of the national system. They are the interface between the public and the private segments of the national innovation system, intermediaries transferring knowledge between the knowledge producers and the knowledge users. Therefore they play an important role in bridging the public and the private part. Most dynamic business processes require a firm-specific blend of both explicit and tacit knowledge (Choi and Lee 2003). By distinguishing between explicit versus tacit knowledge and publicly available versus privately owned knowledge various categories of knowledge carriers (*i.e.* human embodied knowledge, disembodied knowledge and capital embodied knowledge) can be discerned. Consulting firms are relying heavily on professional knowledge and providing intermediate, often knowledge-based products and services, taking on the role of either advanced technology user, carrier of knowledge and technology or in some cases source of innovation.

Consultants that are specialized in one or a number of aspects of the innovation process and which are hired by innovating firms for advise are a clear example of consulting firms/services for innovation. Since no firm can develop alone all the knowledge required to innovate, it must establish a large network to access the stock of knowledge (Dalpé and Ippersiel 1999). Consulting firms are active in networking. The information is created from their own knowledge and combined with the knowledge and information gained from the client and from previous clients, universities and state laboratories and others with whom they have contact and make contact. Thus they enable the client to achieve a further innovative step and/or a higher level of

performance. Consulting firms, who constantly in touch with the university researchers about the outcomes of the latest research would eventually outperform the public infrastructure in the generation of knowledge.

Building on the national innovation systems perspective, the notion of distribution power focuses on the efficiency and efficacy various types of knowledge distribution and exchange between the various actors involved in processes of innovation. The transfer and absorptive capacity of these actors is as important as the pure knowledge creating capacity. More specifically, consulting firms are important intermediaries or knowledge diffusers and contribute to innovation processes taking place in their client firms. In other words: consulting firms are important bridging institutions linking knowledge producers and knowledge users. By distinguishing between various types of knowledge (codified versus tacit knowledge, publicly available versus privately owned knowledge) various categories of knowledge carriers (*i.e.* human embodied knowledge, disembodied knowledge and capital embodied knowledge) can be discerned. Consulting firms are relying heavily on professional knowledge and providing intermediate, often knowledge-based products and services, taking on the role of either advanced technology user, carrier of knowledge and technology or in some cases source of innovation.

### Consulting Firms in Innovation Process

Consulting firms are important intermediaries or knowledge diffusers and contribute to innovation processes taking place in their client firms. One important aspect for analyzing the contribution of consulting firms to innovation is their opportunity to learn from (analyzing) one firm and diffusing this knowledge to other customers. Another matter that needs attention during innovation process is the kind of customer firms that seek advice from the consulting firms. It can be expected that consulting firms play a different role in different industries. For example, engineering firms have played a pivotal role in the design of new chemical plants for many decades, while in other sectors the innovation process has been the almost exclusive arena of the firms themselves. For a proper analysis of the role of consulting firms in the innovation process it is important to make a distinction between two kinds of innovations *i.e.* Technological & Organizational.

Technological innovations can be defined as new products, new processes, new technologies or improvements of existing ones. Most R&D expenditure of firms is used to carry out projects to bring about

technological innovations. By introducing a new process or technology in the firm or by marketing a new product, some organizational adjustments are required in most cases. In that sense, technological innovations are often accompanied by organizational innovations. However, there exist many firms, which change their way of working, without creating technological innovations. For the purpose of this paper, organizational innovations are defined as projects aimed at changing or adjusting ways of working within the firm in order to add value to the customer, but without creating technological innovations simultaneously. Note that such organizational innovations will probably not be reflected in the R&D expenditure and innovation output measures used in innovation statistics.

The activities of technological problem solving can be viewed as the core of any technological innovation project in which the (non-linear) accumulation of knowledge is aimed at commercial application of the innovation. Models to manage this process use a number of gates or screens at which the accumulation, established so far, is evaluated. Typical activities are idea generation (analyzing the problem), project formulation, feasibility study, development of the prototype, prototype testing, pilot production and marketing of the new product. During all separate activities consulting firms may bring in specific technical expertise as well as management support. Examples of technical support are design of the product by an outside designer and the testing of a new drug by a hospital research group. An example of management support is the design of a project management tool for the innovating company. In most cases, management support encompasses the whole or large parts of the product development process, while technical support often is restricted to specific aspects or activities.

Consulting firms may also play an important role in one of the supportive activities: financing of the innovation project, protection of the intellectual properties created during the project, adapting the innovation to various kinds of government regulation (safety, healthcare, environment), acquiring (technological) knowledge from the environment, and enhancing the skills and knowledge level of the firm (education and training, hiring new personnel). In addition, consultants may play a role in managing the whole process of product development and supportive activities, including the co-ordination of the firm's innovation process with other firms' innovation processes and with research within the public infrastructure.

Today the organizational initiatives such as total quality management (TQM), business process re-engineering (BPR) and organizational

learning, are providing a new and urgent focus to sustain competitive position. Organizational innovations are concerned the consultants focuses on strategic assessments, people issues, program and intervention design, and leadership coaching and consulting. They work closely with clients' senior leadership to make their organizations more effective by designing and implementing management systems that align people and processes to achieve increased performance levels.

### Role of Consulting Industry in the New Knowledge Infrastructure

Dynamic role consulting firms play in changing research systems and knowledge infrastructures. A new knowledge infrastructure is in the making. It is characterized by (Hertog and Bilderbeek 1998):

1. A general blurring of boundaries between public and private realms with regards to processes of knowledge transfer;
2. A network of private and public institutions and agents generating knowledge and paying significant attention to "knowledge distribution";
3. Explicit attention to diffusing and applying knowledge, supporting clients in their knowledge management;
4. Explicit attention to outsourcing and internalizations of knowledge intensive service functions by clients;
5. Organizations and agents marketing their knowledge as knowledge intensive services;
6. Services that are better attuned to the generally interactive nature of innovation processes;
7. A broadening of the definition of knowledge (in addition to various kinds of formal knowledge, attention is also being paid to tacit knowledge and skills);
8. Services that are broad in scope, i.e. not limited to R&D and technology;
9. Service professionals actively exchanging knowledge and co-operating in networks.

It is in this context consulting firms will, in practice, gradually develop into an informal (private) 'second knowledge infrastructure' or knowledge base, partly complementing and partly competing with the more institutionalized formal (public) or 'first knowledge infrastructure.' This implies that this category of service firms functions as a diffusion agent or even as a source of innovation towards their clients. This view contrasts with the popular image of service firms as innovation followers. The traditional distinction between public and private knowledge-based (advisory) services

will gradually disappear. This could lead to a development in which not firms and institutions, but networked service professionals, irrespective of the organization to which they formally belong, will increasingly act as carriers and sources of knowledge. This process of blurring of boundaries will eventually result in a more flexible capacity of external knowledge professionals (consultants) cooperating with internal knowledge professionals in providing knowledge intensive business services. Consulting industry as an element of knowledge infrastructure play following key roles:

1. Consulting industry performs par excellence a catalyst role in knowledge-creating or innovation processes of client firms. Their role varies from adding innovative knowledge originating from the consulting industry itself (consulting industry as a source of innovation), originating innovative knowledge from another source to the client firm (consulting industry as carrier of innovation) or helping out a client in implementing new knowledge mostly developed in house (consulting industry as a facilitator of innovation).
2. Consulting industry does play an important role in the various knowledge conversion processes. It can even be concluded that consulting industry play a key role in transforming firms into learning organizations.
3. The types of knowledge interactions induced and triggered by consulting industry are not confined to the discrete/tangible, contractual, explicit/codified and non-human embodied forms of knowledge transfer. On the contrary, the functioning and role of consulting industry can only be understood if we include process-oriented/intangible, non-contractual, tacit and human embodied forms of knowledge.

Consulting firms and their clients have a sort of relationship which might be characterized as a symbiotic relationship. These firms or at least the professionals they employ - profit from the interaction with the client firms and the various types of knowledge flows generated during this process of interaction as much as the client firm does. The experience gained during a given project will be used as a basis for developing new service products and approaches and will make the involved professionals more valuable professionals towards future clients with similar problems. Consulting firms are by the nature of their activities in contact and co-operate with quite a number of client firms and their employees, constantly diffusing and absorbing knowledge, reprocessing it, diffusing it again, etc. Through their activities they act as bridging institutions in innovation systems (at

whatever scale) and contribute considerably to the 'knowledge distribution capacity' and learning capacity of innovation systems as a whole.

### Challenges for Indian Consulting Industry

Today, total quality management (TQM), supply chain management (SCM) and six sigma are the fastest growing segments of the global consultancy market. McKinsey, BCGs, PwCs and Accentures of the world have expanded their presence in India to grab larger share in growing market for consulting assignments (Momaya and Bardeja 2004). However, Indian consulting industry has not followed the lead of global consulting firms. The major characteristics of consulting industry in India are (Momaya and Bardeja 2004):

1. Mid market players constitute the bulk of the consultancy business' turnover
2. Low awareness levels among potential clients
3. Low visibility, poor image and limited capabilities in most firms
4. Most operate at the lower end of the value pyramid
5. Less availability of high quality human resources and high mobility
6. Bias towards foreign consultants
7. Low entry barriers to the profession

With rapid changing technology and intense global competition, Indian consulting industry now cannot afford not to understand their competition, nor can they afford not to understand the consulting practices of the world's best organisation practices. It is high time for Indian consulting industry to enhance competitiveness significantly to meet the rapidly changing needs of customers. They need more capital, consolidation and high quality human resources to take on global firms. Even though there are many such challenges, the main challenges for the consulting industry in India are as given below.

- The electronic marketplace is a global one. The electronic highway will give developing country businesses and entrepreneurs' access to new markets and new export opportunities. In this context, there is a need for consulting firms to play a major role in creating an ability to compete in these new markets. There is a need for consulting industry to develop strong links with university-based researchers for 'a constant interchange of ideas to gain access to academic knowledge sources so as to plug gaps' and to make use of the new technology and core innovation.



- Knowledge distribution is emerging as a new source of productivity. The consulting firms' role in this context should be something like a 'coach' to provide businesses with the best environment to create and distribute knowledge. The main challenge for the developing countries is that there is a need to create a strong and vibrant knowledge economy with high quality knowledge infrastructure as its foundation. It should be seen as both a challenge that has to be met and an opportunity that should be grasped.

## Conclusion

Knowledge may soon be the only source of competitive advantage for an organization. Knowledge has been identified as one of the most important resources that contribute to the competitive advantage of an organization.

Consulting industry play a key role in the development of knowledge infrastructure and it acts as a bridging institution in national innovation systems. Consulting firms play a key role in promoting knowledge transfer between organizations and in improving the ability of enterprises to identify and make use of knowledge generated elsewhere, often in fields which were previously beyond those enterprises' internal competences. Through their activities they contribute to improving the knowledge base and innovation activity of client firms.

There are many challenges in building new knowledge infrastructure. Consulting firms and their client firms in developing countries need technical competencies and social skills at increasingly higher levels in order to generate the specific know how and information required being competitive in a complex environment. A radical restructured consulting industry expanding in its scope are essential to provide the know how and skills to innovative firms.

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## III. Knowledge Infrastructure in Social Sector: Role of Consultants

by

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### Preamble

Traditionally, social sector in India had been limited to Non-Government Organizations (NGOs) and certain government organizations working in isolation. This situation has led to the situation where a huge informal economy emerged within social sector, adversely affecting the development of the sector. Private resources were very scant and came on the pretext of philanthropy rather than as a part of well thought out plan and strategy. Going by the labour market dynamics, professional and highly educated people migrate to corporate and other sectors for better opportunities and money. Hence the sector hardly could boast of the most critical resources of knowledge infrastructure – 'people with expertise'.

Where does the above situation leave the beneficiary group – supposed to be served by the NGOs and other agencies to become self reliant and able to participate in market economy. With the exception of few communities here and there, largely the money spent on social sector did not commensurate with the development level. Faulty delivery mechanism of the government nullified the development programmes and activities. The main reasons for this situation are as follows:

1. **Disjointed Planning:** The planning for most of the social sector programmes has been on the ad hoc and whimsical

basis. Any programmes/development plans, has largely been a result of the ideological or vested interests of ruling political parties. This has led to overlapping expenditures plans which had created confusion and corruption opportunities among the implementation agency i.e. bureaucracy.

- II. **Unreliable information:** Information is the most crucial resource in planning and decision making. Governments and other agencies ought to have crucial and reliable information on the number of beneficiaries, their concentration in particular areas, development plans by the local governments and administration etc. Planning done without reliable information/knowledge can create havoc with the plans as it gives too much of discretionary powers to local administration and vested interests.
- III. **Lack of Information and Expertise Networking:** India lacks a common platform of information and expertise which can be shared across the country. Most of the development plans and NGO initiatives are formulated from scratch with scant attention paid to the previous development plans and their impacts on the beneficiary groups. The main reason for this anomaly is the lack of information/knowledge sharing among the constituents of social sector viz Government agencies, Multilateral institutions, NGOs, Researchers, Professionals and consultants and Social scientists. The duplicating efforts and lack of co-ordination among these constituents often leads to sub optimal and unsustainable planning. Never mind that beneficiary group is the ultimate loser as all these constituents would be rewarded for their involvement under the pretext of agency costs.

### How Consultants does come into the 'Social Sector'

Over the last few years, as the growth in urban markets is tapering off, companies are reorienting their strategies towards the rural markets, which incidentally is the area where most of social sector programmes are directed. Companies want to tap huge underserved rural market and would operate even at lower margins considering the possibility of generating huge volumes. Recent developments in soft drink and detergent industry confirm the intention of companies to penetrate into rural markets to broad base their sales. Indian as well as Multi national companies are spending considerable amount to know more about the rural consumers – a crucial input in decision making for new product development and pricing strategy. Even beyond that rural economy is capturing substantial mindshare of big FMCG companies in their strategy formulation.

Flowing in private resources (corporate money) and that too without any inhibitions like “social work”, augur well in the context of building a knowledge infrastructure. Private resources attract the professional expertise and efficient processes of information collation. Both of the mentioned factors ensure building a solid knowledge infrastructure about the rural economy and consumers. It may seem trivial how the knowledge infrastructure through private resources would help in social sector.

The role of private resources would not be crucial so much in information per se but in creating a pool of professionals with expertise in rural markets. In turn, these professionals/consultants can be tapped by government agencies, NGOs, multilateral agencies etc for the planning and strategy role.

The knowledge infrastructure, so created, would provide crucial insights of changing living standards and new challenges before the communities in different regions. Reliable information that is specific to the communities would help the government and other agencies to offer customized development programmes. This would be certainly better than a blanket programme applicable to whole country without any attention paid to the ground realities. Besides, rather allocating a fixed sum for one programme, the funds for all programmes put together could be used for the fewer but most pressing concerns. For example if a village in Rajasthan has water shortage, it makes little sense to spend equal amount on water and power infrastructure. Probably the whole amount can be spent on water infrastructure as at least one and that too most urgent problem would be taken care.

### Private Initiative in Building Knowledge Infrastructure

ITC has initiated **e-choupal network** to help farmers in growing better farm products which in turn lower ITC's procurement cost of raw material. Farmers are benefiting by the better prices for their produce which is better in quality due to technical support from ITC and easy availability of information about market prices. One implicit fall out of this initiative is the availability of reliable information about the economic condition of farmers in far corners of the country, otherwise not available through government machinery.

HLL are targeting huge Bottom of Pyramid (BOP)<sup>1</sup> population by adopting direct distribution concept in rural market. Company is creating a network of independent individual entrepreneurs who are directly distributing the products of company. HLL imparts them a basic training in business functions, so that their effectiveness in

handling their business and clients. Company is also planning to empower its proposed 1.5 million individual entrepreneurs with IT systems so that they can collate authentic information about their clients and manage the business better. Think of this private initiative in building knowledge on rural economy and its role in developing professionals with the expertise in social sector.

Besides it some individuals have also used innovative ways to merge social and professional objectives. An individual from Maharashtra has collected and seek donation of used computers and donates them to a village. The villagers learn the computer skills and use it for the information purposes. Besides it, the demographic data of respective village is also maintained on the computer. The individual charges the fee from consumer products companies for using the data. The initiative has turned into a business proposition over the years and that too for the good of society.

### Knowledge Infrastructure in Social Sector

Knowledge infrastructure in social sector envisages the linkages and information sharing between various agencies, individuals, professionals and consultants. Knowledge infrastructure in literal terms means the authentic information database of beneficiaries of social development programmes, research findings of agencies and professionals, database of best practices in social sector and most importantly the feedback on development programmes for social sector.

The stakeholders of knowledge infrastructure are beneficiaries, government and multilateral agencies, professionals and consultants, companies, NGOs, researchers and social scientists. The onus of creating and maintaining the knowledge infrastructure dawn upon these stakeholders. Researchers, social scientists and NGOs would work as knowledge creator with the support of companies and government and multilateral agencies. Professionals and consultants can play a big role in disseminating the knowledge far and wide to create a huge and positive leverage.

### Role of Consultants

Consultants interact with the all the parties concerned and have a holistic view of the situation. Their work involve understanding the perspective of all parties concerned and then put forward the most logical and feasible solution. Consultants can disseminate the knowledge acquired from one assignment to the next (except for the propriety knowledge). They can save a lot of duplicating efforts on the part of funding agencies and NGOs. They can facilitate the

knowledge flow between various stakeholders by following means:

1. Consultancy organizations can play a big role in getting various stakeholders (NGOs, beneficiaries, government & multilateral agencies, Researchers & Social scientists, companies & individuals) at a single platform. Such initiatives help in understanding each other better. Consultants are in the best position to hold these kinds of interactions as they are accepted 'outsiders' to offer solutions.
2. Consultants from a specific social sector (Education, Health care etc.) can share the publicly available information through a network. Many a times, even the publicly available information is not easily available due to geographical constraint or attitude problems with government departments. Hence it is very important that the association of professionals and consultants maintain the common publicly available data.
3. Big consultancy firms can institute in-house research initiatives to attract the clients from a particular sector. The quality research would create propriety knowledge and then it can be disseminated among the clients.
4. Consultants can play a big role in channelizing the information collected by the private parties, for the government sponsored programmes. But here one thing should be remembered that consultants must be in a coordinator role.
5. Consultants can subscribe to the membership of Consultancy Associations and social organizations in their respective sectors. Active professional associations can have big leverage of knowledge among the participants and provide a platform to publicize the quality work and new knowledge. While social organizations provides the insights into practical problems in adapting to new knowledge, which is crucial for the testing the validity of knowledge and ideas.

Let us understand that consultants' role as a knowledge/information disseminator would be most effective when they are being recognized by all the concerned parties for their quality of work and integrity. To be able to share the knowledge, consultants must command respect from their respective clients. This would increase their clout, which they can leverage for the social good.

### The Bottom Line – Benefits to the Beneficiaries

How the maintenance of knowledge infrastructure does benefit the most important constituent in social sector? For the answer we

have to go back to the beginning of paper where we have listed three reasons for the failures of development programmes in social sectors. The knowledge infrastructure can effectively address the problems of unreliable information and information & expertise networking.

Though it can not directly address the issue of disjointed planning as political and ideological interests tend to supersede the obvious and authentic information. But a knowledge infrastructure comprising authentic information would definitely work as the pressure point on the policy makers. As the knowledge and information infrastructure in social sector gains prominence, governments will have no option but to use them as starting point in decision making.

For beneficiaries and disadvantaged groups, better planning and implementation will bring in greater share of benefits. Sharing of best practices and other knowledge by consultants would definitely bring down agency costs as the duplicating efforts can be avoided at the planning stage.

## IV. International Recognition of Professional Engineers

by

*Prof. M. K. Khanijo, Sr. Consultant, Engineering Council of India*

### 1. Preamble

An attempt is being made at the international level to evolve a system of governing international trade in an orderly manner. After numerous rounds of discussions, a General Agreement on Tariffs and Trade was reached at Uruguay in 1993<sup>1</sup>. Realizing the growing importance of trade in services for the growth and development of world economy, a General Agreement on Trade in Services (GATS) was also reached in the Uruguay Round<sup>2</sup>. For administering the agreements, World Trade Organisation (WTO) was set up as the secretariat on 1<sup>st</sup> January 1995. India is a member of WTO and, as such, looks forward to increasing its participation in international trade in commodities and services under the WTO regime.

Engineering profession is directly concerned with international trade in some of the services. Engineers are, therefore, affected by GATS in the provision of such services<sup>3</sup>. One of the Articles of GATS deals with recognition of competence of service suppliers. It stipulates that education or experience obtained, requirements met, or licenses or certifications granted in a particular country, may be recognized in another country based

on an agreement or it may be accorded autonomously. It also suggests in Article VII.5 thus:

“Wherever appropriate, recognition should be based on multilaterally agreed criteria. In appropriate cases, Members shall work in cooperation with relevant intergovernmental and non-governmental organizations towards the establishment and adoption of common international standards and criteria for recognition and common international standards for the practice of relevant services, trade and professions.”

### 2. Criteria for Recognition

GATS refers to the criteria for recognition in terms of education, experience, and licenses or certification. Therefore, the international standards laid down for recognition would be such as to ensure that an individual:

- possesses an educational qualification which, in terms of contents and quality of learning, is acceptable;
- has acquired experience, in terms of length and technical quality, that would be adequate for the development of expertise for the supply of relevant service; and
- has met the requirements for licensing or certification conforming to international standards.

#### 2.1 Educational qualification

The objective of an educational programme is to impart a predefined profile and level of knowledge and skills. The quality of the programme is assured by achieving specified standards in the processes of education. Recognition of the programme will be based on the parameters that define the process of education.

Recognition of educational qualification will depend normally on:

- the design of the educational programme, i.e. structure and syllabi,
- delivery of the programme as evidenced by infrastructure, teachers, duration, support systems, etc., and
- assessment system, viz. examinations.

So long as an individual has successfully completed the programme and acquired the qualification, he derives recognition from the assessment of the programme. In other words, the

recognition will be programme-specific. If the programme is conducted regularly, the programme-specific recognition can be valid for some time and it may be revalidated at specified intervals. This is done by accreditation agencies. If the agency has established its standards and credibility, then its accreditation will be acceptable and accredited programmes can be recognized.

## 2.2 Experience

Experience is seen as an input to the development of expertise of the individual so as to equip him for taking technical decisions of a certain level of complexity and responsibility. Its assessment will be based on the length of experience, level of responsibility in the tasks handled, and complexity of technical tasks undertaken.

By its very nature, experience is individual-specific and, therefore, its assessment shall have to be made for each prospective service supplier. If such assessments are made at the time of supply of services, they will be time consuming and adversely affect the supply of services. For institutionalising the assessment of experience, many countries have developed a licensing or certification system.

## 2.3 Licensing or Certification

A certification system is designed to certify the professional expertise of individuals in accordance with an accepted set of criteria. Normally, it would comprise of acceptance of educational qualification and experience.

For professionals, the educational attainment required is normally a degree or an equivalent qualification. Experience in some professions is limited to training which could even be a part of the degree requirement, while in some other cases, it may be relatively longer working period of a few years.

In situation where experience of a certain number of years is required, its assessment can be made by looking at the details of work done, conducting an examination, or by holding an interview. A certification agency may utilise one or more of the above avenues.

Certification may be a one-time procedure or, alternatively, it may involve some scrutiny at the time of periodic renewals. If certification is mandatory for practice of the profession, it is

often known as licensing.

## 3. Emergence of Mutual Recognition Arrangements

As a follow-up of GATS, a few initiatives have been taken to evolve Mutual Recognition Arrangements (MRAs) for recognizing the professional expertise of engineers. The earliest such measures are the Washington Accord (WA) and Engineers Mobility Forum (EMF). Recently, the Asia Pacific Economic Cooperation members have created APEC Engineer<sup>4</sup>, which follows the EMF pattern. Agreements are also being planned for the recognition of technologists under the Sydney Accord and of technicians under the Dublin Accord.

A Note on Washington Accord (WA) is appended at Annexure – I. WA deals with the recognition of accredited engineering degrees. It admits accreditation agencies as signatories and degrees accredited by its signatories are recognised in all the countries that are represented in WA<sup>5</sup>. Thus, the role of WA is restricted to the recognition of educational qualifications in engineering. Recognition of professional engineers is a further step requiring acceptance of expertise which includes experience and further development as well. To cater to this need, EMF was formed with a view to recognize the International Register of Professional Engineers maintained by its members.

## 4. Engineers Mobility Forum (EMF)

### 4.1 Genesis of EMF

EMF emanated from WA which was signed in 1989. Signatories of WA considered the issue of recognition of experienced engineers. Representatives of engineering profession in each country of the signatories of WA, together with observers from European Federation of National Engineering Association, met in March 1996. Observers from the Japan Consulting Engineers joined the move in January 1997.

Participants in the meetings agreed:

- that the processes, policies and procedures for granting recognition to experienced engineers in their countries were prima facie comparable and justified further examination;
- on the broad principles of a framework which could be helpful in making progress towards removing artificial



barriers to the free movement and practice of professional engineers among their countries;

- on the principles and outline processes by which equivalence in competence of experienced engineers could be established;
- that the recognition arrangements would be fully effective if the controlling body in each country accepted their validity; and
- that the value of the proposed framework would depend upon the extent to which the participants were successful in building confidence within their own constituencies.

Signatories to WA, in their meeting held in October 1997, welcomed the progress made and encouraged the relevant organisations to establish an independent forum for developing the proposed strategies further. As a result, representatives from these organisations met on 29 October 1997 and agreed to establish a forum known as the Engineers Mobility Forum. At a subsequent meeting held in London in July 1998, the draft of an Agreement to establish and maintain an EMF International Register of Professional Engineers was approved as a basis for consultation within the respective constituencies. The Agreement was later revised in 1999 to permit a wider range of organisations to become members of EMF, and the revised agreement was signed in 2001 following ratification by all participant organisations.

The Agreement along with the initial Memorandum of Understanding were brought together in the form of a Constitution<sup>6</sup> which was approved in June 2003.

## 4.2 Objectives

The members of the EMF as the representatives of the relevant engineering organisations in their respective countries or territories will:

- (1) develop, monitor, maintain and promote mutually acceptable standards and criteria for facilitating the international mobility of experienced professional engineers;
- (2) seek to gain a greater understanding of the existing barriers to mobility and to develop and promote strategies to help governments and licensing authorities manage those barriers in an effective and non-discriminatory manner;
- (3) encourage the relevant governments and licensing

authorities to adopt and implement mutual mobility procedures consistent with the standards and practices recommended by the signatories to such agreements as may be established by and through the EMF;

- (4) identify, and encourage implementation of, best practice for the preparation and assessment of engineers intending to practice at the professional level;
- (5) continue mutual monitoring and information exchange by whatever means are considered most appropriate, including:
  - (a) regular communication and sharing of information concerning assessment procedures, criteria, systems, manuals, publications and lists of recognised practitioners;
  - (b) invitations to observe the operation of the procedures of other participants; and
  - (c) invitations to observe meetings of any boards and/or commissions responsible for implementing key aspects of these procedures, and relevant meetings of the governing bodies of the participants.
- (6) establish a decentralised International Register of Professional Engineers which would provide a readily accessible framework for recognition by the responsible bodies of the substantial equivalence in the competence of experienced professional engineers from the participating economies."

## 4.3 Membership

Meetings of EMF are attended by four types of members as given below:

- i) Full Members
 

They are organisations that maintain registers of those professionally qualified engineers who have been assessed as eligible for independent practice in their own economy, whose academic attainment is substantially equivalent to that of a graduate holding an engineering degree accredited by an organisation that is a member of WA, and who have been granted interim or full authorization to maintain a section of the International Register.
- ii) Provisional Members
 

They are organisations that are in the process of developing registers of professionally qualified engineers in their own

economies, and they intend to apply for full membership of the EMF. Provisional membership does not imply that any part of the organisation's register meets the requirements for full membership.

iii) Observers

They are representatives of other organisations that have identity of interest with the EMF in the mutual recognition of professional engineers.

iv) Visitors

They are organisations interested in the work of EMF and they have permission to attend one meeting.

#### 4.4 Admission of Provisional and Full Member

An applicant organisation for provisional membership must be nominated by two Full Members in writing, and will be accepted only on being voted in favour by at least two-thirds of Full Members at a General Meeting of the EMF.

For transfer of a Provisional Member to Full Member, the organisation concerned should:

- obtain interim authorisation to develop and maintain a section of the International Register in accordance with the Assessment Statement setting out the procedures and criteria proposed by the applicant;
- get a favourable vote of at least two thirds of the Full Members voting at a General Meeting of the International Register Coordination Committee, following a comprehensive examination of the proposed procedures and criteria.

Organisations already represented on the EMF by or through an existing Full Member or Provisional Member are not entitled to apply to be a Provisional Member.

#### 5. International Register Coordinating Committee

The International Register Coordinating Committee has the responsibility of ensuring consistency in the application of agreed criteria. This Coordinating Committee is the ultimate authority for entering persons on the International Register. It will facilitate the creation and operation of an authoritative International Register of Professional Engineers, and promote acceptance by the bodies responsible for licensing or certification in each economy represented by a Full Member.

For achieving its objective, the Coordinating Committee will :

- “(a) ensure that the registration procedures and criteria adopted by each Full Member organisation as set out in their Assessment Statement are subject to a review and report at intervals of not more than six years;
- (b) establish a schedule for the implementation of such reviews and reports and select review teams from persons nominated by the Full Member organisations, taking all reasonable steps to ensure that none of the individuals selected through this process has had any substantial prior involvement in or commitment to the registration system being reviewed;
- (c) support work being undertaken by Full Members and Provisional Members to develop objective mechanisms that will allow all Full Members and Provisional Members to determine with confidence that any proposed alternative criteria meet the benchmarks specified in this Constitution;
- (d) continue mutual monitoring and information exchange by whatever means are considered most appropriate, including regular communication and sharing of information concerning assessment procedures, criteria, systems, manuals, and publications; and
- (e) facilitate the exchange of information on proven cases of unethical or incompetent practice by registered engineers, and the universal imposition of any sanctions imposed on such persons by the Full Member organisation responsible for the section of the Register upon which their names appear.”

The Coordinating Committee comprises of :

- the Chair of the EMF,
- the Secretariat of the EMF,
- one voting representative from each authorized Monitoring Committee,
- one voting representative from each Monitoring Committee holding interim authorization, and
- one non-voting representative from each Provisional Member.

It may be stated here that the Chair and the Secretariat will be rotating; they will be from amongst the Full Members; and they will normally come from different Full Member organisations.

Monitoring Committees will be set up by Full Members for their own economies to develop and maintain their respective sections of the International Register.

## 6. Criteria for Entry to International Register

EMF has laid down criteria for entry to the International Register. Only those practitioners will be granted entry who can demonstrate that they have:

- “(1) reached an overall level of academic achievement at the point of entry to the register in question which is substantially equivalent to that of a graduate holding an engineering degree accredited by an organisation holding full membership of, and acting in accordance with the terms of the Washington Accord; and
- (2) been assessed within their own economy as eligible for independent practice; and
- (3) gained a minimum of seven years practical experience since graduation; and
- (4) spent at least two years in responsible charge of significant engineering work; and
- (5) maintained their continuing professional development at a satisfactory level.”

EMF may consider competency based assessment as an alternative to time-specification in the eligibility criteria as the former grows in effectiveness.

In addition, applicants must agree to be :

- bound by the codes of conduct established and enforced by their respective economies, and
- held individually accountable for their actions.

The requirement of post-degree experience and further professional development is supported by the fact that “a number of stakeholders now promote the idea of an education requirement beyond a Bachelor’s degree, suggesting a professional-school approach similar to the professions of law, medicine, pharmacy, and others. Under most professional-school proposals, an engineer would receive additional technical training as well as practice/business training in order to meet the demands of the 21<sup>st</sup> century.”<sup>7</sup> It has accordingly been argued that for engaging in practice, “engineers will have to work for some time till they reach a stage when they can undertake certification work.”<sup>8</sup>

## 7. Members of EMF

A list of members of EMF, as on June 2003, is given below indicating the date of entry in parenthesis against each.

### Full Members

- i) The Canadian Council of Professional Engineers (October 1997)
- ii) The Engineering Council of South Africa (October 1997)
- iii) The Engineering Council, United Kingdom (October 1997)
- iv) The Hong Kong Institution of Engineers (October 1997)
- v) The Institution of Engineers, Australia (October 1997)
- vi) The Institution of Engineers of Ireland (October 1997)
- vii) The Institution of Professional Engineers, New Zealand (October 1997)
- viii) The United States Council for International Engineering Practice (October 1997)
- ix) The Institution of Professional Engineers, Japan (November 1999)
- x) The Institution of Engineers, Malaysia (November 1999)
- xi) The Korean Professional Engineers Association (June 2000)

### Provisional Members

- i) The Bangladesh Professional Engineers Registration Board (June 2003)
- ii) The Institution of Engineers (India) (June 2003)

### Observers

- i) The Federation of European National Engineering Associations (October 1997)
- ii) The APEC Engineer Coordinating Committee (June 2000)

## 8. Concluding Remarks

Engineering profession needs to evolve a system for ensuring quality and accountability with public health, safety and welfare as guiding principles.<sup>9</sup> This objective can be achieved through the installation of a registration system which incorporates continuing professional development and a commitment to a code of ethics.<sup>10</sup> In view of increasing globalisation of trade and services, the registration system has to be made compatible with internationally accepted standards.<sup>11</sup> A formal recognition

of professional engineers registered in India can be obtained by seeking membership of relevant Mutual Recognition Arrangements such as the Engineers Mobility Forum.

As indicated in the preceding section, India became a Provisional Member of EMF in June 2003. The membership is in the name of the Institution of Engineers (India). As per an agreement signed by the Institution of Engineers (India) and the Engineering Council of India, the membership will pass over to the latter as soon as it gets due authorisation.

India has not been able to get the membership of the Washington Accord so far. The application of the National Board of Accreditation of the All India Council for Technical Education came up in the meeting of WA held in June 2003, but membership was not granted on that occasion.

For serving the interests of Indian engineers by way of getting them recognition as professional engineers at the international level, it is imperative that :

- membership of the Washington Accord is secured at the earliest so that the criterion relating to educational qualification laid down by EMF is met straightaway by degree programmes accredited by the national agency that becomes a member of WA;
- the registering organisation for professional engineers in India follows the criteria of eligibility for registration that are compatible with EMF;
- a system of assessment of continuing professional development acceptable to EMF is developed;
- the Coordination Committee is approached to examine the proposed procedures and criteria, and following the same, interim authorisation obtained to develop and maintain a section of the International Register; and
- registration of professional engineers for entry in the International Register is commenced under the aegis of a Monitoring Committee.

It should also be understood that in the absence of a clear interpretation of the right to practise for engineers registered on the International Register of Professional Engineers, such registration does not guarantee that these engineers would be automatically permitted to practise in other countries. The position can be known only when the respective governments

clarify their stand on the question of licensure wherever applicable. It is, however, likely that registered engineers would be more readily accepted than someone who is not registered on the International Register of Professional Engineers.

Licensing process is under a statute while the registration process for the International Register is ordinarily not so. Even in his own country having statutory licensing, an engineer registered on the International Register of Professional Engineers may not automatically have the right to practise unless the registration and licensing processes are integrated. It would, therefore, be desirable to integrate the two processes so as to streamline their operation within the country.

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## A Note on Washington Accord

### 1. Objective

WA enables the signatories to recognise the substantial equivalence of engineering academic programmes in satisfying the academic requirements for the practice of engineering at the professional level.

### 2. Application of the Accord

The Accord applies to :

- accreditations conducted by the signatories within their respective national or territorial boundaries;
- undergraduate engineering programmes only; technology programmes are covered by a different agreement, namely, the Sydney Accord;
- programmes normally accredited from the date on which the new signatory was originally admitted to provisional status;
- the academic component which forms a part of the licensing or registration of professional engineers.

### 3. Agreement

The signatories agree that, amongst others,

- the criteria, policies and procedures used by the signatories in accrediting engineering programmes are comparable; and
- the accreditation decisions rendered by one signatory are accepted to the other signatories.

### 4. Members

Washington Accord (WA) is a multilateral agreement signed in 1989 by accrediting bodies of six countries. Organisations of two other countries joined the Accord later. Current signatories of the Accord are listed below:

S.No.	Country	Signatory Organisation	Entry Year
1.	Australia	Institution of Engineers, Australia	1989
2.	Canada	Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers	1989
3.	Hong Kong	Hong Kong Institution of Engineers	1995
4.	Ireland	Institution of Engineers of Ireland	1989
5.	New Zealand	Institution of Professional Engineers, New Zealand	1989
6.	South Africa	Engineering Council of South Africa	1999
7.	United Kingdom	Engineering Council	1989
8.	United States	Accreditation Board for Engineering and Technology	1989



## WORKSHOPS/ SEMINARS/ TRAINING PROGRAMMES

### ■ ADB Seminar on "Development of Domestic Consulting Services" 12-13 July, 2004

A two-day seminar on the subject was organized by CDC in association with Asian Development Bank (ADB), Manila and EXIM Bank in New Delhi on 12<sup>th</sup> and 13<sup>th</sup> July, 2004. Dr. Uddesh Kohli, Chairman, CDC welcomed the participants and Mr. Ablab Akanda from ADB (INRM) gave opening remarks on 12<sup>th</sup> July, 2004. Mr. T.C. Venkat Subramanian, CMD, EXIM Bank also addressed the participants. 54 consultants attended the seminar.

Major topics covered during the technical sessions of the seminar were Guidelines on the use of consultants by ADB and its borrowers – Business Opportunities including Registration Procedures and the Project Cycle – Expression of Interest and the selection process – Letter Ms. Yang Dan from ADB, Manila was the speaker for the entire event, which was attended by 55 participants from various consulting organisations. The speaker had a one-on-one interview with each participant at the end of the seminar on 13<sup>th</sup> July, 2004.



### ■ ADB Seminar on "Development of Domestic Consulting Services" 15-16 July, 2004

A two-day seminar on the subject was organized by CDC in association with Asian Development Bank (ADB), Manila and EXIM Bank in Mumbai on 15<sup>th</sup> and 16<sup>th</sup> July, 2004. Mr. Somenath Ghosh, DG, CDC welcomed the participants and Ms. Yang Dan, Senior Consulting Services Specialist, ADB, Manila gave opening remarks on 15<sup>th</sup> July, 2004. Mr. T.C. Venkat Subramanian, CMD, EXIM Bank also addressed the participants. Ms. Yang Dan was the speaker for the entire event, which was attended by 55 participants from various consulting organisations. The speaker had a one-on-one interview with each participant at the end of the seminar on 16<sup>th</sup> July, 2004.

### ■ Training Programme on "Economy through New Construction Technologies and use of Alternative Materials" 23 July, 2004

CDC conducted the subject training programme for the benefit of

officials from the Council of Scientific & Industrial Research (CSIR) on 23<sup>rd</sup> July, 2004 in New Delhi. Mr. Somenath Ghosh, DG, CDC welcomed the participants while Mr. N.K. Verma, Chief Engineer, CSIR addressed the gathering and Mr. R.C. Kehar, Associate Director, ICT Pvt Ltd. gave course briefing during the event. Major topics covered during the programme were Indian Built Heritage and introduction to Construction Material – Slip Form Construction for Tall RCC Structures – Pre-fabricated Construction – Building Materials – High Volume Fly Ash Technology – Concrete Construction etc.

Mr. P. Begde, General Manager, Mr. Deepak Narayan, Consultant and Dr. S.S. Seehra, Associate Director from ICT Pvt Ltd., Mr. Pugazhenthay, Executive Director, Indian Lead Zinc Development Association, Mr. Suresh Goel, Suresh Goel & Associates, Mr. P. Srinivasan, ACC were the speakers for the event.

The Training was a grand success with the participation of 21 CSIR officials.

### ■ Training Programme on "Maintenance and Management of Assets for Achieving Cost Effective Operations" 24 July, 2004

This is another programme conducted by CDC again for the benefit of CSIR officials on 24<sup>th</sup> July, 2004 in New Delhi. Mr. R.C. Kehar, Associate Director, ICT Pvt. Ltd. welcomed the participants and gave course briefing to the participants.

Major topics covered during the training programme were Damness Prevention in (1) Roof (2) Toilets (3) Basement – New Materials for Water Proofing/ Painting etc – Public Works Maintenance Management System – Role of Design in Minimizing Maintenance – Economizing Maintenance Cost through Improved Design and Life Cycle Costs – Survey and Assessment of the Physical Conditions of the Asset – Methodology of Retrofitting and Rehabilitation – Integrated Building Maintenance Services.

Mr. Jag Mohan Lal, Retd. ADG, CPWD, Mr. Deepak Narayan and Mr. V.K. Gautama, Consultants from ICT Pvt Ltd. were the speakers for the event.

The Training was a grand success with the participation of 24 CSIR officials.

■ **Implementation Programme on “ISO 9001:2000 QMS and ISO 14000 EMS” for MES Professionals**  
3 – 5 August, 2004

A three-day Programme on “Implementation of ISO 9001:2000 QMS and ISO 14000 EMS” was conducted by CDC during 3 – 5 August, 2004 in New Delhi especially for the benefit of professionals from Military Engineer Services (MES). Maj.Gen. M.C. Rawat AVSM (Retd) and Mr. Jagmohan were the faculty for the programme, which was attended by 9 professionals from various zones of MES.

Topics covered during the programme were Overview of Quality and Environment Management Systems – Elements of ISO 9001:2000 and ISO 14000 – System Documentation - Initial Environment Review (IER) – Group Exercise on IER – Prioritising and Selection of Aspects/ Impacts – Objectives, Targets & Environment Management Programme – Methodology and Audit.

■ **Workshop on “Computer-Aided Project Management Techniques”**  
9 September, 2004

CDC conducted the subject workshop for the benefit of the officers from Defence Research Development Organisation (DRDO) on 9<sup>th</sup> September, 2004 at the office of CCE (R&D) North, DRDO, New Delhi. The workshop was a grand success with 20 participants from DRDO.

■ **Workshop on “Economy through New Construction Technologies and use of Alternative Materials”**  
10 September, 2004

This workshop was also organized by CDC especially for the officers of DRDO on 10 September, 2004 in DRDO, New Delhi. This workshop was attended by 18 participants.

■ **Seminar on “India – an Emerging Global Source for Consultancy Services”**  
11 September, 2004

CDC organized a Seminar on “India an Emerging Global Source for

Consultancy Services” on September 11, 2004 at Y.B. Chavan, Nariman Point, Mumbai. The seminar focussed on “Case Studies of Successful Indian Consultancy Assignments in Export Markets”. Key speakers for the seminar were Mr. R. Rajappa, CEO, Global Procurement Consultants Ltd., Mr. D.P. Misra, Dy M.D., Jacob H & G, and Mr. A.M. Alam, MD, Agricultural Finance Corporation Ltd. There was no delegate fee for participation in the Seminar.

■ **International Business Orientation Program for the Consultants and Management professionals**  
22-24 September, 2004

The developments of recent years have caused a paradigm shift in the way we look at the businesses, public policy and international economic relations. These developments, especially the pace at which they are occurring, requires a continuous ability to learn and unlearn on the part of those who operate and function in an international setting. The real challenge is to keep pace with the world that seems to be moving at too fast a pace.

With this backdrop, CDC organized the subject programme in New Delhi on 22-24 September 2004 for the benefit of the consulting community and also business executives. This program addressed the long felt requirement of the consultants and management professionals for a training program that encompassed all the essential elements and contemporary issues of international business. This program also helped the executives who already had a formal qualification in international business as a refresher course to update their knowledge and awareness level. CDC, with the help of a leading academician and professional, took a lead in designing the program that attempts to deliver a complete package of international business education in a short duration of time. The topics and issues covered in the program have been cherry picked keeping in mind the requirements of today’s business executives and consultants. 12 delegates attended the programme.

## TALK SERIES

- CDC organized a talk on “*Vaastu / Feng – Shui (A source of bliss) – Facts Consultants must know*” on 6<sup>th</sup> August, 2004 at CDC. On this occasion, Pt. Gopal Sharma, President, Institute of Vaastu & Joyful Living delivered a talk. 35 members of CDC attended the talk.
- CDC organized a talk on “*Appropriate Environment Technologies for India*” on 31<sup>st</sup> August, 2004 in CDC. On this occasion, Dr. Bikram Lamba, CMD, Tormacon Ltd delivered a talk. 25 members of CDC attended the talk.
- CDC conducted an experience sharing talk on “*1500 MW Nathpa Jhakri Hydro Electric Project (HP)*” by Er. Vijay Chopra, General Manager, Designs and Consultancy, Satluj Jal Vidyut Nigam Limited (SJVNL), Shimla. This talk was conducted on 28<sup>th</sup> September, 2004 in CDC Conference Room, New Delhi.

## TCDPAP International Conference on Development of Knowledge Infrastructure : Role of Consultants 11-13 October, 2004

The subject Conference is being organised by CDC, the Secretariat for Technical Consultancy Development Programme for Asia and the Pacific (TCDPAP) with active cooperation from UN-ESCAP, APCTT & DSIR in India Habitat Centre, Lodhi Road, New Delhi.

The TCDPAP International Conference on “Development of Knowledge Infrastructure : Role of Consultants” brings together the leading thinkers and practitioners from across the world to address the issue and give pointers for the road ahead. The meeting of the Fourth General Council and the Fifth Executive Committee of TCDPAP will also be held during the Conference.

H.E. Dr. A.P.J. Abdul Kalam, President of India has kindly consented to be the Chief Guest for the Conference. During the conference National Awards for Excellent Consultancy Services and Best Student Awards for MS Programme in Consultancy Management will also be presented by the Chief Guest.

## Internal Auditors’ Programme on ISO 9001: 2000 QMS 8-9 November, 2004

CDC is conducting a two-day Internal Auditors’ Programme on Quality Management System leading to ISO 9001 : 2000 on 8-9 November, 2004 in CDC Conference Room, New Delhi for the benefit of MES professionals, consultants and other service sector organisations. The Programme aims to enable the participants to plan and execute Internal Quality Audits so as to verify the effectiveness of the quality system in their respective organisations and also to generate interest among participants to improve quality management system through ISO 9000 approach.

The programme will cover - Recap of Clauses of ISO 9001; Introduction to Auditing Quality System - Planning & Conduct; Preparing Auditor’s Check Lists; Internal Audit Report and follow-up action; Non Conformity Reports – Formats and methodology of raising; Workshops and Exercises including auditing live documents in an ISO Certified service sector organisation.

CDC would charge **Rs.2500** per participants as delegate fee for attending the programme. However, a **discount of 10%** on the fee is admissible for all CDC members and multiple nominations from same organisation.

Interested individuals/ organisations may please be in touch with Mr. *S.K. Sharma*, Deputy Director, CDC  
(or) Mr. *J. Suriyanarayanan* over 011-24603425 or through [sksharma@cdc.org.in](mailto:sksharma@cdc.org.in) (or) [surya@cdc.org.in](mailto:surya@cdc.org.in).

## CONSULTANCY BUSINESS OPPORTUNITIES – AN e-NEWSLETTER OF CDC

CDC is forwarding tender information on consulting assignments by way of e-Newsletter titled “Consultancy Business Opportunities” (CBO) to its members. Contents of these emails are being stored in CDC website, which are accessible through individual username and password provided to all CDC members already. Please note that this username and password are different from the one we have issued for updating members profile on our website. Those who have not received username and password may approach us through [cbo@cdc.org.in](mailto:cbo@cdc.org.in)

All CDC members are therefore, requested to kindly update their email address on our website, whenever they change the same, in order to enable us forward them email alerts regularly. Members’ email addresses are downloaded on monthly basis afresh and used for forwarding CBO.

For details, logon to our website : <http://www.cdc.org.in>

### NEW ARRIVALS IN CDC LIBRARY

1. *Managing Technology for Corporate Success* by Chris Floyd, Gower Publications, Vermont USA
2. *Managing Technological Innovation : competitive advantage from change* by Frederick Betz, Wiley Series in Engineering and Technology Management
3. *Managing Technology and Innovation for Competitive advantage* by V.K. Narayanan, Pearson Education
4. *Technology Management OC thematic packages for discerning managers* by InfuseInc.
5. *Design, Monitoring and Evaluation of Technical Cooperation programmes and projects: a training manual* by International Labour Organisation
6. *Management of Technology and Innovation : competing through technological excellence* by P.N. Rastogi, Sage Publications
7. *Technology Policies and Planning in India : country study series by Asian and Pacific Centre for Transfer of Technology (APCTT)*
8. *A Guide to Technology Information Services* by W.A. Clemente II Editor, APCTT
9. *Services : Technology Vision 2020* by TIFAC, SDT
10. *Engineering Industries : Technology Vision 2020*
11. *World Resources* by World Resource Institute
12. *Exim Policy, Ministry of Commerce & Industry, Govt. of India Income Tax Guidelines and Mini Ready Reckoner.*

### BOOK REVIEW

#### *Managing Technology for Corporate Success by Chris Floyd, Gower Publications*

Technology is fundamental to every product-based business in reducing costs, differentiating products, providing new opportunities and driving strategic change. Yet many companies fail to understand the value of technology management in providing sustained growth and competitiveness. This book sets out to remedy this and answer the key questions which continually confront top management: how to decide which technologies to invest in and how to manage and exploit them for maximum commercial benefit; how much to invest in R&D and how to measure whether it delivers the goods; how to shape management roles, corporate structure and culture to fit technology strategy; and how to gain both employee and shareholder commitment.

This book explores these and other key issues in an accessible, non-technical way, providing a best-practice grounding in technology management. It offers practical and realistic guidelines on a variety of scenarios companies may experience and demonstrates the values and pitfalls of different approaches, quoting many real examples from well-known companies.

Issues the book mainly discusses are, why technology matters, technology and corporate involvement, assessing technology position, developing technology strategies, planning for the longer term, buying and selling the technology, structuring the technology activities and technology and shareholders value etc.

**About the Author:** Dr. Chris Floyd is European Director of Arthur D Little, the international management and technology consulting firm.

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## “CONSULTANCY VISION” - Readers Speak about.....

- This Newsletter is extremely informative and well presented.  
- *J.K. Rupainwar, Asstt Vice President, Unit Trust of India*
- Case Studies of the role of consultancy in international and national technology transfer would be useful  
- *Dr. G. Thyagarajan, Former Director, CLRI, Chennai*
- This is more or less a Newsletter close to technology not advertisements. After college you can not get this kind of technical know-how in your regular work.  
- *Ashok Menghani, Hensel India Pvt. Ltd., New Delhi*
- I found “Consultancy Vision” very useful, informative and inspiring. This material will be very useful and serve as a guide for our training programmes and project planning.  
- *Dr. K.M. Ramanujam, Chairman, Ramanujam Foundation for Agriculture and Human Potential Development, Chennai*
- I congratulate CDC for successfully publishing this intellectual type of magazine. This is very useful for us as it consists of various topics, articles related to latest information having its own intensive values.  
- *Y.P.S. Tomar, Secretary General, Global Need Foundation, Delhi*

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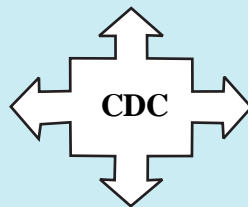
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Birla Institute of Technology (BITS), Pilani in collaboration with Consultancy Development Centre (CDC), offers working professionals a unique opportunity to attain higher degree in **M.S Consultancy Management**. This four semester degree caters to the requirements of consulting professionals and aims to help them tap the immense market potential in consulting business.

The programme is designed for **working professionals** in business and organisations who:

- Provide consulting services to a client organisation on a contract or project basis.
- Are individual entrepreneurial consultants
- Aspire to work as internal consultants

The programme will be conducted at New Delhi by **BITS, Pilani** in collaboration with **CDC**. Regular contact classes will be held every Saturday and Sunday at CDC premises (located at **India Habitat Center, New Delhi**), which has excellent library and computer facilities. Some contact classes may also be conducted at BITS, Pilani.

All candidates will be enrolled as students of BITS and successful students will be awarded the **M.S (Consultancy Management)** degree.

### **ELIGIBILITY**

Working professionals located in and around **Delhi**, having an Integrated First Degree of BITS or its equivalent like BE, MSc, MBA, MCA, MCom, CA etc. Candidates sponsored by their organisations will be given preference.

For more information, please contact:

*Programme Coordinator*

### **Consultancy Development Centre**

India Habitat Centre, Zone-IV, East Court, 2nd Floor,  
Lodhi Road, New Delhi-110003;  
Tel.: 011-24602915, 24602601, 24601533  
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CDC is an organization supported by Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. This degree is being offered Under the off-Campus Collaborative Programmes of BITS.





## CDC FACILITATES FOR ISO 9001: 2000 QMS CERTIFICATION

Consolidating its strengths over the years, Consultancy Development Centre (CDC) is facilitating organizations in the services sector desirous of obtaining ISO certification. CDC provides the following specialized services :

- In-house training on Awareness-cum-Implementation, Documentation and Internal Audit. Status Audit to identify documentation needs for the Quality System to be developed and documented.
- Assistance and guidance in system development and documentation
- Assistance in conducting Internal Audits and Management Review.
- Conduct of external/mock audit to give the Management a status report on the readiness of the organization for certification audit.
- Advice for selection of suitable certification agency and assistance in finalizing action on audit observations and non-conformity reports.

CDC is one of the very few organizations empanelled by Ministry of SSI & Agro-Rural Industry, Govt. of India for providing ISO 9000 Consultancy.

Some our clients are –

1. M/s National Building Construction Corporation Limited (NBCC), Consultancy and Project Management Divisions
2. M/s Gammon India Ltd., Mumbai including all their Regional Offices, Regional Workshops and all their Project Sites all over the country.
3. M/s Singhania & Partners (Solicitors & Advocates)
4. M/s Intercontinental Consultants and Technocrats Pvt Ltd., New Delhi
5. M/s Central Road Research Institute (CRRRI), New Delhi
6. M/s International Print-O-Pac Limited, New Delhi (A leading Packaging and Printing Company)
7. M/s National Institute for Training of Highway Engineers (NITHE), New Delhi
8. M/s U. P. Industrial Consultants Ltd., Kanpur
9. M/s U.P. State Bridge Corporation, Lucknow, Uttar Pradesh
10. Delhi Development Authority (DDA) (Palam Drainage Project)
11. All India Management Association (AIMA), New Delhi
12. Indian Institute of Petroleum, Dehradun
13. Institute of Himalayan Bio-resource Technology, Palampur
14. Municipal Corporation of Delhi (Moti Nagar Fly over Project)
15. Regional Research Laboratory, Trivandrum
16. National Environmental Engineering Research Institute (NEERI), Nagpur
17. Bangladesh Consultants Limited, Dhaka, Bangladesh
18. Central Building Research Institute, Roorkee

*For further details, please contact Mr. S.K. Sharma, Deputy Director, CDC  
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